Host Change -Tropism Pattern of Human Coronaviruses Suggesting the Engineered Nature of Severe Acute Respiratory Syndrome Coronavirus 2

Murat Seyran
Independent Researcher, email: muratseyran@gmail.com

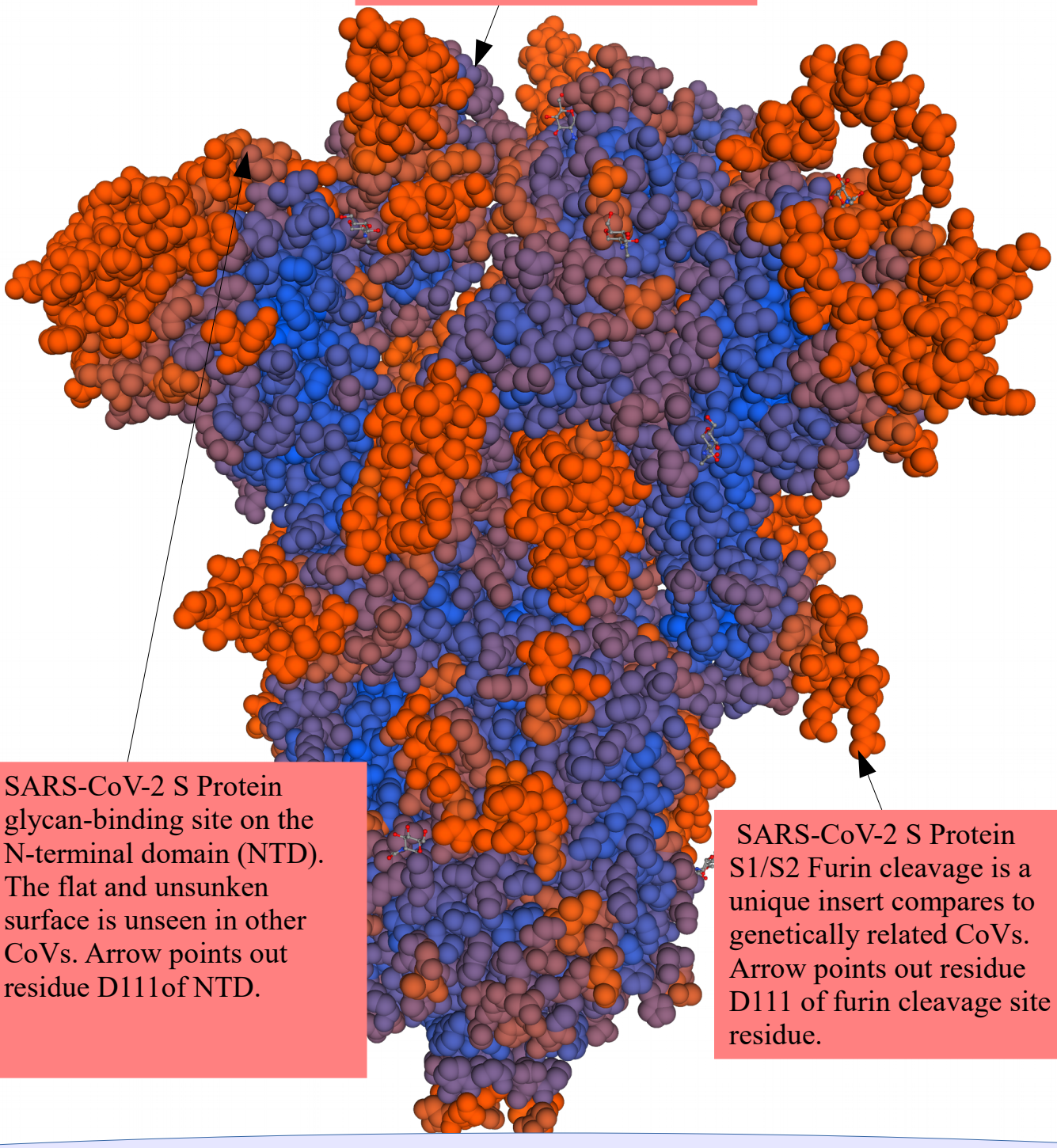
Abstract

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is the seventh and the unique human CoV with pandemic potential. The host tropism and infection pattern of SARS-CoV-2 have 3 fundamental differences compared to the previous six human pathogenic CoVs, i.e. HCoV-229E, HCoV-OC43, SARS-CoV, HCoV-HKU1, HCoV-NL63, and MERS-CoV. N-terminal domain (NTD) of CoVs Spike (S) Protein contains a specific glycan-binding region as the first contact area with the new host. Specific glycan-binding immune receptors e.g. C-type lectins recognize NTD of S Protein of CoV and exterminate the virus before its adaptation. According to Canyon Hypothesis CoVs sunk this glycan-binding domain beneath the surface of S Protein to evade host immune system e.g. MERS-CoV glycan-binding domain 280 Å2 under its S Protein surface or HCoV-229E deleted its glycan-binding NTD during its host tropism. Strikingly, SARS-CoV-2 does not have a single amino acid (aa.) alteration or deletion on its glycan-binding region NTD of its S Protein compares to its parent virus BatCoV RaTG13. The flat and unsunken surface of SARS-CoV-2 NTD S Protein conflicting with the general adaptation and survival pattern of all CoVs. Secondly, based on the template-switching model, CoVs pause their replication on certain domains and have recombinations on these specific sites. SARS-CoV-2 and BatCoV RaTG13 are both betacoronavirus lineage B and their genomes are almost identical except 4 aa. inserts between the S1/S2 enables the virus to cleavage by host cell furin protease. However, other betacoronavirus lineage B members and the clinical strains of SARS-CoV-2 do not have any alterations on S Protein S1/S2 suggesting SARS-CoV-2 obtained this trait with a one-time unique event. Thirdly, after host adaptation CoVs improve their host cell interaction with certain aa. substitutions on their receptor binding domain (RBD) that considered as positive selection site. SARS-CoV-2 had 22 aa. substitutions on S Protein RBD compare to BatCoV RaTG13. However, despite millions of SARS-CoV-2 infections, RBD has not indicated a single high-frequency aa. substitution suggesting the too-perfect angiotensin-converting enzyme 2 (ACE2) binding that was gained with a one-time alteration. Unlike the RBDs of other CoVs, SARS-CoV-2 RBD is not a positive selection site. In summary, i) flat and unaltered

NTD, ii) conserved RBD, and iii) unique S1/S2 insert of S Protein of SARS-CoV-2 suggesting its engineered nature. Engineering of CoVs is not a speculation since 18 research projects to develop genetically modify CoVs as pandemic potential pathogens paused by United States Government Moratorium in 2014.

Keywords: Severe Acute Respiratory Syndrome Coronavirus 2 , Genetically Engineered, novel pathogens with pandemic potential PPP, Canyon Hyphothesis, Template-switching model

SARS-CoV-2, S Protein receptor-binding domain (RBD) is not a high-frequency positive selection site unlike other CoVs. Arrow points out residue Q498 of RBD.



SARS-CoV-2 S Protein glycan-binding site on the N-terminal domain (NTD). The flat and unsunken surface is unseen in other CoVs. Arrow points out residue D111of NTD.

SARS-CoV-2 S Protein S1/S2 Furin cleavage is a unique insert compares to genetically related CoVs. Arrow points out residue D111 of furin cleavage site residue.

Structural model of SARS-CoV-2 S Protein

1. Introduction to Human Pathogenic CoVs

The global pandemic of Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is ongoing with the confirmed cases inclined from 6,065 on 29 January 2020 to 1,391,890 on 8 April 2020 (Steffens 2020). Coronaviruses (CoVs) first described in 1969 based on their pleomorphic, circular, 80-160 nanometer in diameter shape with 15-nanometer club-shaped projections (so-called spike proteins) that resembles a crown (corona in Latin) (Bradburne 1969). SARS-CoV-2 is the seventh but the first and only CoV with pandemic potential (Forni 2017)(Steffens 2020). Several projects aimed to genetically engineer Middle East respiratory syndrome (MERS-CoV) and Severe acute respiratory syndrome coronavirus (SARS-CoV) mutant strains to develop vaccines on as a preemptive measure for the possible future pandemics (Lipsitch 2014)(Inglesby 2016). In 2014, 18 of these pathogens with pandemic potential (PPP) CoV projects paused by U.S. Government Moratorium (Inglesby 2016). The reason was the potential risk of PPP viruses escape from laboratories due to a 0.2% chance of a laboratory-acquired infection per BSL3 laboratory in one year. (Inglesby 2016). Therefore, genetic engineering of CoVs with pandemic potential is not a speculation, and SARS-CoV-2 could be a PPP virus with laboratory origin. To investigate the PPP origin of SARS-CoV-2 we must understand how the previous six CoVs naturally adapted to humans. The first human pathogenic coronavirus HCoV-229E detected in 1962 at the Chicago that was possibly originated from African Sundevall's roundleaf bat CoVs, around 200 years ago via zootonic transmission from the alpaca (Hamre 1966)(Corman 2015)(Forni 2017)(De Sabato 2019). The second human pathogenic CoV HCoV-OC43 detected in 1964 at Maryland that was possibly originated from Norway Rats CoVs, around 120 years ago via zootonic transmission from the cow (McIntosh 1967)(Forni 2017)(Lau 2015). The third human pathogenic CoV SARS-CoV detected in 2002 in Foshan, China that was possibly originated from Chinese horseshoe bat CoV, 35 to 20 years ago via zootonic transmission from the civet (de Wit 2016)(Forni 2017)(Hu 2015)(Ge 2013). The fourth human pathogenic CoV HCoV-HKU1 detected in 2002 in Hong Kong that was possibly originated from Norway Rat CoV, 70 years ago via zootonic transmission from the rodent (Forni 2017)(Woo 2005)(Lau 2015). The fifth human pathogenic CoV HCoV-NL63 was first isolated in 1988 and identified in 2004 at the Rotterdam Netherlands that was possibly originated from African trident bat CoV, 563 to 822 years ago via unknown zootonic transmission agent (Fouchier 2004) (Forni 2017)(De Sabato 2019). The sixth human pathogenic CoV MERS-CoV detected in 2012 in the Kingdom of Saudi Arabia (KSA) that was possibly originated from South African Bat CoV, around 14 years ago via zootonic transmission from the camel (Forni 2017)(Hu 2015)(Ithete 2013).

The seventh human pathogenic CoVs SARS-CoV-2 detected in 2019 in Wuhan, China that was possibly originated from Intermediate horseshoe bat CoV around 11 years ago via zootonic transmission from the pangolins (Patiño-Galindo 2020)(Zhou 2020)(Ren 2020).

2. Pathogenicity of CoVs

The low-pathogenic and endemic HCoV-229E, HCoV-NL63, and HCoV-OC43, and HCoV-HKU1 could be detected in 42% of the patients with acute cough or acute lower respiratory tract infection (Zlateva 2015). The high-pathogenic and epidemic SARS-CoV and MERS-CoV cause severe symptoms such as pneumonia, and renal failure (de Wit 2016). SARS-CoV spread to 27 countries in 2002-2003 with 8,096 cases and 774 deaths up to 10% fatality rate but disappeared in 2004 (de Wit 2016). The MERS-CoV found to be less human-to-human transmissible compare to the SARS-CoV cases were detected in KSA, Jordan, United Kingdom, and South Korea since 2012 (de Wit 2016). MERS-CoV epidemics is ongoing with 2494 cases, and 858 deaths (fatality rate 34.4%) as in November 2019 (Tai 2019). SARS-CoV-2 has a lower fatality rate (2–3%) compare to MERS-CoV (34.4%) and SARS-CoV (10%) despite its pandemic potential (de Wit 2016)(Tai 2019) (Steffens 2020).

3. Function of the Human CoV S Protein

The most important section of CoVs during its host tropism or introduction to a new host is its S Protein. CoVs have trimeric S protein with S1 and S2 subunits, that S1 subunit divide into N-terminal domain (NTD) and C-terminal domain (CTD) (Ou 2020). The first interaction of CoVs with their new host cells is through S Protein NTD that contains carbohydrate-binding ("lectin") region (Chen 2013)(Bakkers 2017). CoVs S protein NTD conducts weak and reversible interaction low-affinity hydrogen bonds with surface glycans e.g. sialic acid, heparan sulfate proteoglycans (HSPGs), and C-type lectin receptors (CLRs) to scan their cell entry receptors (Hulswit 2016) (Ruben 2020). However, CLRs could detect this glycan based surface motion and trigger an immune response (Bermejo-Jambrina 2018). Strikingly, some of the viruses could utilize CLRs endocytosis for cell entry and infection (Bermejo-Jambrina 2018). After roaming the cell surface CoVs detect and bind to entry receptors e.g. angiotensin-converting enzyme 2 (ACE2), dipeptidyl peptidase 4 (DPP4), aminopeptidase N (ANPEP) with S Protein RBD located on S1 subunit CTD (Forni 2017)(Ou 2020). After entry receptor binding, CoVs utilize host cell surface trypsin- or subtilisin-like furin proteases cleave the S Protein S1/S1 domain (Yuan 2020)(Ou 2020).

3.1 Composition and Function of HCoV-229E S Protein

HcoV229E S protein i) NTD does not bind to sialic acid and HSPGs, ii) RBD binds to ANPEP iii) cleaved by type II transmembrane serine proteases (TMPRSS2) and trypsin-like protease (HAT) (Bertram 2013)(Furin 2017). HCoV-229E S Protein compares to its parent virus Bat CoV has 187 amino acid (aa.) deletion on NTD that aims to evade host immune receptors CLRs detecting glycan-binding viruses (Table 1)(Li 2019). Since HcoV229E S protein NTD does not have the glycan-binding capacity in the expense evading host immune system. During host tropism HCoV-229E had aa. 8 substitutions compare to its parent virus Bat CoV on its RBD which was predicted on the aa. residues 308–408 (Table 1)(Li 2019). Based on the Clustal W analysis based on 29 HCoV-229E strains, S Protein RBD indicated 36 aa. substitutions suggesting the positive selection site of RBD and attempts of low-pathogenicity virus for adaptation (Chibo 2006)(Table 1)(Supplementary material 1).

3.2. Composition and Function of HCoV-OC43 S Protein

HCoV-OC43 S protein i) NTD binds to sialic acids especially 9-O-acetylated sialic acid ii) CTD does not have a RBD function (Bertram 2013)(Furin 2017)(Ruben 2020). However, HCoV-OC43 S Protein utilizes virus surface protein hemagglutinin-esterase receptor-destroying enzyme for virus entry (Huang 2015). HCoV-OC43 S Protein NTD was was predicted on the aa. residues residues 15-302 (Ruben 2019). HCoV-OC43 S Protein compares to its parent virus Rat CoV has 122 aa. substitutions and 10 aa. inserts on NTD that aim to evade host immune receptors CLRs detect glycan-binding viruses (Table 2). Since HCoV-OC43 sialic acid-binding NTD is a positive selection site and aa. substitutions on the residues of 33, 90, 93, 120, 184, and 195 associated with higher pathogenic genotypes B and C (Lau 2011)(Ren 2015).Based on the Clustal W analysis of 46 HCoV-OC43 strains indicated 63 aa. substitutions on the NTD for the ongoing adaptation (Table 2) (Supplementary material 2).

3.3. Composition and Function of Human SARS-CoV S Protein

SARS-CoV S protein i) NTD does not bind to sialic acids but binds HSPGs, CLRs and immune system cell surface receptor Mannose-binding lectin ii) RBD binds to ACE2 and CLRs CD209L as cell entry receptors (Steffens 2004)(Gramberg 2005)(Han 2007)(Zhou 2010)(Lang 2011)(Furin 2017).

SARS-CoV S Protein NTD and RBD were predicted on the aa. residues 18-292 and 318-513, respectively (Yuan 2020). During host tropism, SARS-CoV S Protein compares to its parent virus Bat CoV had 61 aa. substitutions on its NTD suggesting the effort of the virus to evade glycan-

binding host immune receptors (Table 3). However, SARS-CoV S Protein compares to its parent virus Bat CoV had only 8 aa. substitutions on its RBD that suggesting its weak and limited adaptation to its ACE2 receptor (Table 3). This is important to note that betacoronavirus lineage B member SARS-CoV host tropism pattern mechanism is compatible with other CoVs and opposite with the betacoronavirus lineage B member SARS-CoV-2 that perfectly adapted to ACE2 receptor with a one-time event. Another important aspect that the SARS-CoV does not have deletions and inserts on its S Protein during host tropism (Table 3).

During its limited infection period between 2002-2004, SARS-CoV, S protein RBD mutations K479N and S487T mediated host change from the civet to human and human-to-human transmission, respectively(Li 2015). These two mutations contributed significantly to the SARS-CoV epidemic in 2002 to 2003 (Li 2015). SARS-CoV is genetically the most related CoVs to the SARS-CoV-2 had a completely different pattern of mutations through its infection. During the epidemics, SARS-CoV initially, had low-pathogenicity strains with aa. substitutions on residues of S Protein NTD 147, 228, 240 and RBD 479 and S2 821, and 1080 (Kan 2005). However, SARS-CoV further had high-pathogenicity strains with aa. substitutions on residues of S Protein RBD 360, 462, 472, 480, 487, S1 Subunit 609, 613, 665, and S2 subunit 743, 765, and 1163 (Kan 2005). The SARS-CoV global epidemic strains emerged with the aa. substitutions on residues of S Protein NTD 227, 244 RBD 344, and S2 subunit 778 (Kan 2005). Therefore, SARS-CoV had many adaptation mutations on its S Protein NTD and RBD during its limited number of infections. Based on the Clustal W analysis of 17 SARS-CoV isolates indicated 12 aa. substitutions on the RBD providing the positive selection site nature of the RBD and failed adaptation attempts of the extinct virus (Table 3)(Supplementary material 3).

3.4. Composition and Function of HCoV-HKU1 S Protein

HCoV-HKU1 S protein i) NTD binds to sialic acids ii) CTD does not have an RBD function (Bertram 2013)(Furin 2017)(Ruben 2020). However, HCoV-HKU1 could bind to host cell surface protein sialate-9-O-acetylesterase and S Protein utilizes virus surface protein hemagglutinin-esterase receptor-destroying enzyme for virus entry (Huang 2015). HCoV-HKU1 S protein could interact and mediate infection using the HLA-C class I receptor (Chan 2009). HCoV-HKU1 S Protein NTD was predicted on the aa. residues 14-288 (Ruben 2019). HCoV-HKU1 S Protein compares to its parent virus Rat CoV has 116 aa. substitutions, 8 aa. deletions, and 6 aa insert on NTD that aim to evade host immune receptors CLRs detect glycan-binding viruses (Table 4). In 22 strains HCoV-HKU1 collected March 2003 to February 2005 had numerous recombinations and

substitutions on RNA-dependent RNA polymerase (RdRp), S Protein, and nucleocapsid (N) genes e.g. S protein gene of the isolate N18 (GenBank DQ415914) had 2 recombination insert and numerous substitutions compare to genotype B strain (GenBank AY884001.1) (Woo 2006). HCoV-HKU1 14 isolates from HCoV-HKU1 indicated S1 NTD aa. substitutions (W197F), S1 CTD (F613Y), and S1 domain (S752F), which is close to putative serine protease S1/S2 cleavage site (RRKRR at residues 756–760) suggested influencing antigenic, cell binding capacity and membrane fusion capacities, respectively (Dominguez 2014). Based on the Clustal W analysis of 39 HCoV-HKU1 strains indicated 51 aa. substitutions on the NTD for the ongoing adaptation addition to numerous substitutions on the rest of the S Protein (Table 4)(Supplementary material 4).

3.5. Composition and Function of HCoV-NL63 S Protein

HCoV-NL63 S S protein i) NTD does not bind to sialic acids ii) CTD RBD binds ACE2 for cell entry (Furin 2017). HCoV-NL63 suggested not to have functional sialic acid-binding NTD that aims to evade host immune receptors CLRs detect glycan-binding viruses and its RBD was predicted on the aa. residues 481 - 616 (Table 5)(Mou 2013). During host tropism, HCoV-NL63 S Protein compares to its parent virus Rat CoV had a massive amount of aa. substitutions on its RBD only 34 of 135 aa. residues remained the same (Table 5). However, more pathogenic strains of HCoV-NL63 has an aa. substitution I507 L on the RBD (Wang 2020). Based on the Clustal W analysis of 39 HCoV-NL63 indicated 4 aa. substitutions on the RBD, however, the virus had more variation on non-functional NTD compare to the rest of the genome (Table 5)(Supplementary material 5).

3.6. Composition and Function of MERS-CoV S Protein

MERS-CoV S protein i) NTD binds to sialic acids ii) RBD binds DPP4 and iii) cleaved by furin and TMPRSS2 for cell entry (Park 2019)(Kleine-Weber 2019) (Zmora 2018)(Zhang 2020). Additionally, MERS-CoV found to be interacting with the membrane-associated 78-kDa glucose-regulated protein (GRP78) and carcinoembryonic antigen-related cell adhesion molecule 5 (CEACAM5) without cell entry activity (Hin Chu 2018)(Chan 2016).

MERS-CoV S Protein NTD and RBD were predicted on the aa. residues 18-350 and 381-588, respectively (Yuan 2020). During host tropism, MERS-CoV S Protein NTD and RBD compares to its parent virus Bat CoV had a massive amount of aa. substitutions and several inserts (Table 6). MERS-CoV S protein NTD binding burry sialic acid molecules (e.g. α2,6-linked sialic acid and 5-N-acetyl neuraminic acid) 280 Å2 inside the protein via hydrogen bonds (Park 2019). The sunken nature of the MERS-CoV S protein glycan-binding NTD is possibly due to its heavy modifications during the host change (Figure 6). Additionally, MERS-CoV S Protein mutations on S1(R652),

linker (K854, M939), S2 Heptad Repeat 1 (Q1020R/H) S2 domains (V1060, T1202I, Q1208H), linker (S1114, S1148, I1180) Heptad Repeat 2 (A1275) suggested for effective for host tropism (Forni 2015). In MERS-CoV S Protein S2 region Heptad Repeat domain alterations increased pathogenicity since the S2 domain is responsible for virus entry into the host cells (Cotten 2014). MERS-CoV strains S Protein NTD had several aa substitutions (Cotten 2014)(Park 2019). However, aa. substitutions H91Y, S133N/R, and Q304K were detected only in South Korean, England-KSA, and United Arab Emirates isolates, respectively (Park 2019). MERS-CoV strains in South Korea gained resistance to antibodies and blood serum infusion with aa substitutions at the S protein RBD residues D510G and I529T (Kleine-Weber 2019). Based on the Clustal W analysis of 34 MERS-CoV strains indicated 11 aa. substitutions on the RBD and 10 aa substitutions on NTD for the ongoing adaptation (Table 6)(Supplementary material 6).

3.7. Composition and Function of Human SARS-CoV-2 S Protein

SARS-CoV-2 S protein i) NTD binds sialic acids and possibly HSPGs ii) RBD binds ACE2 and iii) cleaved by furin TMPRSS2 for cell entry (Hoffmann 2020)(Bestle 2020)(Fantini 2020)(Mycroft-West 2020). SARS-CoV-2 host tropism pattern is significantly different compare to genetically related CoV betacoronavirus lineage B member SARS-CoV. The SARS-CoV-2 S Protein NTD aa. composition rich with aromatic, basic, and Gly, Pro and/or Ser residues has a high chemical affinity to sialic acids (Fantini 2020). Additionally, SARS-CoV-2 S Protein flat surface NTD improves the sialic acid-binding capacity which is sunken inside the NTD of S Protein or even sacrificed in many viruses to evade host cell immunity (Rossmann 1989)(Hulswit 2016)(Fantini 2020).

SARS-CoV-2 S Protein NTD binds to sialic acids localized on ganglioside GM1 rich lipid rafts while RBD binds adjacent ACE2 receptor which improves cell surface interaction with dual-binding (Fantini 2020). Based on the studies on MERS-CoV addition to the cell surface attachment the sialic acid-binding capacity was more important due to its capacity to facilitate cell-cell membrane fusion and virus spread within the infected tissues to the adjacent cells (Qing 2020). Therefore the smooth surface of the SARS-CoV-2 NTD sialic acid-binding domain not only assisting the surface attachment but also intercellular transmission to adjacent uninfected cells after the cell entry (Qing 2020).

Another critical feature of SARS-CoV-2 S protein is the putative furin cleavage site (PRRARSV) between the S1/S2 subunits similar to MERS-CoV putative furin cleavage site (PRSVRSV) since they are the only Human pathogenic CoVs with furin cleavage sites (Zhang 2020). However, SARS-CoV-2 S Protein can be cleaved by trypsin and TMPRSS2(Ou 2020)(Hoffmann 2020). Since

both TMPRSS2 and furin are essential for SARS-CoV-2 S Protein cleavage (Bestle 2020). ACE-2 receptor present on cell surfaces of the several organs e.g. oral, nasal, and intestinal mucosa, alveolar epithelial cells in lung, stomach, skin, lymph nodes, thymus, bone marrow, spleen liver, kidney, brain, arterial, venous endothelial cells, and arterial smooth muscle however furin is highly expressed in lungs, therefore, SARS-CoV-2 utilize respiratory tract cells more effectively compare to other CoVs (Coutarda 2020) (Steffens 2004).

SARS-CoV-2 S Protein NTD and RBD were predicted on the aa. residues 111–158 and 319-541, respectively (Fantini 2020)(Shang 2020). During host tropism, SARS-CoV S Protein NTD had 61 aa. substitutions compare to its parent virus Bat CoV S Protein NTD, conversely, SARS-CoV-2 S Protein NTD had no alterations on its sialic-acid binding NTD compares to its parent virus Bat CoV S Protein NTD(Tables 3 and 7). The most critical NTD residues in sialic acid binding are D111, Q134, F135, N137, R158 and S161 (Fantini 2020). Since SARS-CoV-2 NTD sialic acid-binding domain found to be conserved with RaTG13 and has not shown any aa. substitutions in 11 isolated with different geographical origins (Fantini 2020). Additionally, SARS-CoV S Protein RBD had 8 aa. substitutions compares to its parent virus Bat CoV S Protein RBD, conversely SARS-CoV-2 S Protein RBD had 22 aa. substitutions compare to its parent virus Bat CoV S Protein RBD (Tables 3 and 7). Another important aspect that the SARS-CoV did not have any deletions and inserts on its S Protein during the host tropism, conversely the SARS-CoV-2 had a precise 12 nucleic acid insert that enables the virus to be cleaved by host cell surface protease furin. Based on the database of China National Center for Bioinformation, 2019 Novel Coronavirus Resource (2019nCoVR) at the Mutation Analysis of the S protein in SARS-COV-2 subsection is listing 329 aa. substitutions on S protein, which 39 of them on RBD. However, these mutations have very low frequency and none of the RBD mutations are on the direct ACE2 interaction residues on critical residues K417, G446, Y449 L455 F486 N487 Y489 Q493 Q498 T500 N501 G502 Y505 (Shang 2020). The only S Protein mutation with high frequency is D614G which is also only seen in Europe and North America (Pachetti 2020). Based on the Clustal W analysis of 92 SARS-COV-2 strains indicated 3 low-frequency aa. substitutions (Supplementary material 7). The first strain of the SARS-COV-2 sequence is almost unaltered after millions of infections. This is clear that SARS-COV-2 S Protein does not have any positive selection site on its NTD and RBD. This is conflicting with the ongoing adaptation pattern of other human CoVs. Additionally, none of these clinical isolates have recombination on its S1/S2 cleavage site (Supplementary material 7).

4. S Protein Host Change Patterns In CoVs

The general host tropism pattern of the Coronaviruses has two major essential patterns i) S protein RBD alterations to surface recognition and ii) deletion on glycan-binding NTD (Hulswit 2016). This is important to stress that the Bat or Rodent CoVs subject tho most of these changes during the initial zoonotic transmit to the animal. Therefore, hypothetically engineered BatCoV RaTG13 strain possibly infected animals during its laboratory escape that lead to infection of the pangolin (Zhang 2020)(Andersen 2020). Thus, the detection of the SARS-CoV-2 initially in the pangolin (Andersen 2020) or any other animal does not change its unusual and possibly engineered host tropism pattern.

4.1. SARS-CoV-2 NTD Composition Conflicting with the "Canyon Hyphothesis"

The formation of canyons, depression zones, or cavities on the surfaces of the influenza virus, human rhinovirus, Mengo virus explained with "Canyon Hypothesis" by the Distinguished Professor Michael G. Rossmann (Rossmann 1989). CoVs S Protein glycan-binding domains originated from host human galectins (host lectins) to act as coreceptors were suggested to increase CoVs host range (Chen 2013)(Hulswit 2016). The CoVs S Protein NTD and human galectins have the same structural folds but different sugar-binding patterns (Chen 2013). Additionally, human galectins have open and easy reachable glycan-binding domain is sunken in CoVs (except SARS-CoV-2) to hide glycan-binding sites from the host immune system (Chen 2013). In CoVs (except SARS-CoV-2) S Protein NTD glycan-binding domain also called viral lectins has diverse sugar-binding modes with a common feature to hide their domains in cavities to limit the access of antibodies and immune cells (Peng 2011). This pattern of CoVs was considered as an evolutionary measure to limit host immune system recognition (Hulswit 2016). Besides the S Protein NTD glycan-binding region could be sacrificed to evade host immunity since its presence was considered less essential compared to RBD in some of the viruses (Hulswit 2016).

Based on the genomic analysis of six human CoVs with their parent bat or rodent CoVs indicate several deletions inserts and recombinations on their S Protein NTD to evade from host glycan-binding immune receptors, are compatible with the "Canyon Hypothesis". For example, MERS-CoV S Protein NTD protein sinking sialic acid molecule 280 Å2 inside the protein cavity (Park 2019). However, the unnatural flat pattern of SARS-CoV-2 S protein NTD is conflicting with the evolutionary host tropism strategy of not only the Human CoVs but also many different human pathogenic viruses (Rossmann 1989)(Peng 2011)(Chen 2013)(Hulswit 2016)(Fantini 2020).

4.2. SARS-CoV-2 Recombination Pattern is not Compatible with Template Switcing (Copy-Choice) Mechanism

The high rate of RNA recombinations in Coronaviruses was explained with the template-switching (copy-choice) mechanism (Makino 1986). Coronavirus RNA has discontinuous and nonprogressive replication in its host cells, and the replication pause at specific RNA sites to creates blocks of free RNA that could fuse into another set of Coronavirus replication leading the formation of different Recombinant Coronavirus Strains (Makino 1986). The pauses of the RNA replication of Coronaviruses could be the case of mixed infection with other Coronaviruses, other Viruses, and even the host RNA blocks (gene stealing from the host).

As mentioned above CoVs S Protein glycan-binding domain with the human galectin origin suggesting the active recombination site or RNA replication stops on NTD (Chen 2013)(Hulswit 2016). For example in Human CoV-HKU1 compare to genetically related HCoV-OC43 high rate of recombination in specific ORFs e.g. p65 to nsp10 suggesting the presence of several RNA replications stops in these domains (Woo 2005).

However, not only inserts but recombinations could occur with deletions in the CoVs. Both HCoV229E and genetically related Alpaca CoV has a major 185 to 404 deletion in the spike S1 region compare to genetically related BatCoV (Corman 2015). Strikingly, orf8 was deleted in HCoV-229E compare to related alpaca and parent bat virus suggesting the alpaca is the first interhost of the bat virus (Corman 2015).

In CoVs, without any selection pressure, random RNA-RNA recombination within the population amongst the different strains could happen at the certain regions named as hot spots (Banner 1991). SARS-CoV-2 S Protein S1/S2 site furin recognition motif does not exist in other 'lineage B' betacoronaviruses e.g. Pangolin-CoV or RaTG13 suggesting that S Protein S1/S2 is not a recombination hot spot or RNA stop based on template switching (copy-choice) model (Makino 1986)(Andersen 2020). However "future discoveries" of polybasic cleavage sites in related CoVs could weaken the engineered origin of the SARS-CoV-2 S Protein S1/S2 site furin recognition motif (Andersen 2020).

4.3. SARS-CoV-2 RBD is not High Frequency Positive Selection Site

The CoVs genomes have hot spots with a high frequency of a.a. substitutions also called positive selection sites that favor host tropism, antibody resistance, or immune evasion (Forni 2017). However, clinical SARS-CoV-2 isolates have only one single frequent mutation D614G on S Protein (Pachetti 2020). Thus based on the mutation rate and patterns in clinical isolates of SARS-

CoV-2 S Protein is not a hot spot unlike other human CoVs, SARS-CoV-2 and BatCoV RaTG13 RNA-dependent RNA polymerase (RdRp), S Protein and whole-genome homologies are 100 %, 97%, 96.2%, respectively (Zhang 2020). SARS-CoV-2 preserved its genome during the adaptation against the mutagenic immune system of Pangolin and/or Human cells and cellular alkylating agents (Barr 2010). Since the RBD of the SARS-CoV-2 had very intense modifications compare to SARS-CoV RBD but not having such modifications throughout the genome under the same mutagenic stress. This RBD site-specific targeted substitutions could be accomplished using several methods, e.g., Modified Microbial Nucleic Acid (Sequence from the method GenBank: FV537210.1), Artificial chromosome constructs containing nucleic acid sequences capable of directing the formation of a recombinant RNA-virus (Sequence 1 from Patent WO0139797 GenBank: AX154950.1), Recombinant feline coronavirus S proteins (Sequence 1 from patent US 6280974 GenBank: AR166169.1). Additionally, the method of PCR-generated insertions on SARS-CoV was documented several times (Becker 2008). The confirmation of this argument is that the clinical isolates with RBD mutations cannot compete with the engineered SARS-CoV-2 that was configured with the too-perfect ACE2 receptor binding interaction which is the reason of low-frequency.

Results and Discussion

SARS-CoV-2 is the seventh but the first CoVs with the pandemic potential. SARS-CoV-2 is genetically related to BatCoV RaTG13 (Zhang 2020). CoVs like as RaTG13 are infecting the gastrointestinal system of the bats since they have detected in feces and intestines of the bats (Drexler 2014). Bats cope against CoVs with a high amount of antibody accumulation (Drexler 2014). Approximately 83 Bat species are consumed at 33 different countries e.g. 13 species in New Guinea and 14 species in the Philippines (Mickleburgh 2009). Additionally, the higher risk of CoVs transmission to other animals and humans is not due to meat consumption but contamination of water sources since CoVs exist in bat excrements (Corman 2015). The number of bat species consumed in China is only 5 and it is likely an exotic food consumption unlike underdeveloped countries that bat bushmeat is a protein source (Mickleburgh 2009). Additionally, the risk of drinking water contamination in China is extremely low compare to underdeveloped countries where bats contaminate wells and pond humans rely on water such as KSA that MERS-CoV infected camels limited desert water sources contaminated by African Bats (Corman 2015). Therefore, the risk of novel CoVs infections in China is lower compare to underdeveloped countries or countries with scarce water sources.

The host tropism pattern of the previous six CoVs was profoundly evaluated to understand the genomic mechanism of naturally occurring CoVs. Additionally, the mutation patterns of the CoVs during their infections on human hosts were examined using genomic alignment. SARS-CoV-2 host tropism pattern has discrepancies compare to other CoVs. The SARS-CoV-2 S Protein NTD contains flat surface glycan-binding conflicts with the Canyon Hypothesis. Since most of the viruses either sacrifice or sink this critical domain to evade host immune responses. SARS-CoV-2 recombination pattern of the insert of furin cleavage site during host tropism is a unique and one-time event conflict with the genomic composition of genetically related CoVs and template switching (copy-choice) mechanism. SARS-CoV-2 genome is almost identical to the origin Bat CoV but it is only mutated on RBD another one-time event as well. The "too perfect" RBD does not have any high-frequency mutations in the clinical strains. The RBD of SARS-CoV-2, unlike other human pathogenic CoVs, is not a positive selection site.

The engineered origin of the SARS-CoV-2 was mainly rejected (Andersen 2020) the question is how SARS-CoV-2 survived the immunity of pangolins or humans during the very first interaction with its flat easy-target sialic acid-binding domain? SARS-CoV-2 indicate the low frequency of mutations on its RBD and how the virus obtained such effective RBD compositions without destroyed by pangolin or human immunity due to its easy target sialic acid-binding domain? Why only the RBD had mutations meanwhile the rest of the genome was almost unaltered? Betacoronavirus lineage B CoVs including SARS-CoV S Protein does not have a pattern of recombination on S1/S2 region how SARS-CoV-2 obtained that ability and how we do not see any further recombinations in the clinic SARS-CoV-2 strains? SARS-CoV-2 clinic strains do not have any high-frequency mutations on NTD and RBD how the virus obtained such perfect and precise host cell membrane interaction capacity, unlike SARS-CoV, perished due to its failed adaptation? Why we have not seen any pandemic caused by CoVs before? Why these pandemics did not emerge in places where people rely on water sources shared with bats or bats consumed as bushmeat? In summary, if SARS-CoV-2 is not an engineered Bat CoVs RaTG13, its unnatural host tropism pattern and pandemic potential compare to other human pathogenic CoVs raising those questions.

Genomic Sources and Online Tools

The CoV S protein amino acid sequences used in this study was obtained form The Nucleotide database of National Center for Biotechnology Information, U.S. National Library of Medicine 8600 Rockville Pike, Bethesda MD, 20894 USA https://www.ncbi.nlm.nih.gov/nucleotide/. The sequences were aligned using the online tool Multiple Sequence Alignment by CLUSTALW of

Bioinformatics Center, Institute for Chemical Research, Kyoto University, Uji, Kyoto 611-0011, Japan, https://www.genome.jp/tools-bin/clustalw. SARS-CoV-2 Wuhan December 2019 isolate (GenBank MT019529.1) S protein was modelled using online tool SWISS-MODEL of Protein Structure Bioinformatics Group c/o Prof. Torsten Schwede Swiss Institute of Bioinformatics Biozentrum, University of Basel Klingelbergstrasse 50/70 CH-4056 Basel / Switzerland, https://swissmodel.expasy.org/interactive/KqpmAW/models/.

Referenences

Andersen KG, Rambaut A, Lipkin WI, Holmes EC, Garry RF. The proximal origin of SARS-CoV-2. Nat Med. 2020;26(4):450-452.

Bakkers MJ, Lang Y, Feitsma LJ, et al. Betacoronavirus Adaptation to Humans Involved Progressive Loss of Hemagglutinin-Esterase Lectin Activity. Cell Host Microbe. 2017;21(3):356-366.

Banner LR, Lai MM. Random nature of coronavirus RNA recombination in the absence of selection pressure. Virology. 1991;185(1):441-445.

Becker MM, Graham RL, Donaldson EF, et al. Synthetic recombinant bat SARS-like coronavirus is infectious in cultured cells and in mice. Proc Natl Acad Sci U S A. 2008;105(50):19944-19949.

Bermejo-Jambrina M, Eder J, Helgers LC, et al. C-Type Lectin Receptors in Antiviral Immunity and Viral Escape. Front Immunol. 2018;9:590.

Bertram S, Dijkman R, Habjan M, et al. TMPRSS2 activates the human coronavirus 229E for cathepsin-independent host cell entry and is expressed in viral target cells in the respiratory epithelium. J Virol. 2013;87(11):6150-6160.

Bestle D, et al. TMPRSS2 and furin are both essential for proteolytic activation and spread of SARS2 CoV-2 in human airway epithelial cells and provide promising drug targets bioRxiv preprint doi: https://doi.org/10.1101/2020.04.15.042085

Bradburne AF, Tyrrell DA. The propagation of "coronaviruses" in tissue-culture. Arch Gesamte Virusforsch. 1969;28(2):133-150.

Chan CM, Lau SK, Woo PC, et al. Identification of major histocompatibility complex class I C molecule as an attachment factor that facilitates coronavirus HKU1 spike-mediated infection. J Virol. 2009;83(2):1026-1035.

Chan CM, Chu H, Wang Y, et al. Carcinoembryonic Antigen-Related Cell Adhesion Molecule 5 Is an Important Surface Attachment Factor That Facilitates Entry of Middle East Respiratory Syndrome Coronavirus. J Virol. 2016;90(20):9114-9127. Published 2016 Sep 29.

Chen L, Li F. Structural analysis of the evolutionary origins of influenza virus hemagglutinin and other viral lectins. J Virol. 2013;87(7):4118-4120.

Chibo D, Birch C. Analysis of human coronavirus 229E spike and nucleoprotein genes demonstrates genetic drift between chronologically distinct strains. J Gen Virol. 2006;87(Pt 5):1203-1208.

Chu H, Chan CM, Zhang X, et al. Middle East respiratory syndrome coronavirus and bat coronavirus HKU9 both can utilize GRP78 for attachment onto host cells. J Biol Chem. 2018;293(30):11709-11726.

Coutard B, Valle C, de Lamballerie X, Canard B, Seidah NG, Decroly E. The spike glycoprotein of the new coronavirus 2019-nCoV contains a furin-like cleavage site absent in CoV of the same clade. Antiviral Res. 2020;176:104742.

Corman VM, Baldwin HJ, Tateno AF, et al. Evidence for an Ancestral Association of Human Coronavirus 229E with Bats. J Virol. 2015;89(23):11858-11870.

Cotten M, Watson SJ, Zumla AI, et al. Spread, circulation, and evolution of the Middle East respiratory syndrome coronavirus. mBio. 2014;5(1):e01062-13. Published 2014 Feb 18.

Drexler JF, Corman VM, Drosten C. Ecology, evolution and classification of bat coronaviruses in the aftermath of SARS. Antiviral Res. 2014;101:45-56.

Dominguez SR, Shrivastava S, Berglund A, et al. Isolation, propagation, genome analysis and epidemiology of HKU1 betacoronaviruses. J Gen Virol. 2014;95(Pt 4):836-848.

Fantini J, Di Scala C, Chahinian H, Yahi N. Structural and molecular modelling studies reveal a new mechanism of action of chloroquine and hydroxychloroquine against SARS-CoV-2 infection . Int J Antimicrob Agents. 2020;105960.

Forni D, Filippi G, Cagliani R, et al. The heptad repeat region is a major selection target in MERS-CoV and related coronaviruses. Sci Rep. 2015;5:14480. Published 2015 Sep 25.

Forni D, Cagliani R, Clerici M, Sironi M. Molecular Evolution of Human Coronavirus Genomes. Trends Microbiol. 2017;25(1):35-48.

Fouchier RA, Hartwig NG, Bestebroer TM, Niemeyer B, de Jong JC, Simon JH, et al. A previously undescribed coronavirus associated with respiratory disease in humans. Proc Natl Acad Sci U S A. 2004;101(16):6212–6.

Ge XY, Li JL, Yang XL, et al. Isolation and characterization of a bat SARS-like coronavirus that uses the ACE2 receptor. Nature. 2013;503(7477):535-538.

Gramberg T, Hofmann H, Möller P, et al. LSECtin interacts with filovirus glycoproteins and the spike protein of SARS coronavirus. Virology. 2005;340(2):224-236.

Han DP, Lohani M, Cho MW. Specific asparagine-linked glycosylation sites are critical for DC-SIGN- and L-SIGN-mediated severe acute respiratory syndrome coronavirus entry. J Virol. 2007;81(21):12029-12039.

Hamre D, Procknow JJ. A new virus isolated from the human respiratory tract. Proc Soc Exp Biol Med. 1966;121(1):190-193.

Hoffmann M, Kleine-Weber H, Schroeder S, et al. SARS-CoV-2 Cell Entry Depends on ACE2 and TMPRSS2 and Is Blocked by a Clinically Proven Protease Inhibitor. Cell. 2020;181(2):271-280.e8.
Hu B, Ge X, Wang LF, Shi Z. Bat origin of human coronaviruses. Virol J. 2015;12:221. Published 2015 Dec 22.

Huang X, Dong W, Milewska A, et al. Human Coronavirus HKU1 Spike Protein Uses O-Acetylated Sialic Acid as an Attachment Receptor Determinant and Employs Hemagglutinin-Esterase Protein as a Receptor-Destroying Enzyme. J Virol. 2015;89(14):7202-7213.

Hulswit RJG, Lang Y, Bakkers MJG, et al. Human coronaviruses OC43 and HKU1 bind to 9-O-acetylated sialic acids via a conserved receptor-binding site in spike protein domain A. Proc Natl Acad Sci U S A. 2019;116(7):2681-2690.

Hulswit RJ, de Haan CA, Bosch BJ. Coronavirus Spike Protein and Tropism Changes. Adv Virus Res. 2016;96:29-57.

Inglesby TV, Relman DA. How likely is it that biological agents will be used deliberately to cause widespread harm? Policymakers and scientists need to take seriously the possibility that potential pandemic pathogens will be misused. EMBO Rep. 2016;17(2):127-130.

Ithete NL, Stoffberg S, Corman VM, et al. Close relative of human Middle East respiratory syndrome coronavirus in bat, South Africa. Emerg Infect Dis. 2013;19(10):1697-1699.

Jeffers SA, Tusell SM, Gillim-Ross L, et al. CD209L (L-SIGN) is a receptor for severe acute respiratory syndrome coronavirus. Proc Natl Acad Sci U S A. 2004;101(44):15748-15753.

Kan B, Wang M, Jing H, et al. Molecular evolution analysis and geographic investigation of severe acute respiratory syndrome coronavirus-like virus in palm civets at an animal market and on farms J Virol. 2005;79(18):11892-11900.

Kleine-Weber H, Elzayat MT, Wang L, et al. Mutations in the Spike Protein of Middle East Respiratory Syndrome Coronavirus Transmitted in Korea Increase Resistance to Antibody-Mediated Neutralization. J Virol. 2019;93(2)

Lang J, Yang N, Deng J, et al. Inhibition of SARS pseudovirus cell entry by lactoferrin binding to heparan sulfate proteoglycans. PLoS One. 2011;6(8):e23710.

Lau SK, Woo PC, Li KS, et al. Discovery of a novel coronavirus, China Rattus coronavirus HKU24, from Norway rats supports the murine origin of Betacoronavirus 1 and has implications for the ancestor of Betacoronavirus lineage A. J Virol. 2015;89(6):3076-3092.

Lau SK, Lee P, Tsang AK, et al. Molecular epidemiology of human coronavirus OC43 reveals evolution of different genotypes over time and recent emergence of a novel genotype due to natural recombination. J Virol. 2011;85(21):11325-11337.

Lau SK, Feng Y, Chen H, et al. Severe Acute Respiratory Syndrome (SARS) Coronavirus ORF8 Protein Is Acquired from SARS-Related Coronavirus from Greater Horseshoe Bats through Recombination. J Virol. 2015;89(20):10532-10547.

Lipsitch M, Inglesby TV. Moratorium on research intended to create novel potential pandemic pathogens [published correction appears in MBio. 2015;6(1). pii: e02534-14.

Li F. 2015. Receptor recognition mechanisms of coronaviruses: a decade of structural studies. J Virol 89:1954 –1964.

Li Z, Tomlinson AC, Wong AH, et al. The human coronavirus HCoV-229E S-protein structure and receptor binding. Elife. 2019;8:e51230.

Luan J, Lu Y, Jin X, Zhang L. Spike protein recognition of mammalian ACE2 predicts the host range and an optimized ACE2 for SARS-CoV-2 infection. Biochem Biophys Res Commun. 2020;526(1):165-169.

Mickleburgh S, Waylen K, Race P. Bats as bushmeat: a global review. Oryx. 2009; 43,(2):217–234.

Makino S, Keck JG, Stohlman SA, Lai MM. High-frequency RNA recombination of murine coronaviruses. J Virol. 1986;57(3):729-737.

Mou H, Raj VS, van Kuppeveld FJ, Rottier PJ, Haagmans BL, Bosch BJ. The receptor binding domain of the new Middle East respiratory syndrome coronavirus maps to a 231-residue region in the spike protein that efficiently elicits neutralizing antibodies. J Virol. 2013;87(16):9379-9383.

McIntosh K, Becker WB, Chanock RM. Growth in suckling-mouse brain of "IBV-like" viruses from patients with upper respiratory tract disease. Proc Natl Acad Sci U S A. 1967;58(6):2268-2273.

Mycroft-West C, et al.The 2019 coronavirus (SARS-CoV-2) surface protein (Spike) S1 Receptor Binding Domain undergoes conformational change upon heparin binding. bioRxiv preprint doi: https://doi.org/10.1101/2020.02.29.971093.

Naskalska A, Dabrowska A, Szczepanski A, Milewska A, Jasik KP, Pyrc K. Membrane Protein of Human Coronavirus NL63 Is Responsible for Interaction with the Adhesion Receptor. J Virol. 2019;93(19):e00355-19.

Ou X, Liu Y, Lei X, et al. Characterization of spike glycoprotein of SARS-CoV-2 on virus entry and its immune cross-reactivity with SARS-CoV. Nat Commun. 2020;11(1):1620. Published 2020 Mar 27.

Pachetti M, Marini B, Benedetti F, et al. Emerging SARS-CoV-2 mutation hot spots include a novel RNA-dependent-RNA polymerase variant. J Transl Med. 2020;18(1):179.

Park YJ, Walls AC, Wang Z, et al. Structures of MERS-CoV spike glycoprotein in complex with sialoside attachment receptors. Nat Struct Mol Biol. 2019;26(12):1151-1157.

Patiño-Galindo JÁ, et al. Recombination and convergent evolution led to the emergence of 2019 Wuhan coronavirus bioRxiv preprint doi: https://doi.org/10.1101/2020.02.10.942748

Qing E, Hantak M, Perlman S, Gallagher T. Distinct Roles for Sialoside and Protein Receptors in Coronavirus Infection. mBio. 2020;11(1):e02764-19.

Ren L, Zhang Y, Li J, et al. Genetic drift of human coronavirus OC43 spike gene during adaptive evolution. Sci Rep. 2015;5:11451.

Ren LL, Wang YM, Wu ZQ, et al. Identification of a novel coronavirus causing severe pneumonia in human: a descriptive study. Chin Med J (Engl). 2020;133(9):1015-1024.

Rossmann MG. The canyon hypothesis. Hiding the host cell receptor attachment site on a viral surface from immune surveillance. J Biol Chem. 1989;264(25):14587-14590.

Shang J, Ye G, Shi K, et al. Structural basis of receptor recognition by SARS-CoV-2 . Nature. 2020;10.1038/s41586-020-2179-y.

Steffens I. A hundred days into the coronavirus disease (COVID-19) pandemic. Euro Surveill. 2020;25(14):2000550.

van Boheemen S, de Graaf M, Lauber C, et al. Genomic characterization of a newly discovered coronavirus associated with acute respiratory distress syndrome in humans. mBio. 2012;3(6):e00473-12.

Walls AC, Park YJ, Tortorici MA, Wall A, McGuire AT, Veesler D. Structure, Function, and Antigenicity of the SARS-CoV-2 Spike Glycoprotein. Cell. 2020;181(2):281-292.e6.

Wang Q, Zhang Y, Wu L, et al. Structural and Functional Basis of SARS-CoV-2 Entry by Using Human ACE2 . Cell. 2020;S0092-8674(20)30338-X.

Woo PC, Lau SK, Chu CM, et al. Characterization and complete genome sequence of a novel coronavirus, coronavirus HKU1, from patients with pneumonia. J Virol. 2005;79(2):884-895.

Woo PC, Lau SK, Huang Y, Tsoi HW, Chan KH, Yuen KY. Phylogenetic and recombination analysis of coronavirus HKU1, a novel coronavirus from patients with pneumonia. Arch Virol. 2005;150(11):2299-2311.

Woo PC, Lau SK, Yip CC, et al. Comparative analysis of 22 coronavirus HKU1 genomes reveals a novel genotype and evidence of natural recombination in coronavirus HKU1. J Virol. 2006;80(14):7136-7145.

Yuan Y, Cao D, Zhang Y, et al. Cryo-EM structures of MERS-CoV and SARS-CoV spike glycoproteins reveal the dynamic receptor binding domains. Nat Commun. 2017;8:15092. Published 2017 Apr 10.

Zhang T, Wu Q, Zhang Z. Probable Pangolin Origin of SARS-CoV-2 Associated with the COVID-19 Outbreak. Curr Biol. 2020;30(8):1578.

Zhao X, Chu H, Wong BH, et al. Activation of C-Type Lectin Receptor and (RIG)-I-Like Receptors Contributes to Proinflammatory Response in Middle East Respiratory Syndrome Coronavirus-Infected Macrophages. J Infect Dis. 2020;221(4):647-659.

Zhou Y, Lu K, Pfefferle S, et al. A single asparagine-linked glycosylation site of the severe acute respiratory syndrome coronavirus spike glycoprotein facilitates inhibition by mannose-binding lectin through multiple mechanisms. J Virol. 2010;84(17):8753-8764.

Zhou P, Yang XL, Wang XG, et al. A pneumonia outbreak associated with a new coronavirus of probable bat origin. Nature. 2020;579(7798):270-273.

Zlateva KT, Coenjaerts FE, Crusio KM, et al. No novel coronaviruses identified in a large collection of human nasopharyngeal specimens using family-wide CODEHOP-based primers. Arch Virol. 2013;158(1):251-255.

Zmora P, Hoffmann M, Kollmus H, et al. TMPRSS11A activates the influenza A virus hemagglutinin and the MERS coronavirus spike protein and is insensitive against blockade by HAI-1. J Biol Chem. 2018;293(36):13863-13873.

BatCoV KT253269.1	MFTLIVACVLHIAAGQINNNCLDGNRVGIQTMQLGLPPNVTALVTGYLPDKWHCTSNHNH
HuCoV229E NC_002645	MFVLLVAYALLHIAG----------
Residues 1-15	**:*:** .* **

BatCoV KT253269.1	NNVSYSGKGFFVLDTTDGEASFALVDTGAFSTDKYYLLYLNHILYGGGYVKLKICKWSQY
HuCoV229E NC_002645	----------
Residues	

BatCoV KT253269.1	VDFNAPSAISFSSSCIIDFKTADKKGRVLGFSASGDTVRIHWSDAVHTVYVPGASAWSRV
HuCoV229E NC_002645	----------
Residues	

BatCoV KT253269.1	NVRCPKIAACYFSITEDPIAVNVTTTNGLITSYSVCNGCVGYAENIFAVESGGYIPSDFA
HuCoV229E NC_002645	----------CQTTNGLNTSYSVCNGCVGYSENVFAVESGGYIPSDFA
Residues 16-53	***** ***********:**:**********

BatCoV KT253269.1	FNNWFLLTNTSSVVDGVVRSVQPLLLNCLWPVPGLQSTTGFVYFNGTGRGGCNGFSSGGL
HuCoV229E NC_002645	FNNWFLLTNTSSVVDGVVRSFQPLLLNCLWSVSGLRFTTGFVYFNGTGRGDCKGFSSDVL
Residues 54-113	********** *********.*.**: ***********.*:****. *

BatCoV KT253269.1	SDVIRYNLNFSSNSEDNLRRGTILFKTSYGDVVFYCTNNTLVSGDAHIPFGTVLGNFYCF
HuCoV229E NC_002645	SDVTRYNLNFEEN----LRRGTILFKTSYGVVVFYCTNNTLVSGDAHIPFGTVLGNFYCF
Residues 114-169	***:******..* ********** **********

BatCoV KT253269.1	VNTTIGNETTSAFVGALPKTVREFVISRTGHFYINGYRYFTLGNVDAVNFNVTTAETTDF
HuCoV229E NC_002645	VNTTIGNETTSAFVGALPKTVREFVISRTGHFYINGYRYFTLGNVEAVNFNVTTAETTDF
Residues 170-229	**********:**********

BatCoV KT253269.1	WTVAFASYADVLINVSHTSIANILYCNSVINRLRCDQLSFDVPDGFYSTSPIQSVELPFS
HuCoV229E NC_002645	CTVALASYADVLVNVSQTSIANIIYCNSVINRLRCDQLSFDVPDGFYSTSPIQSVELPVS
Residues 230-289	***:*******:***:******:********** *

BatCoV KT253269.1	IVSLPVYYKHTSIDLYV**DFKPQSGSGTCFNCYPTGVNITLANFNETKGPLCVDTSHFTTK**
HuCoV229E NC_002645	IVSLPVYHKHTFIVLYV**DFKPQSGGGKCFNCYPAGVNITLANFNETKGPLCVDTSHFTTK**
Residues 290-349	*******:*** * **********.*.******:**********

BatCoV KT253269.1	**YVAVYANVGSWSASVDTGNCPFSFGKVNNFVKFGSVCFSLKDIPGGCAMPIVANWAYIKY**
HuCoV229E NC_002645	**YVAVYANVGRWSASINTGNCPFSFGKVNNFVKFGSVCFSLKDIPGGCAMPIVANWAYSKY**
Residues 350-409	********* ****::********** **

BatCoV KT253269.1	YTIGSLYVSWSDGDRITGVPEPVEGVSSFMNVTLDTCTKYNIYDVSGVGVIRVSNDTFLN
HuCoV229E NC_002645	YTIGSLYVSWSDGDGITGVPQPVEGVSSFMNVTLDKCTKYNIYDVSGVGVIRVSNDTFLN
Residues 410-469	********** *****:**********.**********

BatCoV KT253269.1	GIMYTSISGNLLGFKDVSNGTIYSIIPCNPPDQLVVYQQAVVGAMLSENSTSYGFSNVVE
HuCoV229E NC_002645	GITYTSTSGNLLGFKDVTKGTIYSITPCNPPDQLVVYQQAVVGAMLSENFTSYGFSNVVE
Residues 470-529	** *** **********::****** ********** **********

BatCoV KT253269.1	LPNFFYASNGTYNCTDAVLTYSSFGVCADGSIIAVQPRNVSYDGVSAIVTANLSIPSNWT
HuCoV229E NC_002645	LPKFFYASNGTYNCTDAVLTYSSFGVCADGSIIAVQPRNVSYDSVSAIVTANLSIPSNWT
Residues 530-589	**:**************************************.***************

BatCoV KT253269.1	TSVQVEYLQITSTPIVVDCSTYVCNGNVRCVELLKQYTSACKTIEDALRISARLESADVS
HuCoV229E NC_002645	TSVQVEYLQITSTPIVVDCSTYVCNGNVRCVELLKQYTSACKTIEDALRNSARLESADVS
Residues 590-649	** **********

BatCoV KT253269.1	EMLTFDKKAFTLANVSSFGEYNLSSVIPSLPTGGSRVAGRSAIEDILFNKVVTSGLGTVD
HuCoV229E NC_002645	EMLTFDKKAFTLANVSSFGDYNLSSVIPSLPTSGSRVAGRSAIEDILFSKLVTSGLGTVD
Residues 650-709	******************:************.***************.*:*********

BatCoV KT253269.1	ADYKKCTKGLSIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMALGGLTSAAAIPF
HuCoV229E NC_002645	ADYKKCTKGLSIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGLALGGLTSAVSIPF
Residues 710-769	**:********.:***

BatCoV KT253269.1	SLALQARLNYVALQTDVLQENQKILAASFNKAITNIVDAFTGVNDAITQTSQAIQTVATA
HuCoV229E NC_002645	SLAIQARLNYVALQTDVLQENQKILAASFNKAMTNIVDAFTGVNDAITQTSQALQTVATA
Residues 770-829	***:****************************:********************:******

BatCoV KT253269.1	LNKIQDVVNQQGNALNHLTSQLRQNFQAISSSIQAIYDRLDTIQADQQVDRLITGRLAAL
HuCoV229E NC_002645	LNKIQDVVNQQGNSLNHLTSQLRQNFQAISSSIQAIYDRLDTIQADQQVDRLITGRLAAL
Residues 830-889	************:**

BatCoV KT253269.1	NAFVAQTLTKYTEVRASRQLAQQKVNECVKSQSNRYGFCGNGTHIFSIVNAAPEGLVFLH
HuCoV229E NC_002645	NVFVSHTLTKYTEVRASRQLAQQKVNECVKSQSKRYGFCGNGTHIFSIVNAAPEGLVFLH
Residues 890-949	*.**::****************************:*************************

BatCoV KT253269.1	TVLLPTDYKDVEAWSGMCVDGD-GYVIRQPNLALYKEDDKFRITSRLMFEPRIPTMADFV
HuCoV229E NC_002645	TVLLPTQYKDVEAWSGLCVDGTNGYVLRQPNLALYKEGNYYRITSRTMFEPRIPTMADFV
Residues 950-1009	******:*********:**** ***:**********.: :*****:*************

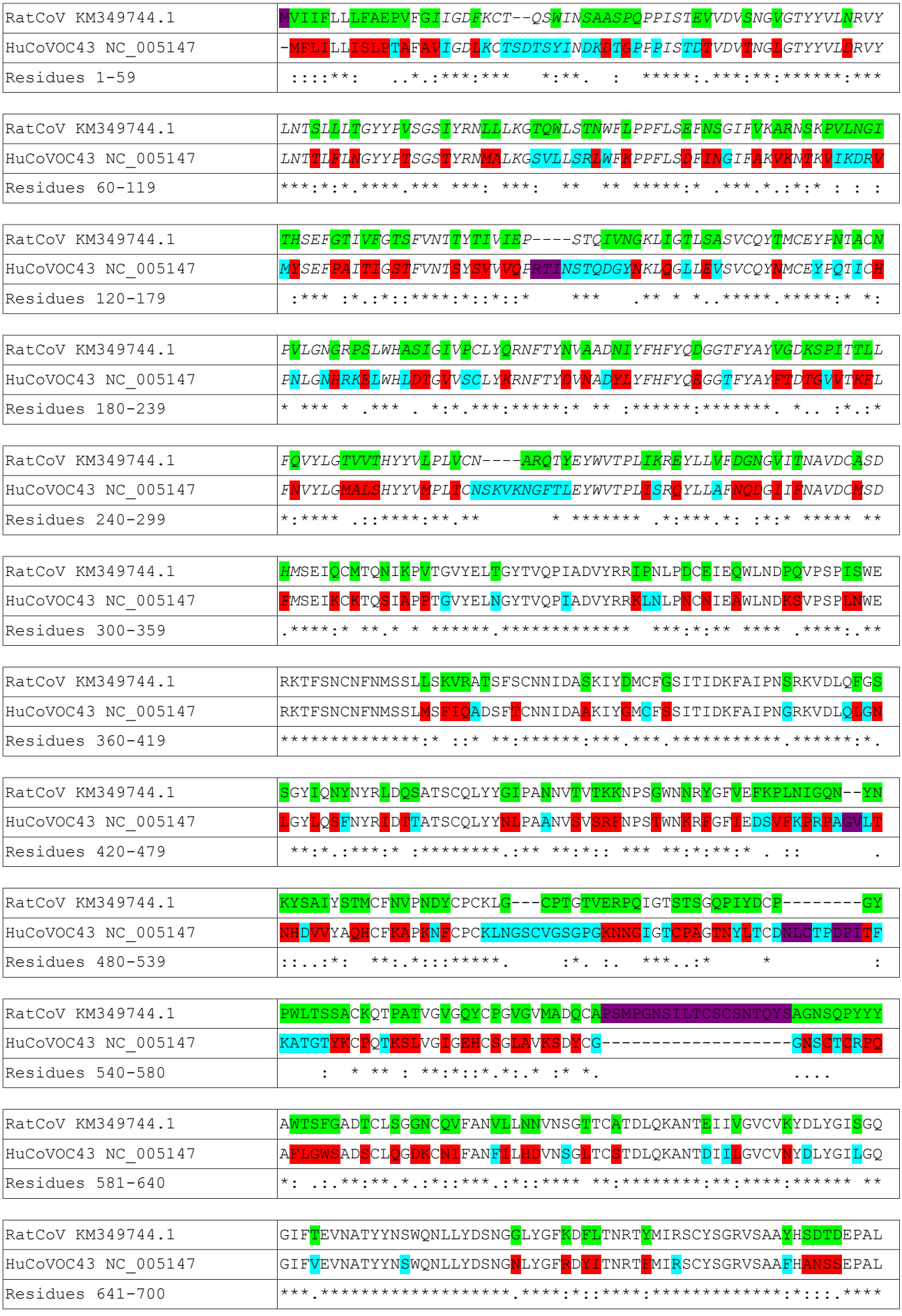
BatCoV KT253269.1	QIENCNVTFVNISRAELQTVVPEYIDVNKTLQDLIEKLPNYTVPDLGVDQYNQTILNLTN
HuCoV229E NC_002645	QIENCNVTFVNISRSELQTTVPEYIDVNKTLQELSYKLPNYTVPDLVVEQYNQTILNLTS
Residues 1010-1069	**************:****:************:* ********** *:**********.

BatCoV KT253269.1	EISTLENKSAELNYTVQKLQTLIDNINSTLVDLKWLNRVETYLKWPWWVWLCISVVLIFV
HuCoV229E NC_002645	EISTLENKSAELNYTVQKLQTLIDNINSTLVDLKWLNRVETYLKWPWWVWLCISVVLIFV
Residues 1070-1129	**:*****************

BatCoV KT253269.1	VSMLLLCCCSTGCCGFFSCLASSTKGCCESTKLPYYDVEKIHIQ
HuCoV229E NC_002645	VSMLLLCCCSTGCCGFFSCFASSTRGCCESTKLPYYDVEKIHIQ
Residues 1130-1173	******************:*** :******************

Table 1. S Protein sequence alignment of the first sequenced isolate of HCoV-229E (GenBank ID NC_002645) Alphacoronavirus (Corman 2015) and genetically related CoV from Bat species,

Hipposideros spp. CoV strain BtCoV/KW2E/Hip_cf._rub/GHA/2011 (GenBank ID KT253269.1) (De Sabato 2019). Green-red amino acid substitution during the host tropism, green-blue ongoing mutations at the residue after the host tropism. Blue amino acid substitution at the clinical isolate. Purple recombination in the form or deletion or insert.


RatCoV KM349744.1
HuCoVOC43 NC_005147
Residues 1-59
RatCoV KM349744.1
HuCoVOC43 NC_005147
Residues 60-119
RatCoV KM349744.1
HuCoVOC43 NC_005147
Residues 120-179
RatCoV KM349744.1
HuCoVOC43 NC_005147
Residues 180-239
RatCoV KM349744.1
HuCoVOC43 NC_005147
Residues 240-299
RatCoV KM349744.1
HuCoVOC43 NC_005147
Residues 300-359
RatCoV KM349744.1
HuCoVOC43 NC_005147
Residues 360-419
RatCoV KM349744.1
HuCoVOC43 NC_005147
Residues 420-479
RatCoV KM349744.1
HuCoVOC43 NC_005147
Residues 480-539
RatCoV KM349744.1
HuCoVOC43 NC_005147
Residues 540-580
RatCoV KM349744.1
HuCoVOC43 NC_005147
Residues 581-640
RatCoV KM349744.1
HuCoVOC43 NC_005147
Residues 641-700

```
RatCoV KM349744.1     LYRNLKCSYVFNNNISISRSVIRYFDSYLGCVVNADDDIAEAVGSCNLTVGSGYCVDYSS
HuCoVOC43 NC_005147   LFRNIKCNYVFNNSLTRQLQPINYFDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYSK
Residues 701-760      *:**:**.*****.:: . . *.************ :. * :* :*:************.

RatCoV KM349744.1     TWRAKRDLNTGYRLTNFEPFVPTLVNDSVESVGGLYEIQIPTEFTIGNLEEFVQTTSPKV
HuCoVOC43 NC_005147   NRRSRGAITTGYRFTNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKV
Residues 761-820      . *::  :.****:******. . ****:*.**********:******:***:**:****

RatCoV KM349744.1     TIDCAAFVCGDYAACREQLVEYGSFCDNINTILNEVNSMIDTSQYQLASTLMNGVTLSSR
HuCoVOC43 NC_005147   TIDCAAFVCGDYAACKSQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTK
Residues 821-880      ***************:.*************:**.***.::**:* *:*.:********::

RatCoV KM349744.1     LKDGISFNQDDINFSSVMGCVGSNCISHR--SAIEDILFNKVKLSDVGFVDAYNNCTQGS
HuCoVOC43 NC_005147   LKDGVNFNVDDINFSPVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVEAYNNCTGGA
Residues 881-940      ****:.** ******.*:**:**:* .    *****:**:**********:****** *:

RatCoV KM349744.1     EIRDLVCVQSFNGIKVLPPVLSESQMSGYATGVGLSMLFPPFSAAAGVPFTMSVQYRING
HuCoVOC43 NC_005147   EIRDLICVQSYKGIKVLPPLLSENQISGYTLAATSASLFPLWTAAAGVPFYLNVQYRING
Residues 941-1000     *****:****::*******:***.*:***: ..  : *** ::******* :.*******

RatCoV KM349744.1     LGVTMDVLNQNQKMIANAFNNALTAIQNGFDATNSALAKIQSVVNANAEALNNLLQQLSN
HuCoVOC43 NC_005147   LGVTMDVLSQNQKLIANAFNNALYAIQEGFDATNSALVKIQAVVNANAEALNNLLQQLSN
Residues 1001-1060    ********.****:********* ***:*********.***:******************

RatCoV KM349744.1     RFGAISSSLQEILSRLDALEAQVQIDRLINGRLTALNAYVSQQLSDITLVKFSASQAIEK
HuCoVOC43 NC_005147   RFGAISASLQEILSRLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEK
Residues 1061-1120    ******:**************:.********************** *******:**:**

RatCoV KM349744.1     VNECVKSQSTRVNFCGNGNHILSLVQNAPYGLYFIHFSYQPTKYTTAYVSPGLCLAGDVG
HuCoVOC43 NC_005147   VNECVKSQSSRTNFCGNGNHITSLVQNAPYGLYFIHFSYVPTKYVTARVSPGLCTAGDRG
Residues 1121-1180    *********:*:*********:***************** ****.** ******:*** *

RatCoV KM349744.1     VAPKSGYFIKVNDKWMFTGSAYYHPEPITNDNVIMMNNCAVNFTKAPDVVLNTSIPNLPD
HuCoVOC43 NC_005147   IAPKSGYFVNVNNTWMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSIPNLPD
Residues 1181-1240    :*******::**:.**:***.**:*****::**::*..****:**** *:**********

RatCoV KM349744.1     FKEELDKWFKNQSSVAPDLSLDLERINVTFLDLQEEMDRIQDAIKKLNDSYINLKEIGTY
HuCoVOC43 NC_005147   FKEELDQWFKNQTSVAPDLS--LDYINVTFLDLQVEMNRLQEAIKVLNQSYINLKDIGTY
Residues 1241-1298    ******:*****:*******  *: ********* **:*:*:*:*** **:******:****

RatCoV KM349744.1     EMYVKWPWYVWLLIGLAGVAVLVLLFFVCCCTGCGSSCFKKCGSCCDDYGGHQDIVVKTS
HuCoVOC43 NC_005147   EIYVKWPWYVWLLICLAGVAMLVLLFFICCCTGCGTSCFKKCGCCCDDYTGYQELVIKTS
Residues 1299-1358    * ************ *****:******:*******:*******.***** *:*::*:***

RatCoV KM349744.1     HDD
HuCoVOC43 NC_005147   HDD
```

Residues 1359-1361	***

Table 2. S Protein sequence alignment of the first sequenced isolate of HCoV-OC43 (GenBank ID NC_005147) betacoronavirus lineage A (Ben Hu 2015) and genetically related CoV from Rat species, *Rattus norvegicus* CoV strain HKU24 (GenBank ID KM349744.1) (lau 2015). Green-red amino acid substitution during the host tropism, green-blue ongoing mutations at the residue after the host tropism. Blue amino acid substitution at the clinical isolate. Purple recombination in the form or deletion or insert.

```
BatCoV  KC881006    MKLLVLVFATLVSSYTIEKCLDFDDRTPFANTQFLSSHRGVYYPDDIFRSNVLHLVQDHF
HuSars-CoV  NC_004718    -MFTFLLFLTLTSGSDLDRCTTFDDVQAPNYTQHTSSMRGVYYPDEIFRSDTLYLTQDLF
Residues 1-59               ::.*:* **.*.  :::*  ***  .*  **. ** *******:****:.*:*.** *

BatCoV KC881006    LPFLSNVTRFITFGLNFDNPIIPFKDGIYFAATEKSNVIRGWVFGSTMNNKSQSVIIMNN
HuSars-CoV  NC_004718    LPFYSNVTGFHTINHTFGNPVIPFKDGIYFAATEKSNVVRGWVFGSTMNNKSQSVIIINN
Residues 60-119    *** **** * *:. .*.**:*****************:******************:**

BatCoV KC881006    STNIVIRACNFELCDNPFFVVLKSNNTQIPSYIFNNAFNCTFEYVSKDFNLDLGEKPGNF
HuSars-CoV  NC_004718    STNVVIRACNFELCDNPFFAVSKPMGTQTHTMIFDNAFNCTFEYISDAFSLDVSEKSGNF
Residues 120-179    ***:***************.* *. .**  : **:*********:*. *.**:.**.***

BatCoV KC881006    KDLREFVFRNKDGFLHVYSGYQPISAASGLPTGFNALKPIFKLPLGINITNFRTLLTAFP
HuSars-CoV  NC_004718    KHLREFVFKNKDGFLYVYKGYQPIDVVRDLPSGFNTLKPIFKLPLGINITNFRAILTAFS
Residues 180-239    *.******:******:**.*****... .**:***:*****************::****.

BatCoV KC881006    PRPDYWGTSAAAYFVGYLKPTTFMLKYDENGTITDAVDCSQNPLAELKCSVKSFEIDKGI
HuSars-CoV  NC_004718    PAQDIWGTSAAAYFVGYLKPTTFMLKYDENGTITDAVDCSQNPLAELKCSVKSFEIDKGI
Residues 240-299    *  * ************************************************************

BatCoV KC881006    YQTSNFRVAPSKEVVRFPNITNLCPFGEVFNATTFPSVYAWERKRISNCVADYSVLYNST
HuSars-CoV  NC_004718    YQTSNFRVMPSGDVVRFPNITNLCPFGEVFNATKFPSVYAWERKKISNCVADYSVLYNST
Residues 300-359    ********.** :*********************.**********:***************

BatCoV KC881006    SFSTFKCYGVSATKLNDLCFSNVYADSFVVKGDDVRQIAPGQTGVIADYNYKLPDDFTGC
HuSars-CoV  NC_004718    FFSTFKCYGVSATKLNDLCFSNVYADSFVVKGDDVRQIAPGQTGVIADYNYKLPDDFMGC
Residues 360-419    ************************************************************ **

BatCoV KC881006    VLAWNTRNIDATQTGNYNYKYRSLRHGKLRPFERDISNVPFSPDGKPCTPPAFNCYWPLN
HuSars-CoV  NC_004718    VLAWNTRNIDATSTGNYNYKYRYLRHGKLRPFERDISNVPFSPDGKPCTPPALNCYWPLN
Residues 420-479    ************.********* ******************************:*******

BatCoV KC881006    DYGFYITNGIGYQPYRVVVLSFELLNAPATVCGPKLSTDLIKNQCVNFNFNGLTGTGVLT
HuSars-CoV  NC_004718    DYGFYTTTGIGYQPYRVVVLSFELLNAPATVCGPKLSTDLIKNQCVNFNFNGLTGTGVLT
Residues 480-539    ***** *.**************************************************

BatCoV KC881006    PSSKRFQPFQQFGRDVSDFTDSVRDPKTSEILDISPCSFGGVSVITPGTNTSSEVAVLYQ
HuSars-CoV  NC_004718    PSSKRFQPFQQFGRDVSDFTDSVRDPKTSEILDISPCAFGGVSVITPGTNASSEVAVLYQ
Residues 540-599    ************************************:************:*********

BatCoV KC881006    DVNCTDVPVAIHADQLTPSWRVYSTGNNVFQTQAGCLIGAEHVDTSYECDIPIGAGICAS
HuSars-CoV  NC_004718    DVNCTDVSTAIHADQLTPAWRIYSTGNNVFQTQAGCLIGAEHVDTSYECDIPIGAGICAS
Residues 600-659    *******..*********:**:**************************************

BatCoV KC881006    YHTVSSLRSTSQKSIVAYTMSLGADSSIAYSNNTIAIPTNFSISITTEVMPVSMAKTSVD
HuSars-CoV  NC_004718    YHTVSLLRSTSQKSIVAYTMSLGADSSIAYSNNTIAIPTNFSISITTEVMPVSMAKTSVD
Residues 660-719    ***** ************************************************************
```

BatCoV KC881006	CNMYICGDSTECANLLLQYGSFCTQLNRALSGIAVEQDRNTREVFAQVKQMYKTPTLKDF
HuSars-CoV NC_004718	CNMYICGDSTECANLLLQYGSFCTQLNRALSGIAAEQDRNTREVFAQVKQMYKTPTLKYF
Residues 720-779	********************************.********************** *

BatCoV KC881006	GGFNFSQILPDPLKPTKRSFIEDLLFNKVTLADAGFMKQYGECLGDINARDLICAQKFNG
HuSars-CoV NC_004718	GGFNFSQILPDPLKPTKRSFIEDLLFNKVTLADAGFMKQYGECLGDINARDLICAQKFNG
Residues 780-839	**

BatCoV KC881006	LTVLPPLLTDDMIAAYTAALVSGTATAGWTFGAGAALQIPFAMQMAYRFNGIGVTQNVLY
HuSars-CoV NC_004718	LTVLPPLLTDDMIAAYTAALVSGTATAGWTFGAGAALQIPFAMQMAYRFNGIGVTQNVLY
Residues 840-899	**

BatCoV KC881006	ENQKQIANQFNKAISQIQESLTTTSTALGKLQDVVNQNAQALNTLVKQLSSNFGAISSVL
HuSars-CoV NC_004718	ENQKQIANQFNKAISQIQESLTTTSTALGKLQDVVNQNAQALNTLVKQLSSNFGAISSVL
Residues 900-959	**

BatCoV KC881006	NDILSRLDKVEAEVQIDRLITGRLQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQS
HuSars-CoV NC_004718	NDILSRLDKVEAEVQIDRLITGRLQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQS
Residues 960-1019	**

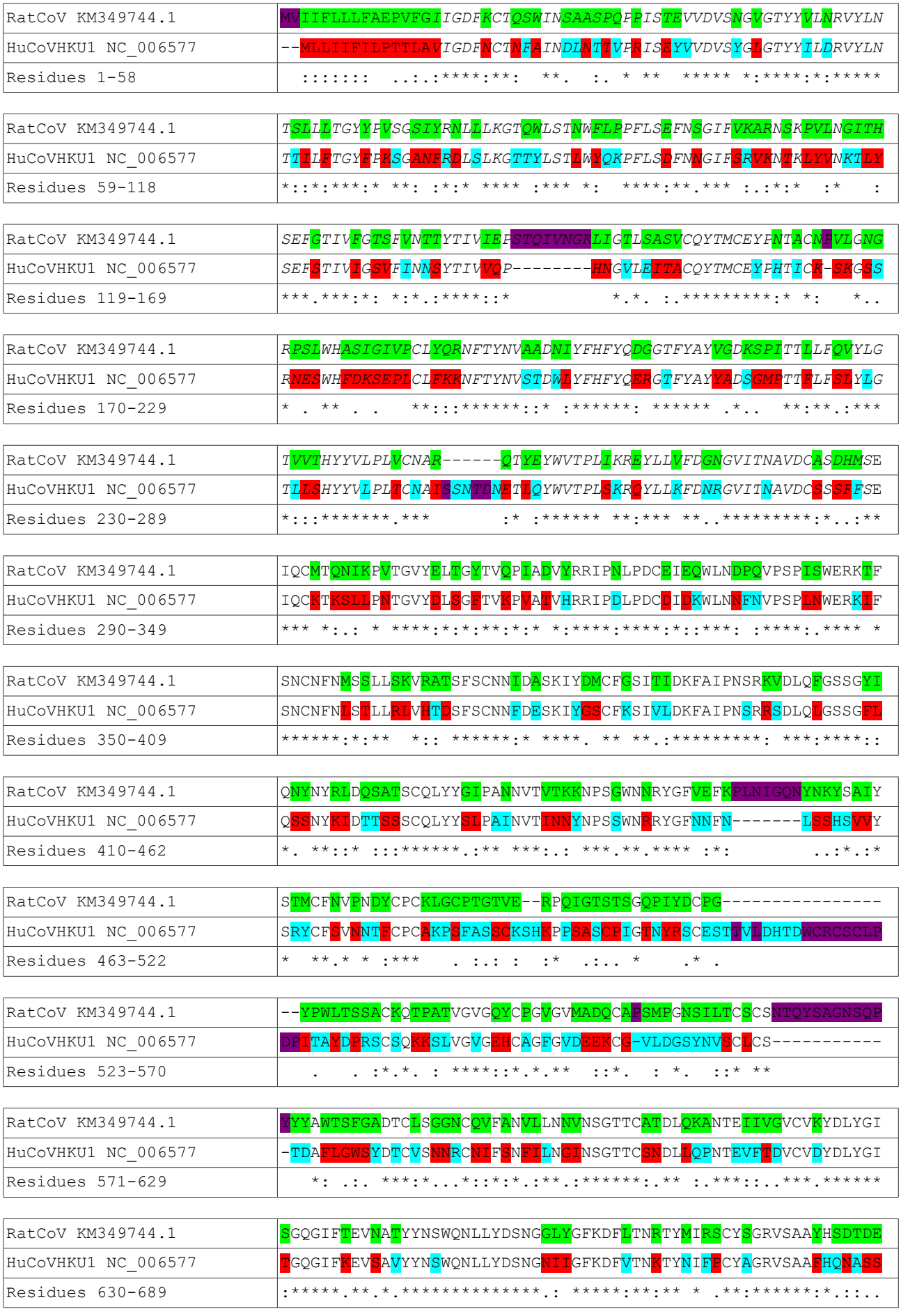
BatCoV KC881006	KRVDFCGKGYHLMSFPQAAPHGVVFLHVTYVPSQERNFTTAPAICHEGKAYFPREGVFVF
HuSars-CoV NC_004718	KRVDFCGKGYHLMSFPQAAPHGVVFLHVTYVPSQERNFTTAPAICHEGKAYFPREGVFVF
Residues 1020-1079	**

BatCoV KC881006	NGTSWFITQRNFFSPQIITTDNTFVSGSCDVVIGIINNTVYDPLQPELDSFKEELDKYFK
HuSars-CoV NC_004718	NGTSWFITQRNFFSPQIITTDNTFVSGNCDVVIGIINNTVYDPLQPELDSFKEELDKYFK
Residues 1080-1139	***************************.******************************

BatCoV KC881006	NHTSPDVDLGDISGINASVVNIQKEINRLNEVAKNLNESLIDLQELGKYEQYIKWPWYVW
HuSars-CoV NC_004718	NHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDLQELGKYEQYIKWPWYVW
Residues 1140-1199	***************************:******************************

BatCoV KC881006	LGFIAGLIAIVMVTILLCCMTSCCSCLKGACSCGSCCKFDEDDSEPVLKGVKLHYT
HuSars-CoV NC_004718	LGFIAGLIAIVMVTILLCCMTSCCSCLKGACSCGSCCKFDEDDSEPVLKGVKLHYT
Residues 1200-1255	**

Table 3. S Protein sequence alignment of the first sequenced isolate of Human Sars-CoV/Tor2 (GenBank ID NC_004718) betacoronavirus lineage B (Ben Hu 2015) and genetically related CoV from Bat species, *Rhinolophus sinicus* CoV strain Rs3367 (GenBank ID KC881006) (Ge 2013). Green-red amino acid substitution during the host tropism, green-blue ongoing mutations at the residue after the host tropism. Blue amino acid substitution at the clinical isolate. Purple recombination in the form or deletion or insert.


RatCoV KM349744.1
HuCoVHKU1 NC_006577
Residues 1-58
RatCoV KM349744.1
HuCoVHKU1 NC_006577
Residues 59-118
RatCoV KM349744.1
HuCoVHKU1 NC_006577
Residues 119-169
RatCoV KM349744.1
HuCoVHKU1 NC_006577
Residues 170-229
RatCoV KM349744.1
HuCoVHKU1 NC_006577
Residues 230-289
RatCoV KM349744.1
HuCoVHKU1 NC_006577
Residues 290-349
RatCoV KM349744.1
HuCoVHKU1 NC_006577
Residues 350-409
RatCoV KM349744.1
HuCoVHKU1 NC_006577
Residues 410-462
RatCoV KM349744.1
HuCoVHKU1 NC_006577
Residues 463-522
RatCoV KM349744.1
HuCoVHKU1 NC_006577
Residues 523-570
RatCoV KM349744.1
HuCoVHKU1 NC_006577
Residues 571-629
RatCoV KM349744.1
HuCoVHKU1 NC_006577
Residues 630-689

```
RatCoV KM349744.1   PALLYRNLKCSYVFNNNISISRSVIRYFDSYLGCVVNADDDIAEAVGSCNLTVGSGYCVD
HuCoVHKU1 NC_006577 LALLYRNLKCSYVLNN---ISLTTQPYFDSYLGCVFNADNLTDYSVSSCALRMGSGFCVD
Residues 690-746    ************:**   ** :.  *********.***:    :*.** * :***:***

RatCoV KM349744.1   YSS-----TWRAKRDLNTGYRLTNFEPFVPTLVNDSVESVGGLYEIQIPTEFTIGNLEEF
HuCoVHKU1 NC_006577 YNSPSSSSSRRKRRSISASYRFVTFEPFNVSFVNDSIESVGGLYEIKIPTNFTIVGQEEF
Residues 747-806    *.*     : * :*.:.:.**:..****  ::****:*********:***:*** . ***

RatCoV KM349744.1   VQTTSPKVTIDCAAFVCGDYAACREQLVEYGSFCDNINTILNEVNSMIDTSQYQLASTLM
HuCoVHKU1 NC_006577 IQTNSPKVTIDCSLFVCSNYAACHDLLSEYGTFCDNINSILDEVNGLLDTTQLHVADTLM
Residues 807-866    :**.********: ***.:****:: * ***:******:**:***.::**:* ::*.***

RatCoV KM349744.1   NGVTLSSRLKDGISFNQDDINFSSVMGCVGSNCIS-HRSAIEDILFNKVKLSDVGFVDAY
HuCoVHKU1 NC_006577 QGVTLSSNLNTNLHFDVDNINFKSLVGCLGPHCGSSSRSFFEDLLFDKVKLSDVGFVEAY
Residues 867-926    :******.*: .: *: *:***.*::**:*.:* *  ** :**:**:**********:**

RatCoV KM349744.1   NNCTQGSEIRDLVCVQSFNGIKVLPPVLSESQMSGYATGVGLSMLFPPFSAAAGVPFTMS
HuCoVHKU1 NC_006577 NNCTGGSEIRDLLCVQSFNGIKVLPPILSESQISGYTTAATVAAMFPPWSAAAGIPFSLN
Residues 927-986    **** *******:*************:*****:***:*.. :: :***:*****:**::.

RatCoV KM349744.1   VQYRINGLGVTMDVLNQNQKMIANAFNNALTAIQNGFDATNSALAKIQSVVNANAEALNN
HuCoVHKU1 NC_006577 VQYRINGLGVTMDVLNKNQKLIATAFNNALLSIQNGFSATNSALAKIQSVVNSNAQALNS
Residues 987-1046   ****************:***:**.****** :*****.**************:**:***.

RatCoV KM349744.1   LLQQLSNRFGAISSSLQEILSRLDALEAQVQIDRLINGRLTALNAYVSQQLSDITLVKFS
HuCoVHKU1 NC_006577 LLQQLFNKFGAISSSLQEILSRLDALEAQVQIDRLINGRLTALNAYVSQQLSDISLVKFG
Residues 1047-1106  ***** *:**************************************************:****.

RatCoV KM349744.1   ASQAIEKVNECVKSQSTRVNFCGNGNHILSLVQNAPYGLYFIHFSYQPTKYTTAYVSPGL
HuCoVHKU1 NC_006577 AALAMEKVNECVKSQSPRINFCGNGNHILSLVQNAPYGLLFMHFSYKPISFKTVLVSPGL
Residues 1107-1166  *: *:***********.*:******************** *:****:* .:.*. *****

RatCoV KM349744.1   CLAGDVGVAPKSGYFIKVNDKWMFTGSAYYHPEPITNDNVIMMNNCAVNFTKAPDVVLNT
HuCoVHKU1 NC_006577 CISGDVGLAPKQGYFIKHNDHWMFTGSSYYYPEPISDKNVVFMNTCSVNFTKAPLVYLNH
Residues 1167-1226  *::****:***.***** **:******:**:****::.**::**.*:******* * **

RatCoV KM349744.1   SIPNLPDFKEELDKWFKNQSSVAPDLSLDLERINVTFLDLQEEMDRIQDAIKKLNDSYIN
HuCoVHKU1 NC_006577 SVPKLSDFESELSHWFKNQTSIAPNLTLNLHTINATFLDLYYEMNLIQESIKSLNNSYIN
Residues 1227-1286  *:*:*.**:.**.:*****:*:**:*:*:*. **.*****  **: **::**.**:****

RatCoV KM349744.1   LKEIGTYEMYVKWPWYVWLLIGLAGVAVLVLLFFVCCCTGCGSSCFKKCGSCCDDYGGHQ
HuCoVHKU1 NC_006577 LKDIGTYEMYVKWPWYVWLLISFSFIIFLVLLFFICCCTGCGSACFSKCHNCCDEYGGHH
Residues 1287-1346  **:******************.:: : .******:********:**.** .***:****:

RatCoV KM349744.1   DIVVKTSHDD
HuCoVHKU1 NC_006577 DFVIKTSHDD
Residues 1347-1356  *:*:******
```

Table 4. S Protein sequence alignment of the first sequenced isolate of HCoV-HKU1 (GenBank ID NC_006577) betacoronavirus lineage A (Ben Hu 2015) and genetically related CoV from Rat species, *Rattus norvegicus* Rat CoV strain HKU24 (GenBank ID KM349744.1) (lau 2015). Green-red amino acid substitution during the host tropism, green-blue ongoing mutations at the residue after the host tropism. Blue amino acid substitution at the clinical isolate. Purple recombination in the form or deletion or insert.

```
BatCoV KY073744.1     MKLFTFMCLLSLGLAQKTCFS-GDYRELKLGLPPSVNATVTGYLPINWSCDSNSAGGRYY
HuCoVNL63 AY567487.2  MKLFLILLVLPLASCFFTCNSNANLSMLQLGVPDNSSTIVTGLLPTHWFCANQSTS----
Residues 1-56         **** :: :*.*. .  ** * .:   *:**:* . .: *** ** :* * .:*:.

BatCoV KY073744.1     ANITNAHGVFVGYFTGDRASAFGLGSSKFDPNIYQMYFGHRNQHNSFRVRICKWPSVQVP
HuCoVNL63 AY567487.2  ---VYSANGFFYIDVGNHRSAFALHTGYYDANQYYIYVTNELIGLNASVTLKICKFSRNTT
Residues 57-113          . : . *.   .*:: ***.* :. :*.* * :*. :.   *:  .      * :..

BatCoV KY073744.1     TLPRDPPVAPKDCLVDKQFQYQFAHKGHKIYGVTFSGDRVRIHSTVGVHNFYVPGASNWD
HuCoVNL63 AY567487.2  FDFLSNASSSFDCIVNLLFTEQLGAP----LGITISGETVRLHLYNVTRTFYVPAAYKLT
Residues 114-169         . . :. **:*:  *  *:.       *:*:**: **:*    .:.****.* :

BatCoV KY073744.1     TVAIACDNPTSCYHSVVTQLATVRVQTDDKGLISSFEPCQNCEGFAENVFAVEASGKIPS
HuCoVNL63 AY567487.2  KLSVKCYFNYSCVFSVVNATVTVNVTTHN-GRVVNYTVCDDCNGYTDNIFSVQQDGRIPN
Residues 170-228      .::: *    ** .***.  .**.* *.: * : .:  *::*:*:::*:*:*: .*:**.

BatCoV KY073744.1     DFSFNNWFLLTNSSSVVDGKVRSLQPLKVLCLRAVPSLLSTKEVISLSGVNADK-CNGHS
HuCoVNL63 AY567487.2  GFPFNNWFLLTNGSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQ
Residues 229-288      .*.*********.*::***  *  ***:: ** .**.* *:. .: :....:*  ***:.

BatCoV KY073744.1     INETAGALRFNLNFTSNPINALASGKIFISSSFGNVTIFCSNSSDPGSSADAFIAMGSTS
HuCoVNL63 AY567487.2  HNSVVDVMRYNLNFSANSLDNLKSGVIVFKTLQYDVLFYCSNSSS--GVLDTTIPFGPSS
Residues 289-346       *.....:*:****::*.:: * ** *.:.:   :* ::*****.  .  *: *.:*.:*

BatCoV KY073744.1     AAVYCFANSTFGNVTSLDFIGVLPVTVREFVFAATGQIYINGFNYFSLPDILSVDFDVKS
HuCoVNL63 AY567487.2  QPYYCFTNSTINTTHVSTFVGILPPTVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTT
Residues 347-406       . *** ***:...    *:*:** ****:*.* ***:*****:**.*  * :*:*:*.:

BatCoV KY073744.1     DNVTDFWTVAYTQFVDTLVAVNNTLIQEVLYCDDVIHKLKCSQLSFDLPDGFYSASLVRD
HuCoVNL63 AY567487.2  ASATDFWTVAFATFVDVLVNVSATNIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDD
Residues 407-466       ..*******:: ***.** *. * **::****. :.**:*.:*.*.* ******.:: *

BatCoV KY073744.1     ERLDKTFVTLPTHSDHSNVTLYVSFNTYSSSTCTTKPDHVTSCQYNVTIVGENDGPVCVK
HuCoVNL63 AY567487.2  NVLPETYVALPIYYQHTDINFTATASFGG-SCYVCKPHQVNISLNGNTSVCVRTSHFSIR
Residues 467-525       : * :*:*:** : :*:::.: .: .  . *  . **.:*. .  . * *  . . ..::

BatCoV KY073744.1     SKQFTPLLQTSIPTGYYVSVESGSCPFNFLKLKNYLTFDSLCFSTKQLPGGCSMLIKRSN
HuCoVNL63 AY567487.2  YIYNRVKSGSPGDSSWHIYLKSGTCPFSFSKLNNFQKFKTICFSTVEVPGSCNFPLEATW
Residues 526-585             :.  :.::: ::**:***.* **:*: .*.::**** ::**.*.: :: :

BatCoV KY073744.1     VNYNSDIG-VIYVSHSPGNNILGVPQASTGVKDLSYIVTDVCTDYTIYGKSGKGVIRKTN
HuCoVNL63 AY567487.2  HYTSYTIVGALYVTWSEGNSITGVPYPVSGIREFSNIVLNNCTKYNIYDYVGTGIIRSSN
Residues 586-645       .  *  .:**: * **.* *** . :*::::* :* : **.*.**.  *.*:**.:*

BatCoV KY073744.1     SSLPAGIMYTSESGSLLGFKNVTDSTVYTVTPCATATQLAVYKQKVLGAITAVKNDSFGF
HuCoVNL63 AY567487.2  QSLAGGITYVSNSGNLLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGL
Residues 646-705      .**..** *.*:**.*******: ..:: ****  . *:***:*.::**:***::. :*:
```

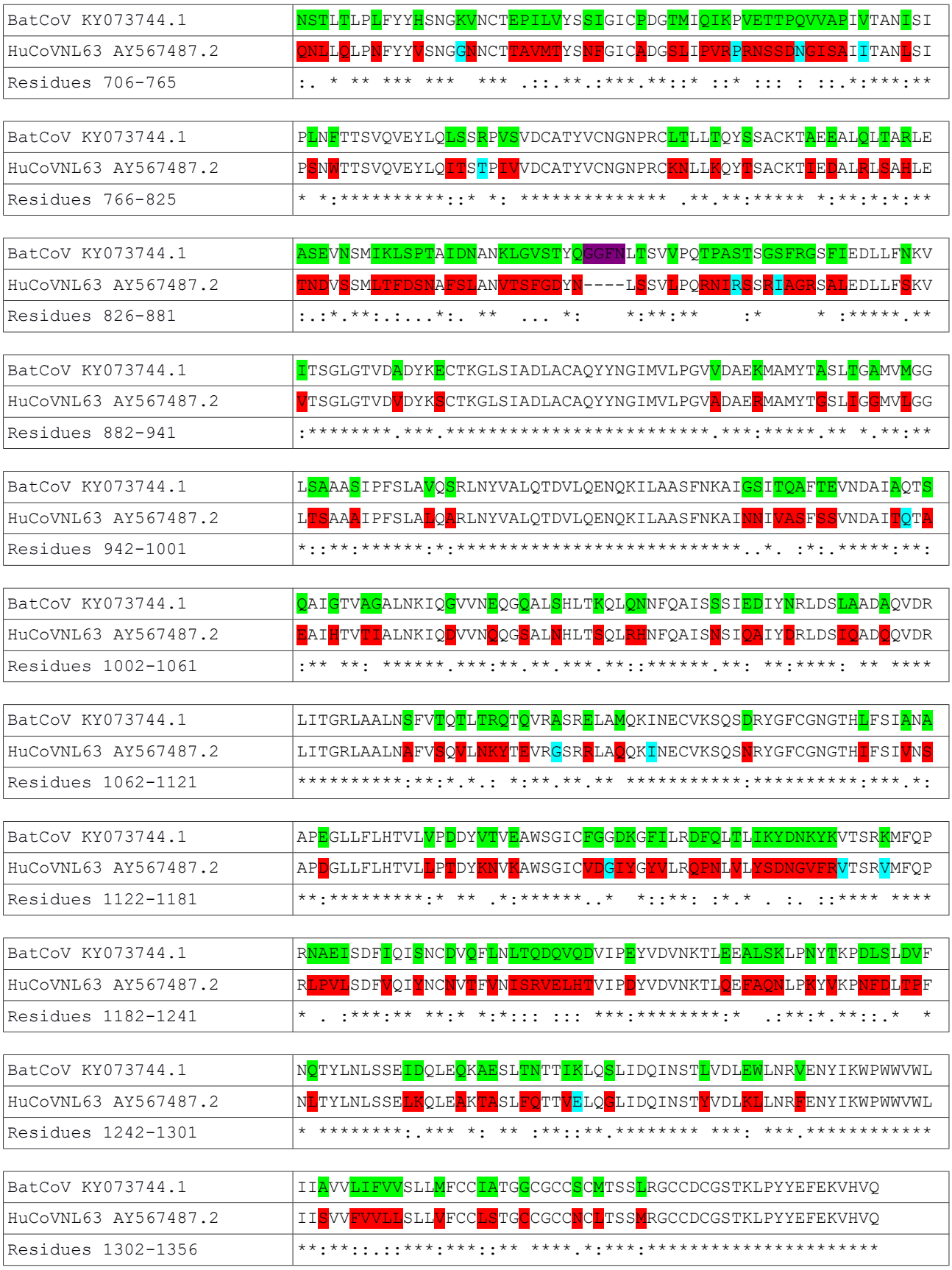
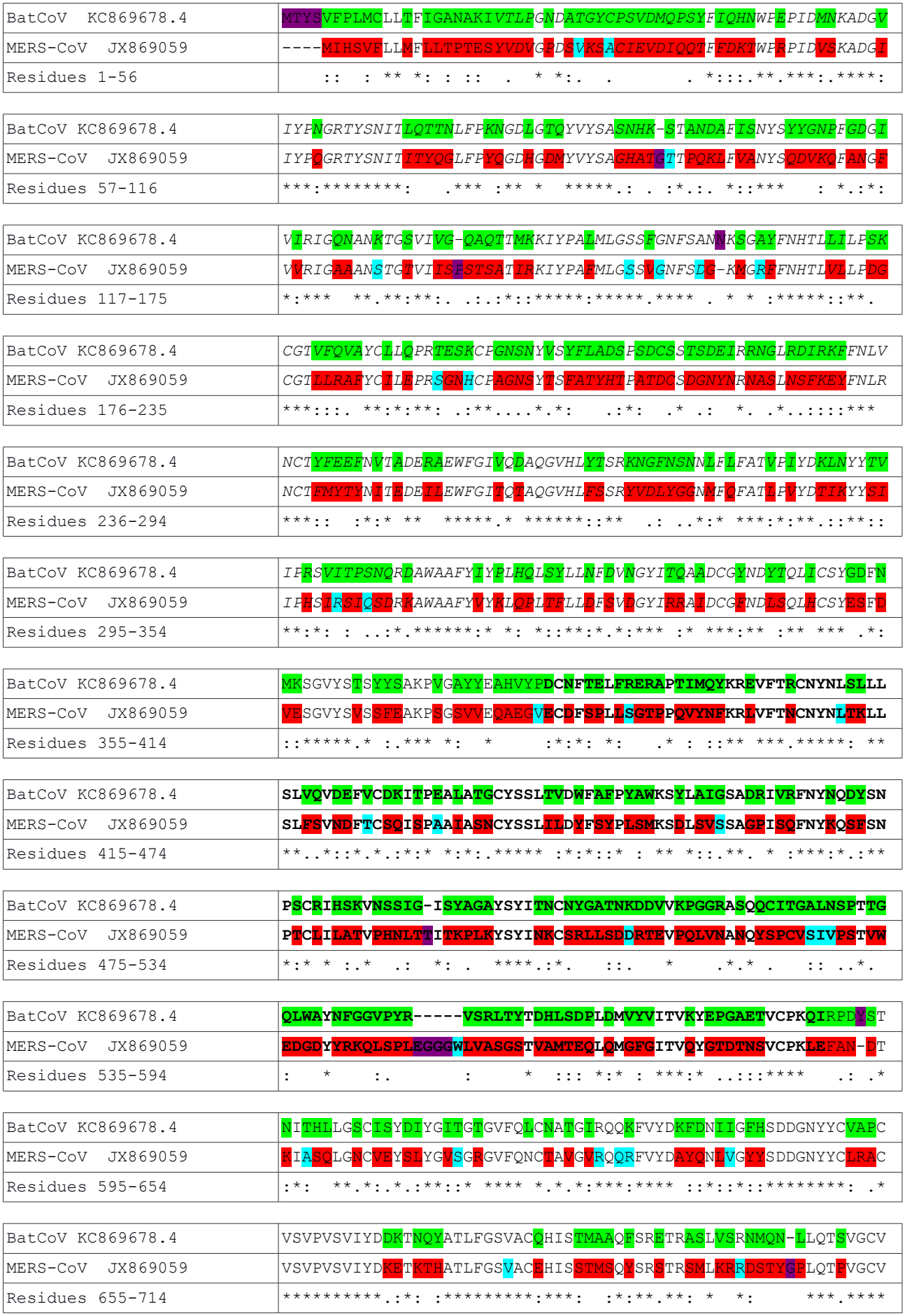


Table 5. S Protein sequence alignment of the first sequenced isolate of HCoV-NL63 (GenBank ID AY567487.2) Alphacoronavirus (Ben Hu 2015) and genetically related CoV from Bat species,

Triaenops afer CoV strain BtKYNL63-9a (GenBank ID KY073744.1) (De Sabato 2019). Green-red amino acid substitution during the host tropism, green-blue ongoing mutations at the residue after the host tropism. Blue amino acid substitution at the clinical isolate. Purple recombination in the form or deletion or insert.


BatCoV KC869678.4
MERS-CoV JX869059
Residues 1-56
BatCoV KC869678.4
MERS-CoV JX869059
Residues 57-116
BatCoV KC869678.4
MERS-CoV JX869059
Residues 117-175
BatCoV KC869678.4
MERS-CoV JX869059
Residues 176-235
BatCoV KC869678.4
MERS-CoV JX869059
Residues 236-294
BatCoV KC869678.4
MERS-CoV JX869059
Residues 295-354
BatCoV KC869678.4
MERS-CoV JX869059
Residues 355-414
BatCoV KC869678.4
MERS-CoV JX869059
Residues 415-474
BatCoV KC869678.4
MERS-CoV JX869059
Residues 475-534
BatCoV KC869678.4
MERS-CoV JX869059
Residues 535-594
BatCoV KC869678.4
MERS-CoV JX869059
Residues 595-654
BatCoV KC869678.4
MERS-CoV JX869059
Residues 655-714

BatCoV KC869678.4	MGFHETNDTVEECHLSLGQSLCAIPPNTNLRSGRSTFGLG------SLAYNSPLRVDALN
MERS-CoV JX869059	LGLVNSSLFVEDCKLPLGQSLCALPDTPSTLTPRSVRSVPGEMRLASIAFNHPIQVDQLN
Residues 715-774	:*: ::. **:*:*.*******:* ... : **. .: *:*:* *::** **

BatCoV KC869678.4	SSEFKVSLPLNFTFGVTQEYIETSIQKITVDCKQYVCNGFAKCEKLLEQYGQFCSKINQA
MERS-CoV JX869059	SSYFKISSIPTNFSFGVTQEYIQTTIQKVTVDCKQYVCNGFQKCEQLLREYGQFCSKINQA
Residues 775-834	** **:*:* **:********:*:***:************ ***:**.:***********

BatCoV KC869678.4	LHGANLRQDDSVRNLFESVKTPQTVPLTTGFGGEFNLTLLEPLSVSTGSSNARSALEELL
MERS-CoV JX869059	LHGANLRQDDSVRNLFASVKSSQSSPIIPGFGGLFNLTLLEPVSISTGSRSARSAIEDLL
Residues 835-894	*************** ***:.*: *: .****:********:*:**** .****:*:**

BatCoV KC869678.4	FDSVTIADPGYMQGYDDCMQQGPASARDLICAQYVAGYKVLPPLMDVNMEAAYTSSLLGS
MERS-CoV JX869059	FDKVTIADPGYMQGYDDCMQQGPASARDLICAQYVAGYKVLPPLMDVNMEAAYTSSLLGS
Residues 895-954	**.**

BatCoV KC869678.4	IAGAGWTAGLSSFAAIPFAQSIFYRLNGVGITQQVLSENQKIIANKFNQALGAMQTGFTT
MERS-CoV JX869059	IAGVGWTAGLSSFAAIPFAQSIFYRLNGVGITQQVLSENQKLIANKFNQALGAMQTGFTT
Residues 955-1014	***.*************************************:******************

BatCoV KC869678.4	TNEAFQKVQDAVNTNAQALAKLASELSNTFGAISSSIGDIIQRLDVLEQEVQIDRLINGR
MERS-CoV JX869059	TNEAFQKVQDAVNNNAQALSKLASELSNTFGAISASIGDIIQRLDVLEQDAQIDRLINGR
Residues 1015-1074	*************.*****:**************:**************:.*********

BatCoV KC869678.4	LTTLNAFVAQQLVRSESAARSAQLAKDKVNECVKSQSTRSGFCGQGTHIVSFVINAPNGL
MERS-CoV JX869059	LTTLNAFVAQQLVRSESAALSAQLAKDKVNECVKAQSKRSGFCGQGTHIVSFVVNAPNGL
Residues 1075-1134	****************** **************:**.***************:******

BatCoV KC869678.4	YFMHVGYHPSQHIEVVAAYGLCDSANPTNCIAPVNGYFIKNQTTRSADEWSYTGSSFYAP
MERS-CoV JX869059	YFMHVGYYPSNHIEVVSAYGLCDAANPTNCIAPVNGYFIKTNNTRIVDEWSYTGSSFYAP
Residues 1135-1194	*******:**:*****:******:****************.:.** .*************

BatCoV KC869678.4	EPITTLNTRYVAPQVTFQNISNNLPPPLLSNSTGTDFKDELDEFFKNVSTNIPNFGALTQ
MERS-CoV JX869059	EPITSLNTKYVAPQVTYQNISTNLPPPLLGNSTGIDFQDELDEFFKNVSTSIPNFGSLTQ
Residues 1195-1254	****:***:*******:****.*******.**** **:************.*****:***

BatCoV KC869678.4	INTTLLDLSGEMLALQEVVKALNESYIDLKELGNYTYYNKWPWYIWLGFIAGLLALALCV
MERS-CoV JX869059	INTTLLDLTYEMLSLQQVVKALNESYIDLKELGNYTYYNKWPWYIWLGFIAGLVALALCV
Residues 1255-1314	********: ***:**:************************************:******

BatCoV KC869678.4	FFILCCTGCGTSCLGKLKCNRCCDKYEEYDLEPHKIHVH
MERS-CoV JX869059	FFILCCTGCGTNCMGKLKCNRCCDRYEEYDLEPHKVHVH
Residues 1315-1353	***********.*:**********:**********:***

Table 6. S Protein sequence alignment of the first sequenced isolate of MERS-CoV (GenBank ID JX869059) betacoronavirus lineage C (Ben Hu 2015) and genetically related CoV from the Bat

species, *Neoromicia capensis* CoV strain Neoromicia/PML-PHE1/RSA/2011 (GenBank ID KC869678.4) (Ithete 2013). Green-red amino acid substitution during the host tropism, green-blue ongoing mutations at the residue after the host tropism. Blue amino acid substitution at the clinical isolate. Purple recombination in the form or deletion or insert.

BatCoV RaTG13 MN996532.1	MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSSTRGVYYPDKVFRSSVLHLTQDLFLPFFS
SarsCov2 MT019529.1	MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHSTQDLFLPFFS
Residues 1-60	****************************** ********** **********

BatCoV RaTG13 MN996532.1	NVTWFHAIHVSGTNGIKRFDNPVLPFNDGVYFASTEKSNIIRGWIFGTTLD*SKTQSLLIV*
SarsCov2 MT019529.1	NVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNIIRGWIFGTTLD*SKTQSLLIV*
Residues 61-120	********** **********

BatCoV RaTG13 MN996532.1	*NNATNVVIKVCEFQFCNDPFLGVYYHKNNKSWMESEF*RVYSSANNCTFEYVSQPFLMDLE
SarsCov2 MT019529.1	*NNATNVVIKVCEFQFCNDPFLGVY YHK NNKSWMESEF*RVYSSANNCTFEYVSQPFLMDLE
Residues 121-180	********** **********

BatCoV RaTG13 MN996532.1	GKQGNFKNLREFVFKNIDGYFKIYSKHTPINLVRDLPPGFSALEPLVDLPIGINITRFQT
SarsCov2 MT019529.1	GKQGNFKNLREFVFKNIDGYFKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQT
Residues 181-240	********** **********

BatCoV RaTG13 MN996532.1	LLALHRSYLTPGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
SarsCov2 MT019529.1	LLALHRSYLTPGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
Residues 241-300	********** **********

BatCoV RaTG13 MN996532.1	CTLKSFTVEKGIYQTSNFR**VQPTDSIVRFPNITNLCPFGEVFNATTFASVYAWNRKRISN**
SarsCov2 MT019529.1	CTLKSFTVEKGIYQTSNFR**VQPTESIVRFPNITNLCPFGEVFNATRFASVYAWNRKRISN**
Residues 301-360	**********:********** **********

BatCoV RaTG13 MN996532.1	**CVADYSVLYNSTSFSTFKCYGVSPTKLNDLCFTNVYADSFVITGDEVRQIAPGQTGKIAD**
SarsCov2 MT019529.1	**CVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSFVIRGDEVRQIAPGQTGKIAD**
Residues 361-420	**********:********** **********

BatCoV RaTG13 MN996532.1	**YNYKLPDDFTGCVIAWNSKHIDAKEGGNFNYLYRLFRKANLKPFERDISTEIYQAGSKPC**
SarsCov2 MT019529.1	**YNYKLPDDFTGCVIAWNSNNLDSKVGGNYNYLYRLFRKSNLKPFERDISTEIYQAGSTPC**
Residues 421-480	**********:::*:* ***:*********:**********.**

BatCoV RaTG13 MN996532.1	**NGQTGLNCYYPLYRYGFYPTDGVGHQPYRVVVLSFELLNAPATVCGPKKSTNLVKNKCVN**
SarsCov2 MT019529.1	**NGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVN**
Residues 481-540	** *:***:** *** **:***:**********:**********

BatCoV RaTG13 MN996532.1	**F**NFNGLTGTGVLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
SarsCov2 MT019529.1	**F**NFNGLTGTGVLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
Residues 541-600	********** **********

BatCoV RaTG13 MN996532.1	GTNASNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCLIGAEHVNNSY
SarsCov2 MT019529.1	GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCLIGAEHVNNSY
Residues 601-660	***:********** **********

BatCoV RaTG13 MN996532.1	ECDIPIGAGICASYQTQTNS----RSVASQSIIAYTMSLGAENSVAYSNNSIAIPTNFTI
SarsCov2 MT019529.1	ECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLGAENSVAYSNNSIAIPTNFTI
Residues 661-720	********** **********

BatCoV RaTG13 MN996532.1	SVTTEILPVSMTKTSVDCTMYICGDSTECSNLLLQYGSFCTQLNRALTGIAVEQDKNTQE
SarsCov2 MT019529.1	SVTTEILPVSMTKTSVDCTMYICGDSTECSNLLLQYGSFCTQLNRALTGIAVEQDKNTQE
Residues 721-780	**********

BatCoV RaTG13 MN996532.1	VFAQVKQIYKTPPIKDFGGFNFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDC
SarsCov2 MT019529.1	VFAQVKQIYKTPPIKDFGGFNFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDC
Residues 781-840	**********

BatCoV RaTG13 MN996532.1	LGDIAARDLICAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
SarsCov2 MT019529.1	LGDIAARDLICAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
Residues 841-900	**********

BatCoV RaTG13 MN996532.1	QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQDVVNQNAQALN
SarsCov2 MT019529.1	QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQDVVNQNAQALN
Residues 901-960	**********

BatCoV RaTG13 MN996532.1	TLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGRLQSLQTYVTQQLIRAAEIRA
SarsCov2 MT019529.1	TLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGRLQSLQTYVTQQLIRAAEIRA
Residues 961-1020	**********

BatCoV RaTG13 MN996532.1	SANLAATKMSECVLGQSKRVDFCGKGYHLMSFPQSAPHGVVFLHVTYVPAQEKNFTTAPA
SarsCov2 MT019529.1	SANLAATKMSECVLGQSKRVDFCGKGYHLMSFPQSAPHGVVFLHVTYVPAQEKNFTTAPA
Residues 1021-1080	**********

BatCoV RaTG13 MN996532.1	ICHDGKAHFPREGVFVSNGTHWFVTQRNFYEPQIITTDNTFVSGSCDVVIGIVNNTVYDP
SarsCov2 MT019529.1	ICHDGKAHFPREGVFVSNGTHWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDP
Residues 1081-1140	**********.**********

BatCoV RaTG13 MN996532.1	LQPELDSFKEELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
SarsCov2 MT019529.1	LQPELDSFKEELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
Residues 1141-1200	**********

BatCoV RaTG13 MN996532.1	QELGKYEQYIKWPWYIWLGFIAGLIAIIMVTIMLCCMTSCCSCLKGCCSCGSCCKFDEDD
SarsCov2 MT019529.1	QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSCGSCCKFDEDD
Residues 1201-1260	**********:**********

BatCoV RaTG13 MN996532.1	SEPVLKGVKLHYT
SarsCov2 MT019529.1	SEPVLKGVKLHYT
Residues 1261-1273	**********

Table 7. S Protein sequence alignment of the first sequenced isolate of SARS-CoV-2 BetaCoV/Wuhan/IPBCAMS-WH-01/2019 (GenBank ID MT019529.1) betacoronavirus lineage B (Ren LL 2020) and genetically related CoV from the Bat species, *Rhinolophus affinis* CoV strain RaTG13, (GenBank ID MN996532.1) (Zhou P 2020). Green-red amino acid substitution during the

host tropism, green-blue ongoing mutations at the residue after the host tropism. Blue amino acid substitution at the clinical isolate. Purple recombination in the form or deletion or insert.

CLUSTALW Result

Supplementary Material 1
Sequence Alignment of
HuCoV229E Isolates

[clustalw.aln][clustalw.dnd][readme]
Select tree menu ▼ Exec

```
 CLUSTAL 2.1 Multiple Sequence Alignments


Sequence type explicitly set to Protein
Sequence format is Pearson
Sequence 1: NC_002645.1  1173 aa
Sequence 2: MN369046.1   1171 aa
Sequence 3: MN306046.1   1171 aa
Sequence 4: KM055531.1   1171 aa
Sequence 5: KM055537.1   1171 aa
Sequence 6: KM055538.1   1171 aa
Sequence 7: KM055551.1   1170 aa
Sequence 8: KM055554.1   1170 aa
Sequence 9: KM055557.1   1170 aa
Sequence 10: KY996417.1   1171 aa
Sequence 11: KY983587.1   1171 aa
Sequence 12: KY674919.1   1170 aa
Sequence 13: KY684760.1   1171 aa
Sequence 14: KF514430.1   1170 aa
Sequence 15: KF514429.1   1170 aa
Sequence 16: KF514431.1   1170 aa
Sequence 17: KF514433.1   1170 aa
Sequence 18: JX503060.1   1171 aa
Sequence 19: JX503061.1   1170 aa
Sequence 20: AB691763.1   1173 aa
Sequence 21: AB691764.1   1170 aa
Sequence 22: AB691767.1   1170 aa
Sequence 23: DQ243966.1   1170 aa
Sequence 24: DQ243971.1   1170 aa
Sequence 25: DQ243973.1   1170 aa
Sequence 26: DQ243974.1   1170 aa
Sequence 27: DQ243977.1   1170 aa
Sequence 28: DQ243979.1   1170 aa
Sequence 29: DQ243980.1   1170 aa
Start of Pairwise alignments
Aligning...



Sequences (1:2) Aligned. Score: 93.766
Sequences (1:3) Aligned. Score: 93.766
Sequences (1:4) Aligned. Score: 94.1076
Sequences (1:5) Aligned. Score: 94.2784
Sequences (1:6) Aligned. Score: 94.3638
Sequences (1:7) Aligned. Score: 94.4444
```

Sequences (1:8) Aligned. Score: 94.5299
Sequences (1:9) Aligned. Score: 94.7863
Sequences (1:10) Aligned. Score: 94.4492
Sequences (1:11) Aligned. Score: 93.8514
Sequences (1:12) Aligned. Score: 94.5299
Sequences (1:13) Aligned. Score: 93.8514
Sequences (1:14) Aligned. Score: 95.1282
Sequences (1:15) Aligned. Score: 95.812
Sequences (1:16) Aligned. Score: 94.7009
Sequences (1:17) Aligned. Score: 95.1282
Sequences (1:18) Aligned. Score: 94.4492
Sequences (1:19) Aligned. Score: 94.5299
Sequences (1:20) Aligned. Score: 99.5737
Sequences (1:21) Aligned. Score: 94.5299
Sequences (1:22) Aligned. Score: 94.5299
Sequences (1:23) Aligned. Score: 97.0085
Sequences (1:24) Aligned. Score: 96.2393
Sequences (1:25) Aligned. Score: 95.2991
Sequences (1:26) Aligned. Score: 95.2991
Sequences (1:27) Aligned. Score: 94.6154
Sequences (1:28) Aligned. Score: 94.5299
Sequences (1:29) Aligned. Score: 94.6154
Sequences (2:3) Aligned. Score: 99.7438
Sequences (2:4) Aligned. Score: 98.9752
Sequences (2:5) Aligned. Score: 98.6336
Sequences (2:6) Aligned. Score: 98.2067
Sequences (2:7) Aligned. Score: 97.7778
Sequences (2:8) Aligned. Score: 98.3761
Sequences (2:9) Aligned. Score: 98.1197
Sequences (2:10) Aligned. Score: 98.2921
Sequences (2:11) Aligned. Score: 98.5482
Sequences (2:12) Aligned. Score: 97.6068
Sequences (2:13) Aligned. Score: 98.719
Sequences (2:14) Aligned. Score: 97.265
Sequences (2:15) Aligned. Score: 96.8376
Sequences (2:16) Aligned. Score: 97.094
Sequences (2:17) Aligned. Score: 97.265
Sequences (2:18) Aligned. Score: 98.2921
Sequences (2:19) Aligned. Score: 97.6068
Sequences (2:20) Aligned. Score: 93.339
Sequences (2:21) Aligned. Score: 97.6068
Sequences (2:22) Aligned. Score: 98.3761
Sequences (2:23) Aligned. Score: 95.5556
Sequences (2:24) Aligned. Score: 96.0684
Sequences (2:25) Aligned. Score: 97.094
Sequences (2:26) Aligned. Score: 97.094
Sequences (2:27) Aligned. Score: 97.6068
Sequences (2:28) Aligned. Score: 97.6068
Sequences (2:29) Aligned. Score: 97.6923
Sequences (3:4) Aligned. Score: 98.8898
Sequences (3:5) Aligned. Score: 98.6336
Sequences (3:6) Aligned. Score: 98.2067
Sequences (3:7) Aligned. Score: 97.7778
Sequences (3:8) Aligned. Score: 98.3761
Sequences (3:9) Aligned. Score: 98.1197
Sequences (3:10) Aligned. Score: 98.2921

Sequences (3:11) Aligned. Score: 98.4629
Sequences (3:12) Aligned. Score: 97.6068
Sequences (3:13) Aligned. Score: 98.6336
Sequences (3:14) Aligned. Score: 97.265
Sequences (3:15) Aligned. Score: 96.8376
Sequences (3:16) Aligned. Score: 97.094
Sequences (3:17) Aligned. Score: 97.265
Sequences (3:18) Aligned. Score: 98.2921
Sequences (3:19) Aligned. Score: 97.6068
Sequences (3:20) Aligned. Score: 93.339
Sequences (3:21) Aligned. Score: 97.6068
Sequences (3:22) Aligned. Score: 98.3761
Sequences (3:23) Aligned. Score: 95.5556
Sequences (3:24) Aligned. Score: 96.0684
Sequences (3:25) Aligned. Score: 97.094
Sequences (3:26) Aligned. Score: 97.094
Sequences (3:27) Aligned. Score: 97.6068
Sequences (3:28) Aligned. Score: 97.6068
Sequences (3:29) Aligned. Score: 97.6923
Sequences (4:5) Aligned. Score: 99.3168
Sequences (4:6) Aligned. Score: 98.8898
Sequences (4:7) Aligned. Score: 98.4615
Sequences (4:8) Aligned. Score: 99.0598
Sequences (4:9) Aligned. Score: 98.8034
Sequences (4:10) Aligned. Score: 98.9752
Sequences (4:11) Aligned. Score: 99.0606
Sequences (4:12) Aligned. Score: 98.1197
Sequences (4:13) Aligned. Score: 99.3168
Sequences (4:14) Aligned. Score: 97.8632
Sequences (4:15) Aligned. Score: 97.265
Sequences (4:16) Aligned. Score: 97.6923
Sequences (4:17) Aligned. Score: 97.8632
Sequences (4:18) Aligned. Score: 98.9752
Sequences (4:19) Aligned. Score: 98.1197
Sequences (4:20) Aligned. Score: 93.6806
Sequences (4:21) Aligned. Score: 98.1197
Sequences (4:22) Aligned. Score: 99.0598
Sequences (4:23) Aligned. Score: 95.8974
Sequences (4:24) Aligned. Score: 96.4957
Sequences (4:25) Aligned. Score: 97.6923
Sequences (4:26) Aligned. Score: 97.6923
Sequences (4:27) Aligned. Score: 98.1197
Sequences (4:28) Aligned. Score: 98.1197
Sequences (4:29) Aligned. Score: 98.2051
Sequences (5:6) Aligned. Score: 99.4022
Sequences (5:7) Aligned. Score: 98.9744
Sequences (5:8) Aligned. Score: 99.4017
Sequences (5:9) Aligned. Score: 99.3162
Sequences (5:10) Aligned. Score: 99.4876
Sequences (5:11) Aligned. Score: 98.719
Sequences (5:12) Aligned. Score: 98.6325
Sequences (5:13) Aligned. Score: 98.8044
Sequences (5:14) Aligned. Score: 98.3761
Sequences (5:15) Aligned. Score: 97.6923
Sequences (5:16) Aligned. Score: 98.2051
Sequences (5:17) Aligned. Score: 98.3761

Sequences (5:18) Aligned. Score: 99.4876
Sequences (5:19) Aligned. Score: 98.6325
Sequences (5:20) Aligned. Score: 93.8514
Sequences (5:21) Aligned. Score: 98.547
Sequences (5:22) Aligned. Score: 99.4017
Sequences (5:23) Aligned. Score: 96.0684
Sequences (5:24) Aligned. Score: 96.9231
Sequences (5:25) Aligned. Score: 98.2051
Sequences (5:26) Aligned. Score: 98.2051
Sequences (5:27) Aligned. Score: 98.6325
Sequences (5:28) Aligned. Score: 98.6325
Sequences (5:29) Aligned. Score: 98.7179
Sequences (6:7) Aligned. Score: 99.2308
Sequences (6:8) Aligned. Score: 99.1453
Sequences (6:9) Aligned. Score: 99.4017
Sequences (6:10) Aligned. Score: 99.7438
Sequences (6:11) Aligned. Score: 98.2921
Sequences (6:12) Aligned. Score: 98.7179
Sequences (6:13) Aligned. Score: 98.3775
Sequences (6:14) Aligned. Score: 98.2906
Sequences (6:15) Aligned. Score: 97.7778
Sequences (6:16) Aligned. Score: 98.2906
Sequences (6:17) Aligned. Score: 98.4615
Sequences (6:18) Aligned. Score: 99.7438
Sequences (6:19) Aligned. Score: 98.7179
Sequences (6:20) Aligned. Score: 93.9368
Sequences (6:21) Aligned. Score: 98.6325
Sequences (6:22) Aligned. Score: 99.1453
Sequences (6:23) Aligned. Score: 96.1538
Sequences (6:24) Aligned. Score: 97.0085
Sequences (6:25) Aligned. Score: 98.2906
Sequences (6:26) Aligned. Score: 98.2906
Sequences (6:27) Aligned. Score: 98.7179
Sequences (6:28) Aligned. Score: 98.7179
Sequences (6:29) Aligned. Score: 98.8034
Sequences (7:8) Aligned. Score: 99.4017
Sequences (7:9) Aligned. Score: 99.6581
Sequences (7:10) Aligned. Score: 99.3162
Sequences (7:11) Aligned. Score: 97.8632
Sequences (7:12) Aligned. Score: 98.9744
Sequences (7:13) Aligned. Score: 97.9487
Sequences (7:14) Aligned. Score: 98.547
Sequences (7:15) Aligned. Score: 98.0342
Sequences (7:16) Aligned. Score: 98.547
Sequences (7:17) Aligned. Score: 98.7179
Sequences (7:18) Aligned. Score: 99.3162
Sequences (7:19) Aligned. Score: 98.9744
Sequences (7:20) Aligned. Score: 94.0171
Sequences (7:21) Aligned. Score: 98.8889
Sequences (7:22) Aligned. Score: 99.4017
Sequences (7:23) Aligned. Score: 96.3248
Sequences (7:24) Aligned. Score: 97.265
Sequences (7:25) Aligned. Score: 98.547
Sequences (7:26) Aligned. Score: 98.547
Sequences (7:27) Aligned. Score: 98.9744
Sequences (7:28) Aligned. Score: 98.9744

Sequences (7:29) Aligned. Score: 99.0598
Sequences (8:9) Aligned. Score: 99.7436
Sequences (8:10) Aligned. Score: 99.2308
Sequences (8:11) Aligned. Score: 98.4615
Sequences (8:12) Aligned. Score: 99.0598
Sequences (8:13) Aligned. Score: 98.547
Sequences (8:14) Aligned. Score: 98.8034
Sequences (8:15) Aligned. Score: 98.1197
Sequences (8:16) Aligned. Score: 98.6325
Sequences (8:17) Aligned. Score: 98.8034
Sequences (8:18) Aligned. Score: 99.2308
Sequences (8:19) Aligned. Score: 99.0598
Sequences (8:20) Aligned. Score: 94.1026
Sequences (8:21) Aligned. Score: 98.9744
Sequences (8:22) Aligned. Score: 100
Sequences (8:23) Aligned. Score: 96.4103
Sequences (8:24) Aligned. Score: 97.3504
Sequences (8:25) Aligned. Score: 98.6325
Sequences (8:26) Aligned. Score: 98.6325
Sequences (8:27) Aligned. Score: 99.0598
Sequences (8:28) Aligned. Score: 99.0598
Sequences (8:29) Aligned. Score: 99.1453
Sequences (9:10) Aligned. Score: 99.4872
Sequences (9:11) Aligned. Score: 98.2051
Sequences (9:12) Aligned. Score: 99.3162
Sequences (9:13) Aligned. Score: 98.2906
Sequences (9:14) Aligned. Score: 98.8889
Sequences (9:15) Aligned. Score: 98.3761
Sequences (9:16) Aligned. Score: 98.8889
Sequences (9:17) Aligned. Score: 99.0598
Sequences (9:18) Aligned. Score: 99.4872
Sequences (9:19) Aligned. Score: 99.3162
Sequences (9:20) Aligned. Score: 94.359
Sequences (9:21) Aligned. Score: 99.2308
Sequences (9:22) Aligned. Score: 99.7436
Sequences (9:23) Aligned. Score: 96.6667
Sequences (9:24) Aligned. Score: 97.6068
Sequences (9:25) Aligned. Score: 98.8889
Sequences (9:26) Aligned. Score: 98.8889
Sequences (9:27) Aligned. Score: 99.3162
Sequences (9:28) Aligned. Score: 99.3162
Sequences (9:29) Aligned. Score: 99.4017
Sequences (10:11) Aligned. Score: 98.5482
Sequences (10:12) Aligned. Score: 98.8034
Sequences (10:13) Aligned. Score: 98.6336
Sequences (10:14) Aligned. Score: 98.3761
Sequences (10:15) Aligned. Score: 97.8632
Sequences (10:16) Aligned. Score: 98.3761
Sequences (10:17) Aligned. Score: 98.547
Sequences (10:18) Aligned. Score: 99.8292
Sequences (10:19) Aligned. Score: 98.8034
Sequences (10:20) Aligned. Score: 94.0222
Sequences (10:21) Aligned. Score: 98.7179
Sequences (10:22) Aligned. Score: 99.2308
Sequences (10:23) Aligned. Score: 96.2393
Sequences (10:24) Aligned. Score: 97.094

Sequences (10:25) Aligned. Score: 98.3761
Sequences (10:26) Aligned. Score: 98.3761
Sequences (10:27) Aligned. Score: 98.8034
Sequences (10:28) Aligned. Score: 98.8034
Sequences (10:29) Aligned. Score: 98.8889
Sequences (11:12) Aligned. Score: 97.5214
Sequences (11:13) Aligned. Score: 99.2314
Sequences (11:14) Aligned. Score: 97.265
Sequences (11:15) Aligned. Score: 96.8376
Sequences (11:16) Aligned. Score: 97.094
Sequences (11:17) Aligned. Score: 97.265
Sequences (11:18) Aligned. Score: 98.3775
Sequences (11:19) Aligned. Score: 97.5214
Sequences (11:20) Aligned. Score: 93.4244
Sequences (11:21) Aligned. Score: 97.5214
Sequences (11:22) Aligned. Score: 98.4615
Sequences (11:23) Aligned. Score: 95.641
Sequences (11:24) Aligned. Score: 96.1538
Sequences (11:25) Aligned. Score: 97.094
Sequences (11:26) Aligned. Score: 97.094
Sequences (11:27) Aligned. Score: 97.5214
Sequences (11:28) Aligned. Score: 97.5214
Sequences (11:29) Aligned. Score: 97.6068
Sequences (12:13) Aligned. Score: 97.6068
Sequences (12:14) Aligned. Score: 99.0598
Sequences (12:15) Aligned. Score: 98.547
Sequences (12:16) Aligned. Score: 99.0598
Sequences (12:17) Aligned. Score: 99.2308
Sequences (12:18) Aligned. Score: 98.8034
Sequences (12:19) Aligned. Score: 99.6581
Sequences (12:20) Aligned. Score: 94.1026
Sequences (12:21) Aligned. Score: 99.5726
Sequences (12:22) Aligned. Score: 99.0598
Sequences (12:23) Aligned. Score: 96.6667
Sequences (12:24) Aligned. Score: 97.7778
Sequences (12:25) Aligned. Score: 99.0598
Sequences (12:26) Aligned. Score: 99.0598
Sequences (12:27) Aligned. Score: 99.6581
Sequences (12:28) Aligned. Score: 99.6581
Sequences (12:29) Aligned. Score: 99.7436
Sequences (13:14) Aligned. Score: 97.3504
Sequences (13:15) Aligned. Score: 96.8376
Sequences (13:16) Aligned. Score: 97.265
Sequences (13:17) Aligned. Score: 97.3504
Sequences (13:18) Aligned. Score: 98.4629
Sequences (13:19) Aligned. Score: 97.6068
Sequences (13:20) Aligned. Score: 93.4244
Sequences (13:21) Aligned. Score: 97.6068
Sequences (13:22) Aligned. Score: 98.547
Sequences (13:23) Aligned. Score: 95.641
Sequences (13:24) Aligned. Score: 96.1538
Sequences (13:25) Aligned. Score: 97.1795
Sequences (13:26) Aligned. Score: 97.1795
Sequences (13:27) Aligned. Score: 97.6068
Sequences (13:28) Aligned. Score: 97.7778
Sequences (13:29) Aligned. Score: 97.6923

Sequences (14:15) Aligned. Score: 99.3162
Sequences (14:16) Aligned. Score: 99.3162
Sequences (14:17) Aligned. Score: 99.8291
Sequences (14:18) Aligned. Score: 98.3761
Sequences (14:19) Aligned. Score: 99.0598
Sequences (14:20) Aligned. Score: 94.7009
Sequences (14:21) Aligned. Score: 98.9744
Sequences (14:22) Aligned. Score: 98.8034
Sequences (14:23) Aligned. Score: 97.3504
Sequences (14:24) Aligned. Score: 98.547
Sequences (14:25) Aligned. Score: 99.8291
Sequences (14:26) Aligned. Score: 99.8291
Sequences (14:27) Aligned. Score: 99.0598
Sequences (14:28) Aligned. Score: 99.0598
Sequences (14:29) Aligned. Score: 99.1453
Sequences (15:16) Aligned. Score: 98.8034
Sequences (15:17) Aligned. Score: 99.3162
Sequences (15:18) Aligned. Score: 97.8632
Sequences (15:19) Aligned. Score: 98.547
Sequences (15:20) Aligned. Score: 95.3846
Sequences (15:21) Aligned. Score: 98.4615
Sequences (15:22) Aligned. Score: 98.1197
Sequences (15:23) Aligned. Score: 97.8632
Sequences (15:24) Aligned. Score: 99.2308
Sequences (15:25) Aligned. Score: 99.4872
Sequences (15:26) Aligned. Score: 99.4872
Sequences (15:27) Aligned. Score: 98.547
Sequences (15:28) Aligned. Score: 98.547
Sequences (15:29) Aligned. Score: 98.6325
Sequences (16:17) Aligned. Score: 99.4872
Sequences (16:18) Aligned. Score: 98.3761
Sequences (16:19) Aligned. Score: 99.0598
Sequences (16:20) Aligned. Score: 94.2735
Sequences (16:21) Aligned. Score: 98.9744
Sequences (16:22) Aligned. Score: 98.6325
Sequences (16:23) Aligned. Score: 96.8376
Sequences (16:24) Aligned. Score: 98.0342
Sequences (16:25) Aligned. Score: 99.3162
Sequences (16:26) Aligned. Score: 99.3162
Sequences (16:27) Aligned. Score: 99.0598
Sequences (16:28) Aligned. Score: 99.1453
Sequences (16:29) Aligned. Score: 99.1453
Sequences (17:18) Aligned. Score: 98.547
Sequences (17:19) Aligned. Score: 99.2308
Sequences (17:20) Aligned. Score: 94.7009
Sequences (17:21) Aligned. Score: 99.1453
Sequences (17:22) Aligned. Score: 98.8034
Sequences (17:23) Aligned. Score: 97.3504
Sequences (17:24) Aligned. Score: 98.547
Sequences (17:25) Aligned. Score: 99.8291
Sequences (17:26) Aligned. Score: 99.8291
Sequences (17:27) Aligned. Score: 99.2308
Sequences (17:28) Aligned. Score: 99.2308
Sequences (17:29) Aligned. Score: 99.3162
Sequences (18:19) Aligned. Score: 98.8034
Sequences (18:20) Aligned. Score: 94.0222

Sequences (18:21) Aligned. Score: 98.7179
Sequences (18:22) Aligned. Score: 99.2308
Sequences (18:23) Aligned. Score: 96.2393
Sequences (18:24) Aligned. Score: 97.094
Sequences (18:25) Aligned. Score: 98.3761
Sequences (18:26) Aligned. Score: 98.3761
Sequences (18:27) Aligned. Score: 98.8034
Sequences (18:28) Aligned. Score: 98.8034
Sequences (18:29) Aligned. Score: 98.8889
Sequences (19:20) Aligned. Score: 94.1026
Sequences (19:21) Aligned. Score: 99.5726
Sequences (19:22) Aligned. Score: 99.0598
Sequences (19:23) Aligned. Score: 96.6667
Sequences (19:24) Aligned. Score: 97.7778
Sequences (19:25) Aligned. Score: 99.0598
Sequences (19:26) Aligned. Score: 99.0598
Sequences (19:27) Aligned. Score: 99.6581
Sequences (19:28) Aligned. Score: 99.6581
Sequences (19:29) Aligned. Score: 99.7436
Sequences (20:21) Aligned. Score: 94.1026
Sequences (20:22) Aligned. Score: 94.1026
Sequences (20:23) Aligned. Score: 96.5812
Sequences (20:24) Aligned. Score: 95.812
Sequences (20:25) Aligned. Score: 94.8718
Sequences (20:26) Aligned. Score: 94.8718
Sequences (20:27) Aligned. Score: 94.188
Sequences (20:28) Aligned. Score: 94.1026
Sequences (20:29) Aligned. Score: 94.188
Sequences (21:22) Aligned. Score: 98.9744
Sequences (21:23) Aligned. Score: 96.6667
Sequences (21:24) Aligned. Score: 97.6923
Sequences (21:25) Aligned. Score: 98.9744
Sequences (21:26) Aligned. Score: 98.9744
Sequences (21:27) Aligned. Score: 99.5726
Sequences (21:28) Aligned. Score: 99.7436
Sequences (21:29) Aligned. Score: 99.6581
Sequences (22:23) Aligned. Score: 96.4103
Sequences (22:24) Aligned. Score: 97.3504
Sequences (22:25) Aligned. Score: 98.6325
Sequences (22:26) Aligned. Score: 98.6325
Sequences (22:27) Aligned. Score: 99.0598
Sequences (22:28) Aligned. Score: 99.0598
Sequences (22:29) Aligned. Score: 99.1453
Sequences (23:24) Aligned. Score: 98.2906
Sequences (23:25) Aligned. Score: 97.5214
Sequences (23:26) Aligned. Score: 97.5214
Sequences (23:27) Aligned. Score: 96.6667
Sequences (23:28) Aligned. Score: 96.6667
Sequences (23:29) Aligned. Score: 96.7521
Sequences (24:25) Aligned. Score: 98.7179
Sequences (24:26) Aligned. Score: 98.7179
Sequences (24:27) Aligned. Score: 97.7778
Sequences (24:28) Aligned. Score: 97.7778
Sequences (24:29) Aligned. Score: 97.8632
Sequences (25:26) Aligned. Score: 100
Sequences (25:27) Aligned. Score: 99.0598

```
Sequences (25:28) Aligned. Score: 99.0598
Sequences (25:29) Aligned. Score: 99.1453
Sequences (26:27) Aligned. Score: 99.0598
Sequences (26:28) Aligned. Score: 99.0598
Sequences (26:29) Aligned. Score: 99.1453
Sequences (27:28) Aligned. Score: 99.6581
Sequences (27:29) Aligned. Score: 99.7436
Sequences (28:29) Aligned. Score: 99.7436
Guide tree file created:   [clustalw.dnd]

There are 28 groups
Start of Multiple Alignment

Aligning...
Group 1: Sequences:   2      Score:19232
Group 2: Sequences:   3      Score:19241
Group 3: Sequences:   4      Score:19229
Group 4: Sequences:   2      Score:19232
Group 5: Sequences:   6      Score:19226
Group 6: Sequences:   2      Score:19263
Group 7: Sequences:   2      Score:19217
Group 8: Sequences:   3      Score:19202
Group 9: Sequences:   5      Score:19144
Group 10: Sequences:   6      Score:19165
Group 11: Sequences:   2      Score:19255
Group 12: Sequences:   3      Score:19263
Group 13: Sequences:   9      Score:19129
Group 14: Sequences:   2      Score:19276
Group 15: Sequences:  11      Score:19119
Group 16: Sequences:  12      Score:19066
Group 17: Sequences:  13      Score:19107
Group 18: Sequences:  19      Score:19028
Group 19: Sequences:  20      Score:19036
Group 20: Sequences:  21      Score:19060
Group 21: Sequences:  22      Score:19061
Group 22: Sequences:   2      Score:19264
Group 23: Sequences:  24      Score:19061
Group 24: Sequences:  25      Score:19023
Group 25: Sequences:  26      Score:18954
Group 26: Sequences:   2      Score:19283
Group 27: Sequences:   3      Score:18776
Group 28: Sequences:  29      Score:18486
Alignment Score 2857391

CLUSTAL-Alignment file created  [clustalw.aln]
```

---

clustalw.aln

```
CLUSTAL 2.1 multiple sequence alignment


KY674919.1        MFVLLVAYALLHIAGCQTTNGMNTSHSVCNGCVGHSENVFAVESGGYIPSNFAFNNWFLL
JX503061.1        MFVLLVAYALLHIAGCQTTNGMNTSHSVCNGCVGHSENVFAVESGGYIPSNFAFNNWFLL
DQ243980.1        MFVLLVAYALLHIAGCQTTNGMNTSHSVCNGCVGHSENVFAVESGGYIPSNFAFNNWFLL
```

```
DQ243977.1      MFVLLVAYALLHIAGCQTTNGMNTSQSVCNGCVGHSENVFAVESGGYIPSNFAFNNWFLL
AB691764.1      MFVLLVAYALLHIAGCQTTNGMNTSHSVCNGCVGHSENVFAVESGGYIPSNFAFNNWFLL
DQ243979.1      MFVLLVAYALLHIAGCQTTNGMNTSHSVCNGCVGHSENVFDVESGGYIPSNFAFNNWFLL
MN369046.1      MFVLLVAYALLHIAGCQTTNGTNTSHSVCNGCVGHSENVFAVESGGYIPSNFAFNNWFLL
MN306046.1      MFVLLVAYALLHIAGCQTTNGTNTSHAVCNGCVGHSENVFAVESGGYIPSNFAFNNWFLL
KY983587.1      MFVLLVAYALLHIAGCQTTNGTNTSHSVCNGCVGHSENVFAVESGGYIPSNFSFNNWFLL
KY684760.1      MFVLLVAYALLHIAGCQTTNGTNTSHSVCNGCVGHSENVFDVESGGYIPSNFAFNNWFLL
KM055531.1      MFVLLVAYALLHIAGCQTTNGTNTSHSVCNGCVGHSENVFAVESGGYIPSNFAFNNWFLL
KM055537.1      MFVLLVAYALLHIAGCQTTNGTNTSHSVCNGCVGHSKNVFAVESGGYIPSNFAFNNWFLL
KM055538.1      MFVLLVAYALLHIAGSQTTNGTNTNHSVCNGCVGHSENVFAVESGGYIPSNFAFNNWFLL
JX503060.1      MFVLLVAYALLHIAGCQTTNGTNTSHSVCNGCVGHSENVFAVESGGYIPSNFAFNNWFLL
KY996417.1      MFVLLVAYALLHIAGCQTTNGTNTSHSVCNGCVGHSENVFAVESGGYIPSNFAFNNWFLL
KM055554.1      MFVLLVAYALLHIAGCQTTNGTNTSHSVCNGCVGHSENVFAVESGGYIPSNFAFNNWFLL
AB691767.1      MFVLLVAYALLHIAGCQTTNGTNTSHSVCNGCVGHSENVFAVESGGYIPSNFAFNNWFLL
KM055551.1      MFVLLVAYALLHIAGCQTTNGTNTSHSVCNGCVGHSENVFAVESGGYIPSNFAFNNWFLL
KM055557.1      MFVLLVAYALLHIAGCQTTNGTNTSHSVCNGCVGHSENVFAVESGGYIPSNFAFNNWFLL
KF514431.1      MFVLLVAYALLHIAGCQTTNGMNTSHSVCNGCVGHSENVFVVESGGYIPSNFAFNNWFLL
KF514433.1      MFVLLVAYALLHIAGCQTTNGMNTSHSVCNGCVGHSENVFAVESGGYIPSDFAFNNWFLL
KF514430.1      MFVLLVAYALLHIAGCQTTNGMNTSHSVCNGCVGHSENVFAVESGGYIPSDFAFNNWFLL
DQ243973.1      MFVLLVAYALLHIAGCQTTNGMNTSHSVCNGCVGHSENVFAVESGGYIPSDFAFNNWFLL
DQ243974.1      MFVLLVAYALLHIAGCQTTNGMNTSHSVCNGCVGHSENVFAVESGGYIPSDFAFNNWFLL
KF514429.1      MFVLLVAYALLHIAGCQTTNGMNTSHSVCNGCVGHSENVFAVESGGYIPSDFAFNNWFLL
DQ243971.1      MFVLLVAYALLHIAGCQTTNGMNTSHSVCNGCVGHSENVFAVESGGYIPSDFAFNNWFLL
NC_002645.1     MFVLLVAYALLHIAGCQTTNGLNTSYSVCNGCVGYSENVFAVESGGYIPSDFAFNNWFLL
AB691763.1      MFVLLVAYALLHIAGCQTTNGLNTSYSVCNGCVGYSENVFAVESGGYIPSDFAFNNWFLL
DQ243966.1      MFVLLVAYALLHIADCQTTNGLNTSHSVCNGCVGHSENVFAVESGGYIPSDFAFNNWFLL
                ***************..***** **. :*******:*:*:** *********:*:*******

KY674919.1      TNTSSVVDGVVRSFQPLLLNCLWSVSGSRLTTGFVYFNGTGRGDCKGFYSNASSDVIRYN
JX503061.1      TNTSSVVDGFVRSFQPLLLNCLWSVSGSRLTTGFVYFNGTGRGDCKGFYSNASSDVIRYN
DQ243980.1      TNTSSVVDGVVRSFQPLLLNCLWSVSGSRLTTGFVYFNGTGRGDCKGFYSNASSDVIRYN
DQ243977.1      TNTSSVVDGVVRSFQPLLLNCLWSVSGSRLTTGFVYFNGTGRGDCKGFYSNASSDVIRYN
AB691764.1      TNTSSVVDGVVRSFQPLLLNCLWSVSGSRLTTGFVYFNGTGRGDCKGFYSNASSDVIRYN
DQ243979.1      TNTSSVVDGVVRSFQPLLLNCLWSVSGSRLTTGFVYFNGTGRGDCKGFYSNASSDVIRYN
MN369046.1      TNTSSVVDGVVRSFQPLLLNCLWSVSGSQVITGFVYFNGTGRGACKGFYSNASSDVIRYN
MN306046.1      TNTSSVVDGVVRSFQPLLLNCLWSVSGSQVITGFVYFNGTGRGACKGFYSNASSDVIRYN
KY983587.1      TNTSSVVDGVVRSFQPLLLNCLWSVSGSQFTTGFVYFNGTGRGACKGFYSNASSDVIRYN
KY684760.1      TNTSSVVDGVVRSFQPLLLNCLWSVSGSQFTTGFVYFNGTGRGACKGFYSNASSDVIRYN
KM055531.1      TNTSSVVDGVVRSFQPLLLNCLWSVSGSQFTTGFVYFNGTGRGACKGFYSNASSDVIRYN
KM055537.1      TNTSSVVDGVVRSFQPLLLNCLWSVSGSQFTTGFVYFNGTGRGACKGFYSNASSDVIRYN
KM055538.1      TNTSSVVDGVVRSFQPLLLNCLWSVSGSRFTTGFVYFNGTGRGDCKGFYSNASSDVIRYN
JX503060.1      TNTSSVVDGVVRSFQPLLLNCLWSVSGSRFTTGFVYFNGTGRGDCKGFYSNASSDVIRYN
KY996417.1      TNTSSVVDGVVRSFQPLLLNCLWSVSGSRFTTGFVYFNGTGRGDCKGFYSNASSDVIRYN
KM055554.1      TNTSSVVDGVVRSFQPLLLNCLWSVSGSQFTTGFVYFNGTGRGDCKGFYSNASSDVIRYN
AB691767.1      TNTSSVVDGVVRSFQPLLLNCLWSVSGSQFTTGFVYFNGTGRGDCKGFYSNASSDVIRYN
KM055551.1      TNTSSVVDGVVRSFQPLLLNCLWSVSGSRFTTGFVYFNGTGRGDCKGFYSNASSDVIRYN
KM055557.1      TNTSSVVDGVVRSFQPLLLNCLWSVSGSRFTTGFVYFNGTGRGDCKGFYSNASSDVIRYN
KF514431.1      TNTSSVVDGVVRSFQPLLLNCLWSVSGSRFTTGFVYFNGTGRGDCKGFYSNASSDVIRYN
KF514433.1      TNTSSVVDGVVRSFQPLLLNCLWSVSGSRFTTGFVYFNGTGRGDCKGFYSNASSDVIRYN
KF514430.1      TNTSSVVDGVVRSFQPLLLNCLWSVSGSQFTTGFVYFNGTGRGDCKGFYSNASSDVIRYN
DQ243973.1      TNTSSVVDGVVRSFQPLLLNCLWSVSGSRFTTGFVYFNGTGRGDCKGFYSNASSDVIRYN
DQ243974.1      TNTSSVVDGVVRSFQPLLLNCLWSVSGSRFTTGFVYFNGTGRGDCKGFYSNASSDVIRYN
KF514429.1      TNTSSVVDGVVRSFQPLLLNCLWSVSGSRFTTGFVYFNGTGRGDCKGFYSNASSDVIRYN
DQ243971.1      TNTSSVVDGVVRSFQPLLLNCLWSVSGSRFTTGFVYFNGTGRGDCKGFYSNASSDVIRYN
NC_002645.1     TNTSSVVDGVVRSFQPLLLNCLWSVSGLRFTTGFVYFNGTGRGDCKGFSSDVLSDVIRYN
AB691763.1      TNTSSVVDGVVRSFQPLLLNCLWSVSGLRFTTGFVYFNGTGRGDCKGFSSDVLSDVIRYN
```

```
DQ243966.1      TNTSSVVDGVVRSFQPLLLNCLWSVSGSRFTTGFVYFNGTGRGDCKGFSSNVSSDVIRYN
                ********.**************** :. *********** **** *:. *******

KY674919.1      INFEENLRRGTILFKTSYGAVVFYCTNNTLVSGDAHIPSGTVLGNFYCFVNTTIGNETTS
JX503061.1      INFEENLRRGTILFKTSYGAVVFYCTNNTLVSGDAHIPSGTVLGNFYCFVNTTIGNETTS
DQ243980.1      INFEENLRRGTILFKTSYGAVVFYCTNNTLVSGDAHIPSGTVLGNFYCFVNTTIGNETTS
DQ243977.1      INFEENLRRGTILFKTSYGAVVFYCTNNTLVSGDAHIPSGTVLGNFYCFVNTTIGNETTS
AB691764.1      INFEENLRRGTILFKTSYGAVVFYCTNNTLVSGDAHIPSGTVLGNFYCFVNTTIGNETTS
DQ243979.1      INFEENLRRGTILFKTSYGAVVFYCTNNTLVSGDAHIPSGTVLGNFYCFVNTTIGNETTS
MN369046.1      INFEENLRRGTILFKTSYGAVVFYCTNNTLVSGDAHIPSGTVLGNFYCFVNTTIGNETTS
MN306046.1      INFEENLRRGTILFKTSYGAVVFYCTNNTLVSGDAHIPSGTVLGNFYCFVNTTIGNETTS
KY983587.1      INFEENLRRGTILFKTSYGAVVFYCTNNTLVSGDAHIPSGTVLGNFYCFVNTTIGNETTS
KY684760.1      INFEENLRRGTILFKTSYGAVVFYCTNNTLVSGDAHIPSGTVLGNFYCFVNTTIGNETTS
KM055531.1      INFEENLRRGTILFKTSYGAVVFYCTNNTLVSGDAHIPSGTVLGNFYCFVNTTIGNETTS
KM055537.1      INFEENLRRGTILFKTSYGAVVFYCTNNTLVSGDAHIPSGTVLGNFYCFVNTTIGNETTS
KM055538.1      INFEENLRRGTILFKTSYGAVVFYCTNNTLVSGDAHIPSGTVLGNFYCFVNTTIDNETTS
JX503060.1      INFEENLRRGTILFKTSYGAVVFYCTNNTLVSGDAHIPSGTVLGNFYCFVNTTIDNETTS
KY996417.1      INFEENLRRGTILFKTSYGAVVFYCTNNTLVSGDAHIPSGTVLGNFYCFVNTTIDNETTS
KM055554.1      INFEENLRRGTILFKTSYGAVVFYCTNNTLVSGDAHIPSGTVLGNFYCFVNTTIGNETTS
AB691767.1      INFEENLRRGTILFKTSYGAVVFYCTNNTLVSGDAHIPSGTVLGNFYCFVNTTIGNETTS
KM055551.1      INFEENLRRGTILFKTSYGAVVFYCTNNTLVSGDDHIPSGTVLGNFYCFVNTTIDNETTS
KM055557.1      INFEENLRRGTILFKTSYGAVVFYCTNNTLVSGDAHIPSGTVLGNFYCFVNTTIGNETTS
KF514431.1      INFEENLRHGTILFKTSYGAVVFYCTNNTLVSGDAHIPSGTVLGNFYCFVNTTIGNETTS
KF514433.1      INFEENLRRGTILFKTSYGAVVFYCTNNTLVSGDAHIPSGTVLGNFYCFVNTTIGNETTS
KF514430.1      INFEENLRRGTILFKTSYGAVVFYCTNNTLVSGDAHIPSGTVLGNFYCFVNTTIGNETTS
DQ243973.1      INFEENLRRGTILFKTSYGAVVFYCTNNTLVSGDAHIPSGTVLGNFYCFVNTTIGNETTS
DQ243974.1      INFEENLRRGTILFKTSYGAVVFYCTNNTLVSGDAHIPSGTVLGNFYCFVNTTIGNETTS
KF514429.1      INFEENLRRGTILFKTSYGVVVFYCTNNTLVSGDAHIPFGTVLGNFYCFVNTTIGNETTS
DQ243971.1      INFEENLRRGTILFKTSYGVVVFYCTNNTLVSGDAHIPFGTVLGNFYCFVNTTIGNETTF
NC_002645.1     LNFEENLRRGTILFKTSYGVVVFYCTNNTLVSGDAHIPFGTVLGNFYCFVNTTIGNETTS
AB691763.1      LNFEENLRRGTILFKTSYGVVVFYCTNNTLVSGDAHIPFGTVLGNFYCFVNTTIGNETTS
DQ243966.1      INFEENLRRGTILFKTSYGVVVFYCTNNTLVSGDAHIPFGTVLGNFYCFVNTTIGNETTS
                :*******:**********.************** *** **************.****

KY674919.1      AFVGALPKTVREFVISRTGHFYINGYRYFSLGNVEAVNFNVTNAATT-VCTVALASYADV
JX503061.1      AFVGALPKTVREFVISRTGHFYINGYRYFSLGNVEAVNFNVTNAATT-VCTVALASYADV
DQ243980.1      AFVGALPKTVREFVISRTGHFYINGYRYFSLGNVEAVNFNVTNAATT-VCTVALASYADV
DQ243977.1      AFVGALPKTVREFVISRTGHFYINGYRYFSLGNVEAVNFNVTNAATT-VCTVALASYADV
AB691764.1      AFVGALPKTVREFVISRTGHFYINGYRYFSLGNVEAVNFNVTNAATT-VCTVALASYADV
DQ243979.1      AFVGALPKTVREFVISRTGHFYINGYRYFSLGNVEAVNFNVTNAATT-VCTVALASYADV
MN369046.1      AFVGALPKTVREFVISRTGHFYINGYRYFSLGNVEAVNFNVTNAATT-VCTVALASYADV
MN306046.1      AFVGALPKTVREFVISRTGHFYINGYRYFSLGNVEAVNFNVTNAATT-VCTVALASYADV
KY983587.1      AFVGALPKTVREFVISRTGHFYINGYRYFSLGDVEAVNFNVTNAATI-VCTVALASYADV
KY684760.1      AFVGALPKTVREFVISRTGHFYINGYRYFSLGDVEAVNFNVTNAATT-VCTVALASYADV
KM055531.1      AFVGALPKTVREFVISRTGHFYINGYRYFSLGNVEAVNFNVTNAATT-VCTVALASYADV
KM055537.1      AFVGALPKTVREFVISRTGHFYINGYRYFSLGNVEAVNFNVTNAATT-VCTVALASYADV
KM055538.1      AFVGALPKTVREFVISRTGHFYINGYRYFSLGNVEAVNFNVTNAATT-VCTVALASYADV
JX503060.1      AFVGALPKTVREFVISRTGHFYINGYRYFSLGNVEAVNFNVTNAATT-VCTVALASYADV
KY996417.1      AFVGALPKTVREFVISRTGHFYINGYRYFSLGDVEAVNFNVTNAATT-VCTVALASYADV
KM055554.1      AFVGALPKTVREFVISRTGHFYINGYRYFSLGNVEAVNFNVTNAATT-VCTVALASYADV
AB691767.1      AFVGALPKTVREFVISRTGHFYINGYRYFSLGNVEAVNFNVTNAATT-VCTVALASYADV
KM055551.1      AFVGALPKTVREFVISRTGHFYINGYRYFSLGNVEAVNFNVTNAATT-VCTVALASYADV
KM055557.1      AFVGALPKTVREFVISRTGHFYINGYRYFSLGNVEAVNFNVTNAATT-VCTVALASYADV
KF514431.1      AFVGALPKTVREFVISRTGHFYINGYRYFSLGNVEAVNFNVTNAETT-VCTVALASYADV
KF514433.1      AFVGALPKTVREFVISRTGHFYINGYRYFSLGNVEAVNFNVTNAETT-VCTVALASYADV
KF514430.1      AFVGALPKTVREFVISRTGHFYINGYRYFTLGNVEAVNFNVTNAETT-VCTVALASYADV
```

```
DQ243973.1      AFVGALPKTVREFVISRTGHFYINGYRYFTLGNVEAVNFNVTNAETT-VCTVALASYADV
DQ243974.1      AFVGALPKTVREFVISRTGHFYINGYRYFTLGNVEAVNFNVTNAETT-VCTVALASYADV
KF514429.1      AFVGALPKTVREFVISRTGHFYINGYRYFTLGNVEAVNFNVTNAETT-VCTVALASYADV
DQ243971.1      AFVGALPKTVREFVISRTGHFYINGYRYFTLGNVEAVNFNVTNAETT-VCTVALASYADV
NC_002645.1     AFVGALPKTVREFVISRTGHFYINGYRYFTLGNVEAVNFNVTTAETTDFCTVALASYADV
AB691763.1      AFVGALPKTVREFVISRTGHFYINGYRYFTLGNVEAVNFNVTTAETTDFFTVALASYADV
DQ243966.1      SFVGALPKTVREFVISRTGHFYINGYRYFTLGNVEAVNFNVTNAETT-VCTVALASYADV
                :***************************:**:*********.* *  . **********

KY674919.1      LVNVSQTAIANIIYCNSVINRLRCDQLSFDVPDGFYSTSPIQSVELPVSTVSLPVYHKHT
JX503061.1      LVNVSQTAIANIIYCNSVINRLRCDQLAFDVPDGFYSTSPIQSVELPVSIVSLPVYHKHT
DQ243980.1      LVNVSQTAIANIIYCNSVINRLRCDQLSFDVPDGFYSTSPIQSVELPVSIVSLPVYHKHT
DQ243977.1      LVNVSQTAIANIIYCNSVINRLRCDQLSFDVPDGFYSTSPIQSVELPVSIVSLPVYHKHT
AB691764.1      LVNVSQTAIANIIYCNSVINRLRCDQLSFDVPDGFYSTSPIQSVELPVSIVSLPVYHKHT
DQ243979.1      LVNVSQTAIANIIYCNSVINRLRCDQLSFDVPDGFYSTSPIQSVELPVSIVSLPVYHKHT
MN369046.1      LVNVSQTAIANIIYCNSVINRLRCDQLSFDVPDGFYSTSPTQPVELPVSIVSLPVYHKHT
MN306046.1      LVNVSQTAIANIIYCNSVINRLRCDQLSFDVPDGFYSTSPIQPVELPVSIVSLPVYHKHT
KY983587.1      LVNVSQTAIANIIYCNSVINRLRCDQLSFDVPDGFYSTSPIQPVELPMSIVSLPVYHKHT
KY684760.1      LVNVSQTAIANIIYCNSVINRLRCDQLSFDVPDGFYSTSPIQPVELPESIVSLPVYHKHT
KM055531.1      LVNVSQTAIANIIYCNSVINRLRCDQLSFDVPDGFYSTSPIQPVELPVSIVSLPVYHKHT
KM055537.1      LVNVSQTAIANIIYCNSVINRLRCDQLSFDVPDGFYSTSPIQPVELPVSIVSLPVYHKHT
KM055538.1      LVNVSQTAIANIIYCNSVINRLRCDQLSFDVPDGFYSTSPIQSVELPVSIVSLPVYHKHT
JX503060.1      LVNVSQTAIANIIYCNSVINRLRCDQLSFDVPDGFYSTSPIQSVELPVSIVSLPVYHKHT
KY996417.1      LVNVSQTAIANIIYCNSVINRLRCDQLSFDVPDGFYSTSPIQSVELPVSIVSLPVYHKHT
KM055554.1      LVNVSQTAIANIIYCNSVINRLRCDQLSFDVPDGFYSTSPIQPVELPVSIVSLPVYHKHT
AB691767.1      LVNVSQTAIANIIYCNSVINRLRCDQLSFDVPDGFYSTSPIQPVELPVSIVSLPVYHKHT
KM055551.1      LVNVSQTAIANIIYCNSVINRLRCDQLSFDVPDGFYSTSPIQSVELPVSIVSLPVYHKHT
KM055557.1      LVNVSQTAIANIIYCNSVINRLRCDQLSFDVPDGFYSTSPIQSVELPVSIVSLPVYHKHT
KF514431.1      LVNVSQTAIANIIYCNSVINRLRCDQLSFDVPDGFYSTSPIQSAELPVSIVSLPVYHKHT
KF514433.1      LVNVSQTAIANIIYCNSVINRLRCDQLSFDVPDGFYSTSPIQSVELPVSIVSLPVYHKHT
KF514430.1      LVNVSQTAIANIIYCNSVINRLRCDQLSFDVPDGFYSTSPIQSVELPVSIVSLPVYHKHT
DQ243973.1      LVNVSQTAIANIIYCNSVINRLRCDQLSFDVPDGFYSTSPIQSVELPVSIVSLPVYHKHT
DQ243974.1      LVNVSQTAIANIIYCNSVINRLRCDQLSFDVPDGFYSTSPIQSVELPVSIVSLPVYHKHT
KF514429.1      LVNVSQTAIANIIYCNSVINRLRCDQLSFDVPDGFYSTSPIQSVELPVSIVSLPVYHKHT
DQ243971.1      LVNVSQTAIANIIYCNSVINRLRCDQLSFDVPDGFYSTSPIQSVELPVSIVSLPVYHKHT
NC_002645.1     LVNVSQTSIANIIYCNSVINRLRCDQLSFDVPDGFYSTSPIQSVELPVSIVSLPVYHKHT
AB691763.1      LVNVSQTSIANIIYCNSVINRLRCDQLSFDVPDGFYSTSPIQSVELPVSIVSLPVYHKHT
DQ243966.1      LVNVSQTAIANIIYCNSVINRLRCDQLSFDVPDGFYSTSPIQSVELPVSIVSLPVYHKHT
                *******:******************:*********** *..*** * **********

KY674919.1      FIVLYVNFELRRGPGRCYNCRPAVVNITLANFNETKGPLCVDTSHFTT-QFVG-VKFDRW
JX503061.1      FIVLYVNFELRRGPGRCYNCRPAVVNITLANFNETKGPLCVDTSHFTT-QFVG-VKFDRW
DQ243980.1      FIVLYVNFELRRGPGRCYNCRPAVVNITLANFNETKGPLCVDTSHFTT-QFVG-VKFDRW
DQ243977.1      FIVLYVNFELRRGPGRCYNCRPAVVNITLANFNETKGPLCVDTSHFTT-QFVG-VKFDRW
AB691764.1      FIVLYVNFELRRGPGTCYNCRPAVVNITLANFNETKGPLCVDTSHFTT-QFVG-VKFDRW
DQ243979.1      FIVLYVNFELRRGPGRCYNCRPAVVNITLANFNETKGPLCVDTSHFTT-QFVG-VKFDRW
MN369046.1      FIVLYVNFEHQRGPGKCYNCRPAVINITLANFNETKGPLCVDTSHFTT-QFVDNVKLARW
MN306046.1      FIVLYVNFEHQRGPGKCYNCRPAVINITLANFNETKGPLCVDTSHFTT-QFVDNVKLPRW
KY983587.1      FIVLHVKFEHQRGPGKCYNCRPSVINITLANFNETKGPLCVDTSHFTT-QFVDNVKLARW
KY684760.1      FIVLHVKFEHGRGPGKCYNCRPAVINITLANFNETKGPLCVDTSHFTT-QFVDNVKLARW
KM055531.1      FIVLHVNFELRRGPGKCYNCRPAVINITLANFNETKGPLCVDTSHFTT-QFVDNVKLARW
KM055537.1      FIVLYVNFELRRGPGRCYNCRPAVVNITLANFNETKGPLCVDTSHFTT-QFVGNVKLDRW
KM055538.1      FIVLYVNFELRRGPGRCYNCRPAVVNITLANFNETKGPLCVDTSHFTT-QFVGNVKLDRW
JX503060.1      FIVLYVNFELRRGPGRCYNCRPAVVNITLANFNETKGPLCVDTSHFTT-QFVGNVKLDRW
KY996417.1      FIVLYVNFELRRGPGRCYNCRPAVVNITLANFNETKGPLCVDTSHFTT-QFVGNVKLDRW
KM055554.1      FIVLYVNFELRRGPGRCYNCRPAVINITLANFNETKGPLCVDTSHFTT-QFVG-VKFDRW
```

```
AB691767.1      FIVLYVNFELRRGPGRCYNCRPAVINITLANFNETKGPLCVDTSHFTT-QFVG-VKFDRW
KM055551.1      FIVLYVNFELRRGPGRCYNCRPAVVNITLANFNETKGPLCVDTSHFTT-QFVG-VKFDRW
KM055557.1      FIVLYVNFELRRGPGRCYNCRPAVVNITLANFNETKGPLCVDTSHFTT-QFVG-VKFDRW
KF514431.1      FIVLYVNFKLRSGVGRCYNCRPAVVNITLANFNETKGPLCVDTSHFTT-QFVG-VKFDRW
KF514433.1      FIVLYVNFKLRSGVGRCYNCRPAVVNITLANFNETKGPLCVDTSHFTT-QFVG-AKFDRW
KF514430.1      FIVLYVNFKLRSGVGRCYNCRPAVVNITLANFNETKGPLCVDTSHFTT-QFVG-AKFDRW
DQ243973.1      FIVLYVNFKLRSGVGRCYNCRPAVVNITLANFNETKGPLCVDTSHFTT-QFVG-AKFDRW
DQ243974.1      FIVLYVNFKLRSGVGRCYNCRPAVVNITLANFNETKGPLCVDTSHFTT-QFVG-AKFDRW
KF514429.1      FIVLYVNFKLQSGVGRCFNCRPAVVNITLANFNETKGPLCVDTSHFTT-QFVG-AKFGRW
DQ243971.1      FIVLYVDFKLQSGVGRCFNCRPAVVNITLANFNETKGPLCVDTSHFTT-KFVG-ANFGRW
NC_002645.1     FIVLYVDFKPQSGGGKCFNCYPAGVNITLANFNETKGPLCVDTSHFTTKYVAVYANVGRW
AB691763.1      FIVLYVDFKPQSGGGKCFNCYPAGVNITLANFNETKGPLCVDTSHFTTKYVAVYANVGRW
DQ243966.1      FIVLYVDFKPQSGGGKCYNCRPAVVNITLANFNETKGPLCVETSHFTTKYVAAN--VGRW
                ****:*.*:   * * *:** *: :***************:******  ..    . **

KY674919.1      SASINTGNCPFSFGKVNNFVKFGSVCFSLKDIPGGCAMPIMANLANLNSHNIGSLYVSWS
JX503061.1      SASINTGNCPFSFGKVNNFVKFGSVCFSLKDIPGGCAMPIMANLANLNSHNIGSLYVSWS
DQ243980.1      SASINTGNCPFSFGKVNNFVKFGSVCFSLKDIPGGCAMPIMANLANLNSHNIGSLYVSWS
DQ243977.1      SASINTGNCPFSFGKVNNFVKFGSVCFSLKDIPGGCAMPIMANLANLNSHNIGSLYVSWS
AB691764.1      SASINTGNCPFSFGKVNNFVKFGSVCFSLKDIPGGCAMPIMANLANLNSHNIGSLYVSWS
DQ243979.1      SASINTGNCPFSFGKVNNFVKFGSVCFSLKDIPGGCAMPIMANLANLNSHNIGSLYVSWS
MN369046.1      SASIDTGNCPFSFGKVINFVKFGSVCFSLKYIPGGCAMPIMANLVNYKSHNIGSLYVSWS
MN306046.1      SASIDTGNCPFSFGKVINFVKFGSVCFSLKYIPGGCAMPIMANLVNYKSHNIGSLYVSWS
KY983587.1      SASINTGNCPFSFGKVNNFVKFGSVCFSLKDIPGGCAMPIMANLVNHKSHNIGSLYVSWS
KY684760.1      SASINTGNCPFSFGKVNNFVKFGSVCFSLKDIPGGCAMPIMANLVNHKSHNIGSLYVSWS
KM055531.1      SASINTGNCPFSFGKVNNFVKFGSVCFSLKDIPGGCAMPIMANLVNHKSHNIGSLYVSWS
KM055537.1      SASINTGNCPFSFGKVNNFVKFGSVCFSLKDIPGGCAMPIMANLVNHKSHNIGSLYVSWS
KM055538.1      SASINTGNCPFSFGKVNNFVKFGSVCFSLKDIPGGCAMPIMANLVNHKSHNIGSLYVSWS
JX503060.1      SASINTGNCPFSFGKVNNFVKFGSVCFSLKDIPGGCAMPIMANLVNHKSHNIGSLYVSWS
KY996417.1      SASINTGNCPFSFGKVNNFVKFGSVCFSLKDIPGGCAMPIMANLVNHKSHNIGSLYVSWS
KM055554.1      SASINTGNCPFSFGKVNNFVKFGSVCFSLKDIPGGCAMPIMANLVNHKSHNIGSLYVSWS
AB691767.1      SASINTGNCPFSFGKVNNFVKFGSVCFSLKDIPGGCAMPIMANLVNHKSHNIGSLYVSWS
KM055551.1      SASINTGNCPFSFGKVNNFVKFGSVCFSLKDIPGGCAMPIMANLVNHKSHNIGSLYVSWS
KM055557.1      SASINTGNCPFSFGKVNNFVKFGSVCFSLKDIPGGCAMPIMANLVNHKSHNIGSLYVSWS
KF514431.1      SASINTGNCPFSFGKVNNFVKFGSVCFSLKDIPGGCAMPIMANLANLNSHNIGSLYVSWS
KF514433.1      SASINTGNCPFSFGKVNNFVKFGSVCFSLKDIPGGCAMPIMANLANLNSHNIGSLYVSWS
KF514430.1      SASINTGNCPFSFGKVNNFVKFGSVCFSLKDIPGGCAMPIMANLANLNSHNIGSLYVSWS
DQ243973.1      SASINTGNCPFSFGKVNNFVKFGSVCFSLKDIPGGCAMPIMANLANLNSHTIGSLYVSWS
DQ243974.1      SASINTGNCPFSFGKVNNFVKFGSVCFSLKDIPGGCAMPIMANLANLNSHTIGSLYVSWS
KF514429.1      SASINTGNCPFSFGKVNNFVKFGSVCFSLKDIPGGCAMPIMANLANLNSHTIGSLYVSWS
DQ243971.1      SASINTGNCPFSFGKVNNFVKFGSVCFSLKDIPGGCAMPIVANLAYLNSYTIGSLYVSWS
NC_002645.1     SASINTGNCPFSFGKVNNFVKFGSVCFSLKDIPGGCAMPIVANWAYSKYYTIGSLYVSWS
AB691763.1      SASINTGNCPFSFGKVNNFVKFGSVCFSLKDIPGGCAMPIVANWAYSKYYTIGSLYVSWS
DQ243966.1      SASINTGNCPFSFGKVNNFVKFGSVCFSLKDIPGGCAMPIVANLAYINSYTIGSLYVSWS
                ****:*********** ************ *********:** .  : :.*********

KY674919.1      DGDVITGVPKPVEGVSSFMNVTLNKCTKYNIYDVSGVGVIRISNDTFLNGITYTSTSGNL
JX503061.1      DGDVITGVPKPVEGVSSFMNVTLNKCTKYNIYDVSGVGVIRISNDTFLNGITYTSTSGNL
DQ243980.1      DGDVITGVPKPVEGVSSFMNVTLNKCTKYNIYDVSGVGVIRISNDTFLNGITYTSTSGNL
DQ243977.1      DGDVITGVPKPVEGVSSFMNVTLNKCTKYNIYDVSGVGVIRISNDTFLNGITYTSTSGNL
AB691764.1      DGDVITGVPKPVEGVSSFMNVTLNKCTKYNIYDVVGVGVIRISNETFLNGITYTSTSGNL
DQ243979.1      DGDVITGVPKPVEGVSSFMNVTLNKCTKYNIYDVSGVGVIRISNETFLNGITYTSTSGNL
MN369046.1      DGDVITGVPKPVEGVSSFMNVTLNKCTKYNIYDVSGVGVIRISNDTFLNGITYTSTSGNL
MN306046.1      DGDVITGVPKPVEGVSSFMNVTLNKCTKYNIYDVSGVGVIRISNDTFLNGITYTSTSGNL
KY983587.1      DGDVITGVPKPVEGVSSFMNVTLNKCTKYNIYDVSGVGVIRISNDTFLNGITYTSTSGNL
KY684760.1      DGDVITGVPKPVEGVSSFMNVTLNKCTKYNIYDVSGVGVIRISNDTFLNGITYTSTSGNL
```

```
KM055531.1        DGDVITGVPKPVEGVSSFMNVTLNKCTKYNIYDVSGVGVIRISNDTFLNGITYTSTSGNL
KM055537.1        DGDVITGVPKPVEGVSSFMNVTLNKCTKYNIYDVSGVGVIRISNDTFLNGITYTSTSGNL
KM055538.1        DGDVITGVPKPVEGVSSFMNVTLNKCTKYNIYDVSGVGVIRISNDTFLNGITYTSTSGNL
JX503060.1        DGDVITGVPKPVEGVSSFMNVTLNKCTKYNIYDVSGVGVIRISNDTFLNGITYTSTSGNL
KY996417.1        DGDVITGVPKPVEGVSSFMNVTLNKCTKYNIYDVSGVGVIRISNDTFLNGITYTSTSGNL
KM055554.1        DGDVITGVPKPVEGVSSFMNVTLNKCTKYNIYDVSGVGVIRISNDTFLNGITYTSTSGNL
AB691767.1        DGDVITGVPKPVEGVSSFMNVTLNKCTKYNIYDVSGVGVIRISNDTFLNGITYTSTSGNL
KM055551.1        DGDVITGVPKPVEGVSSFMNVTLNKCTKYNIYDVSGVGVIRISNDTFLNGITYTSTSGNL
KM055557.1        DGDVITGVPKPVEGVSSFMNVTLNKCTKYNIYDVSGVGVIRISNDTFLNGITYTSTSGNL
KF514431.1        DGDVITGVPKPVEGVSSFMNVTLNKCTKYNIYDVSGVGVIRISNDTFLNGITYTSTSGNL
KF514433.1        DGDVITGVPKPVEGVSSFMNVTLNKCTKYNIYDVSGVGVIRISNDTFLNGITYTSTSGNL
KF514430.1        DGDVITGVPKPVEGVSSFMNVTLNKCTKYNIYDVSGVGVIRISNDTFLNGITYTSTSGNL
DQ243973.1        DGDVITGVPKPVEGVSSFMNVTLNKCTKYNIYDVSGVGVIRISNDTFLNGITYTSTSGNL
DQ243974.1        DGDVITGVPKPVEGVSSFMNVTLNKCTKYNIYDVSGVGVIRISNDTFLNGITYTSTSGNL
KF514429.1        DGDVITGVPKPVEGVSSFMNVTLNKCTKYNIYDVSGVGVIRISNDTFLNGITYTSTSGNL
DQ243971.1        DGDVITGVPKPVEGVSSFMNVTLNKCTKYNIYDVSGVGVIRISNDTFLNGITYTSTSGNL
NC_002645.1       DGDGITGVPQPVEGVSSFMNVTLDKCTKYNIYDVSGVGVIRVSNDTFLNGITYTSTSGNL
AB691763.1        DGDGITGVPQPVEGVSSFMNVTLDKCTKYNIYDVSGVGVIRVSNDTFLNGITYTSTSGNL
DQ243966.1        DGDGITGVPKPVEGVSSFMNVTLNKCTKYNIYDVSGVGVIRISNDTFLNGITYTSTSGNL
                  *** *****:************:********* ******:**:***************

KY674919.1        LGFKDVTNGTIYSITPCNPPDQLVVYQQAVVGAMLSENFTSYGFSNVVEMPKFFYASNGT
JX503061.1        LGFKDVTNGTIYSITPCNPPDQLVVYQQAVVGAMLSENFTSYGFSNVVEMPKFFYASNGT
DQ243980.1        LGFKDVTNGTIYSITPCNPPDQLVVYQQAVVGAMLSENFTSYGFSNVVEMPKFFYASNGT
DQ243977.1        LGFKDVTNGTIYSITPCNPPDQLVVYQQAVVGAMLSENFTSYGFSNVVEMPKFFYASNGT
AB691764.1        LGFKDVTNGTIYSITPCNPPDQLVVYQQAVVGAMLSENFTSYGFSNVVEMPKFFYASNGT
DQ243979.1        LGFKDVTNGTIYSITPCNPPDQLVVYQQAVVGAMLSENFTSYGFSNVVEMPKFFYASNGT
MN369046.1        LGFKDVTNGTIYSITPCNPPDQLVVYQQAVVGAMLSENFTSYGFSNVVEMPKFFYASNGT
MN306046.1        LGFKDVTNGTIYSITPCNPPDQLVVYQQAVVGAMLSENFTSYGFSNVVEMPKFFYASNGT
KY983587.1        LGFKDVTNGTIYSITPCNPPDQLVVYQQAVVGAMLSENFTSYGFSNVVEMPKFFYASNGT
KY684760.1        LGFKDVTNGTIYSITPCNPPDQLVVYQQAVVGAMLSENFTSYGFSNVVEMPKFFYASNGT
KM055531.1        LGFKDVTNGTIYSITPCNPPDQLVVYQQAVVGAMLSENFTSYGFSNVVEMPKFFYASNGT
KM055537.1        LGFKDVTNGTIYSITPCNPPDQLVVYQQAVVGAMLSENFTSYGFSNVVEMPKFFYASNGT
KM055538.1        LGFKDVTNGTIYSITPCNPPDQLVVYQQAVVGAMLSENFTSYGFSNVVEMPKFFYASNGT
JX503060.1        LGFKDVTNGTIYSITPCNPPDQLVVYQQAVVGAMLSENFTSYGFSNVVEMPKFFYASNGT
KY996417.1        LGFKDVTNGTIYSITPCNPPDQLVVYQQAVVGAMLSENFTSYGFSNVVEMPKFFYASNGT
KM055554.1        LGFKDVTNGTIYSITPCNPPDQLVVYQQAVVGAMLSENFTSYGFSNVVEMPKFFYASNGT
AB691767.1        LGFKDVTNGTIYSITPCNPPDQLVVYQQAVVGAMLSENFTSYGFSNVVEMPKFFYASNGT
KM055551.1        LGFKDVTNGTIYSITPCNPPDQLVVYQQAVVGAMLSENFTSYGFSNVVEMPKFFYASNGT
KM055557.1        LGFKDVTNGTIYSITPCNPPDQLVVYQQAVVGAMLSENFTSYGFSNVVEMPKFFYASNGT
KF514431.1        LGFKDVTNGTIYSITPCNPPDQLVVYQQAVVGAMLSENFTSYGFSNVVEMPKFFYASNGT
KF514433.1        LGFKDVTNGTIYSITPCNPPDQLVVYQQAVVGAMLSENFTSYGFSNVVEMPKFFYASNGT
KF514430.1        LGFKDVTNGTIYSITPCNPPDQLVVYQQAVVGAMLSENFTSYGFSNVVEMPKFFYASNGT
DQ243973.1        LGFKDVTNGTIYSITPCNPPDQLVVYQQAVVGAMLSENFTSYGFSNVVEMPKFFYASNGT
DQ243974.1        LGFKDVTNGTIYSITPCNPPDQLVVYQQAVVGAMLSENFTSYGFSNVVEMPKFFYASNGT
KF514429.1        LGFKDVTNGTIYSITPCNPPDQLVVYQQAVVGAMLSENFTSYGFSNVVEMPKFFYASNGT
DQ243971.1        LGFKDVTNGTIYSITPCNPPDQLVVYQQAVVGAMLSENFTSYGFSNVVEMPKFFYASNGT
NC_002645.1       LGFKDVTKGTIYSITPCNPPDQLVVYQQAVVGAMLSENFTSYGFSNVVELPKFFYASNGT
AB691763.1        LGFKDVTKGTIYSITPCNPPDQLVVYQQAVVGAMLSENFTSYGFSNVVELPKFFYASNGT
DQ243966.1        LGFKDVTNGTIYSITPCNPPDQLVVYQQAIVGAMLSENFTSYGFSNVVELPKFFYASNGT
                  *******:********************:*****************:**********

KY674919.1        YNCTDAVLTYSSFGVCADGSIIAVQPRNVSYDSVSAIVTANLSIPSNWTTSVQVEYLQIT
JX503061.1        YNCTDAVLTYSSFGVCADGSIIAVQPRNVSYDSVSAIVTANLSIPSNWTTSVQVEYLQIT
DQ243980.1        YNCTDAVLTYSSFGVCADGSIIAVQPRNVSYDSVSAIVTANLSIPSNWTTSVQVEYLQIT
DQ243977.1        YNCTDAVLTYSSFGVCADGSIIAVQPRNVSYDSVSAIVTANLSIPSNWTTSVQVEYLQIT
```

```
AB691764.1        YNCTDAVLTYSSFGVCADGSIIAVQPRNVSYDSVSAIVTANLSIPSNWTTSVQVEYLQIT
DQ243979.1        YNCTDAVLTYSSFGVCADGSIIAVQPRNVSYDSVSAIVTANLSIPSNWTTSVQVEYLQIT
MN369046.1        YNCTDAVLTYSSFGVCADGSIIAVQPRNVSYDSVSAIVTANLSIPSNWTTSVQVEYLQIT
MN306046.1        YNCTDAVLTYSSFGVCADGSIIAVQPRNVSYDSVSAIVTANLSIPSNWTTSVQVEYLQIT
KY983587.1        YNCTDAVLTYSSFGVCADGSIIAVQPRNVSYDSVSAIVTANLSIPSNWTTSVQVEYLQIT
KY684760.1        YNCTDAVLTYSSFGVCADGSIIAVQPRNVSYDSVSAIVTANLSIPSNWTTSVQVEYLQIT
KM055531.1        YNCTDAVLTYSSFGVCADGSIIAVQPRNVSYDSVSAIVTANLSIPSNWTTSVQVEYLQIT
KM055537.1        YNCTDAVLTYSSFGVCADGSIIAVQPRNVSYDSVSAIVTANLSIPSNWTTSVQVEYLQIT
KM055538.1        YNCTDAVLTYSSFGVCADGSIIAVQPRNVSYDSVSAIVTANLSIPSNWTTSVQVEYLQIT
JX503060.1        YNCTDAVLTYSSFGVCADGSIIAVQPRNVSYDSVSAIVTANLSIPSNWTTSVQVEYLQIT
KY996417.1        YNCTDAVLTYSSFGVCADGSIIAVQPRNVSYDSVSAIVTANLSIPSNWTTSVQVEYLQIT
KM055554.1        YNCTDAVLTYSSFGVCADGSIIAVQPRNVSYDSVSAIVTANLSIPSNWTTSVQVEYLQIT
AB691767.1        YNCTDAVLTYSSFGVCADGSIIAVQPRNVSYDSVSAIVTANLSIPSNWTTSVQVEYLQIT
KM055551.1        YNCTDAVLTYSNFGVCADGSIIAVQPRNVSYDSVSAIVTANLSIPSNWTTSVQVEYLQIT
KM055557.1        YNCTDAVLTYSSFGVCADGSIIAVQPRNVSYDSVSAIVTANLSIPSNWTTSVQVEYLQIT
KF514431.1        YNCTDAVLTYSSFGVCADGSIIAVQPRNVSYDSVSAIVTANLSIPSNWTTSVQVEYLQIT
KF514433.1        YNCTDAVLTYSSFGVCADGSIIAVQPRNVSYDSVSAIVTANLSIPSNWTTSVQVEYLQIT
KF514430.1        YNCTDAVLTYSSFGVCADGSIIAVQPRNVSYDSVSAIVTANLSIPSNWTTSVQVEYLQIT
DQ243973.1        YNCTDAVLTYSSFGVCADGSIIAVQPRNVSYDSVSAIVTANLSIPSNWTTSVQVEYLQIT
DQ243974.1        YNCTDAVLTYSSFGVCADGSIIAVQPRNVSYDSVSAIVTANLSIPSNWTTSVQVEYLQIT
KF514429.1        YNCTDAVLTYSSFGVCADGSIIAVQPRNVSYDSVSAIVTANLSIPSNWTTSVQVEYLQIT
DQ243971.1        YNCTDAVLTYSSFGVCADGSIIAVQPRNVSYDSVSAIVTANLSIPSNWTTSVQVEYLQIT
NC_002645.1       YNCTDAVLTYSSFGVCADGSIIAVQPRNVSYDSVSAIVTANLSIPSNWTTSVQVEYLQIT
AB691763.1        YNCTDAVLTYSSFGVCADGSIIAVQPRNVSYDSVSAIVTANLSIPSNWTTSVQVEYLQIT
DQ243966.1        YNCTDAVLTYSSFGVCADGSIIAVQPRNVSYDSVSAIVTANLSIPSNWTTSVQVEYLQIT
                  **********.**********************************************

KY674919.1        STPIVVDCSTYVCNGNVRCVELLKQYTSACKTIEDALRNSAMLESADVSEMLTFDKKAFT
JX503061.1        STPIVVDCSTYVCNGNVRCVELLKQYTSACKTIEDALRNSAMLESADVSEMLTFDKKAFT
DQ243980.1        STPIVVDCSTYVCNGNVRCVELLKQYTSACKTIEDALRNSAMLESADVSEMLTFDKKAFT
DQ243977.1        STPIVVDCSTYVCNGNVRCVELLKQYTSACKTIEDALRNSAMLESADVSEMLTFDKKAFT
AB691764.1        STPIVVDCSTYVCNGNVRCVELLKQYTSACKTIEDALRNSAMLESADVSEMLTFDKKAFT
DQ243979.1        STPIVVDCSTYVCNGNVRCVELLKQYTSACKTIEDALRNSAMLESADVSEMLTFDKKAFT
MN369046.1        STPIVVDCSTYVCNGNVRCVELLKQYTSACKTIEDALRNSAMLESADVSEMLTFDKKAFT
MN306046.1        STPIVVDCSTYVCNGNVRCVELLKQYTSACKTIEDALRNSAMLESADVSEMLTFDKKAFT
KY983587.1        STPIVVDCSTYVCNGNVRCVELLKQYTSACKTIEDALRNSAMLESADVSEMLTFDKKAFT
KY684760.1        STPIVVDCSTYVCNGNVRCVELLKQYTSACKTIEDALRNSAMLESADVSEMLTFDKKAFT
KM055531.1        STPIVVDCSTYVCNGNVRCVELLKQYTSACKTIEDALRNSAMLESADVSEMLTFDKKAFT
KM055537.1        STPIVVDCSTYVCNGNVRCVELLKQYTSACKTIEDALRNSAMLESADVSEMLTFDKKAFT
KM055538.1        STPIVVDCSTYVCNGNVRCVELLKQYTSACKTIEDALRNSAMLESADVSEMLTFDKKAFT
JX503060.1        STPIXVDCSTYVCNGNVRCVELLKQYTSACKTIEDALRNSAMLESADVSEMLTFDKKAFT
KY996417.1        STPIVVDCSTYVCNGNVRCVELLKQYTSACKTIEDALRNSAMLESADVSEMLTFDKKAFT
KM055554.1        STPIVVDCSTYVCNGNVRCVELLKQYTSACKTIEDALRNSAMLESADVSEMLTFDKKAFT
AB691767.1        STPIVVDCSTYVCNGNVRCVELLKQYTSACKTIEDALRNSAMLESADVSEMLTFDKKAFT
KM055551.1        SRPIVVDCSTYVCNGNVRCVELLKQYTSACKTIEDALRNSAMLESADVSEMLTFDKKAFT
KM055557.1        STPIVVDCSTYVCNGNVRCVELLKQYTSACKTIEDALRNSAMLESADVSEMLTFDKKAFT
KF514431.1        STPIVVDCSTYVCNGNVRCVELLKQYTSACKTIEDALRNSAMLESADVSEMLTFDKKAFT
KF514433.1        STPIVVDCSTYVCNGNVRCVELLKQYTSACKTIEDALRNSAMLESADVSEMLTFDKKAFT
KF514430.1        STPIVVDCSTYVCNGNVRCVELLKQYTSACKTIEDALRNSAMLESADVSEMLTFDKKAFT
DQ243973.1        STPIVVDCSTYVCNGNVRCVELLKQYTSACKTIEDALRNSAMLESADVSEMLTFDKKAFT
DQ243974.1        STPIVVDCSTYVCNGNVRCVELLKQYTSACKTIEDALRNSAMLESADVSEMLTFDKKAFT
KF514429.1        STPIVVDCSTYVCNGNVRCVELLKQYTSACKTIEDALRNSAMLESADVSEMLTFDKKAFT
DQ243971.1        STPIVVDCSTYVCNGNVRCVELLKQYTSACKTIEDALRNSAMLESADVSEMLTFDKKAFT
NC_002645.1       STPIVVDCSTYVCNGNVRCVELLKQYTSACKTIEDALRNSARLESADVSEMLTFDKKAFT
AB691763.1        STPIVVDCSTYVCNGNVRCVELLKQYTSACKTIEDALRNSARLESADVSEMLTFDKKAFT
DQ243966.1        STPIVVDCSTYVCNGNVRCVELLKQYTSACKTIEDALRNSAMLESADVSEMLTFDKKAFT
```

```
                  * ** ********************************** ****************

KY674919.1        LANVSSFGDYNLSSVIPSLPRSGSRVAGRSAIEDILFSKLVTSGLGTVDADYKKCTKGLS
JX503061.1        LANVSSFGDYNLSSVIPSLPRSGSRVAGRSAIEDILFSKLVTSGLGTVDADYKKCTKGLS
DQ243980.1        LANVSSFGDYNLSSVIPSLPRSGSRVAGRSAIEDILFSKLVTSGLGTVDADYKKCTKGLS
DQ243977.1        LANVSSFGDYNLSSVIPSLPRSGSRVAGRSAIEDILFSKLVTSGLGTVDADYKKCTKGLS
AB691764.1        LANVSSFGDYNLSSVIPSLPRSGSRVAGRSAIEDILFSKLVTSGLGTVDADYKKCTKGLS
DQ243979.1        LANVSSFGDYNLSSVIPSLPRSGSRVAGRSAIEDILFSKLVTSGLGTVDADYKKCTKGLS
MN369046.1        LANVSSFGDYNLSSVIPSLPRSGSRVAGRSAIEDILFSKLVTSGLGTVDADYKKCTKGLS
MN306046.1        LANVSSFGDYNLSSVIPSLPRSGSRVAGRSAIEDILFSKLVTSGLGTVDADYKKCTKGLS
KY983587.1        LANVSSFGDYNLSSVIPSLPRSGSRVAGRSAIEDILFSKLVTSGLGTVDADYKKCTKGLS
KY684760.1        LANVSSFGDYNLSSVIPSLPRSGSRVAGRSAIEDILFSKLVTSGLGTVDADYKKCTKGLS
KM055531.1        LANVSSFGDYNLSSVIPSLPRSGSRVAGRSAIEDILFSKLVTSGLGTVDADYKKCTKGLS
KM055537.1        LANVSSFGDYNLSSVIPSLPRSGSRVAGRSAIEDILFSKLVTSGLGTVDADYKKCTKGLS
KM055538.1        LANVSSFGDYNLSSVIPSLPRSGSRVAGRSAIEDILFSKLVTSGLGTVDADYKKCTKGLS
JX503060.1        LANVSSFGDYNLSSVIPSLPRSGSRVAGRSAIEDILFSKLVTSGLGTVDADYKKCTKGLS
KY996417.1        LANVSSFGDYNLSSVIPSLPRSGSRVAGRSAIEDILFSKLVTSGLGTVDADYKKCTKGLS
KM055554.1        LANVSSFGDYNLSSVIPSLPRSGSRVAGRSAIEDILFSKLVTSGLGTVDADYKKCTKGLS
AB691767.1        LANVSSFGDYNLSSVIPSLPRSGSRVAGRSAIEDILFSKLVTSGLGTVDADYKKCTKGLS
KM055551.1        LANVSSFGDYNLSSVIPSLPRSGSRVAGRSAIEDILFSKLVTSGLGTVDADYKKCTKGLS
KM055557.1        LANVSSFGDYNLSSVIPSLPRSGSRVAGRSAIEDILFSKLVTSGLGTVDADYKKCTKGLS
KF514431.1        LANVSSFGDYNLSSVIPSLPRSGSRVAGRSAIEDILFSKLVTSGLGTVDADYKKCTKGLS
KF514433.1        LANVSSFGDYNLSSVIPSLPRSGSRVAGRSAIEDILFSKLVTSGLGTVDADYKKCTKGLS
KF514430.1        LANVSSFGDYNLSSVIPSLPRSGSRVAGRSAIEDILFSKLVTSGLGTVDADYKKCTKGLS
DQ243973.1        LANVSSFGDYNLSSVIPSLPRSGSRVAGRSAIEDILFSKLVTSGLGTVDADYKKCTKGLS
DQ243974.1        LANVSSFGDYNLSSVIPSLPRSGSRVAGRSAIEDILFSKLVTSGLGTVDADYKKCTKGLS
KF514429.1        LANVSSFGDYNLSSVIPSLPTSGSRVAGRSAIEDILFSKLVTSGLGTVDADYKKCTKGLS
DQ243971.1        LANVSSFGDYNLSSVIPSLPTSGSRVAGRSAIEDILFSKLVTSGLGTVDADYKKCTKGLS
NC_002645.1       LANVSSFGDYNLSSVIPSLPTSGSRVAGRSAIEDILFSKLVTSGLGTVDADYKKCTKGLS
AB691763.1        LANVSSFGDYNLSSVIPSLPTSGSRVAGRSAIEDILFSKIVTSGLGTVDADYKNCTKGLS
DQ243966.1        LANVSSFGDYNLSSVIPSLPTSGSRVAGRSAIEDILFSKLVTSGLGTVDADYKKCTKGLS
                  ****************** ****************:*************:******

KY674919.1        IADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGIALGGLTSAASIPFSLAIQSRLNYV
JX503061.1        IADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGIALGGLTSAASIPFSLAIQSRLNYV
DQ243980.1        IADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGIALGGLTSAASIPFSLAIQSRLNYV
DQ243977.1        IADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGIALGGLTSAASIPFSLAIQSRLNYV
AB691764.1        IADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGIALGGLTSAASIPFSLAIQSRLNYV
DQ243979.1        IADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGIALGGLTSAASIPFSLAIQSRLNYV
MN369046.1        IADLACAQYYNGIMVLPGAADAERMAMYTGSLIGGIALGGLTSAASIPFSLAIQSRLNYV
MN306046.1        IADLACAQYYNGIMVLPGAADAERMAMYTGSLIGGIALGGLTSAASIPFSLAIQSRLNYV
KY983587.1        IADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGIALGGLTSAASIPFSLAIQSRLNYV
KY684760.1        IADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGIALGGLTSAASIPFSLAIQSRLNYV
KM055531.1        IADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGIALGGLTSAASIPFSLAIQSRLNYV
KM055537.1        IADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGIALGGLTSAASIPFSLAIQSRLNYV
KM055538.1        IADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGIALGGLTSAASIPFSLAIQSRLNYV
JX503060.1        IADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGIALGGLTSAASIPFSLAIQSRLNYV
KY996417.1        IADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGIALGGLTSAASIPFSLAIQSRLNYV
KM055554.1        IADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGIALGGLTSAASIPFSLAIQSRLNYV
AB691767.1        IADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGIALGGLTSAASIPFSLAIQSRLNYV
KM055551.1        IADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGIALGGLTSAASIPFSLAIQSRLNYV
KM055557.1        IADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGIALGGLTSAASIPFSLAIQSRLNYV
KF514431.1        IADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGIALGGLTSAASIPFSLAIQSRLNYV
KF514433.1        IADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGIALGGLTSAASIPFSLAIQSRLNYV
KF514430.1        IADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGIALGGLTSAASIPFSLAIQSRLNYV
DQ243973.1        IADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGIALGGLTSAASIPFSLAIQSRLNYV
```

```
DQ243974.1      IADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGIALGGLTSAASIPFSLAIQSRLNYV
KF514429.1      IADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGIALGGLTSAASIPFSLAIQSRLNYV
DQ243971.1      IADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGIALGGLTSAASIPFSLAIQSRLNYV
NC_002645.1     IADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGIALGGLTSAVSIPFSLAIQARLNYV
AB691763.1      IADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGIALGGLTSAVSIPFSLAIQARLNYV
DQ243966.1      IADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGIALGGLTSAASIPFSLAIQARLNYV
                ****************.**********************.*********:*****

KY674919.1      ALQTDVLQENQKILAASFNKAMTNIVDAFTGVNDAITQTSQALQTVATALNKIQDVVNQQ
JX503061.1      ALQTDVLQENQKILAASFNKAMTNIVDAFTGVNDAITQTSQALQTVATALNKIQDVVNQQ
DQ243980.1      ALQTDVLQENQKILAASFNKAMTNIVDAFTGVNDAITQTSQALQTVATALNKIQDVVNQQ
DQ243977.1      ALQTDVLQENQKILAASFNKAMTNIVDAFTGVNDAITQTSQALQTVATALNKIQDVVNQQ
AB691764.1      ALQTDVLQENQKILAASFNKAMTNIVDAFTGVNDAITQTSQALQTVATALNKIQDVVNQQ
DQ243979.1      ALQTDVLQENQKILAASFNKAMTNIVDAFTGVNDAITQTSQALQTVATALNKIQDVVNQQ
MN369046.1      ALQTDVLQENQRILAASFNKAMTNIVDAFTGVNDAITQTSQALQTVATALNKIQDVVNQQ
MN306046.1      ALQTDVLQENQRILAASFNKAMTNIVDAFTGVNDAITQTSQALQTVATALNKIQDVVNQQ
KY983587.1      ALQTDVLQENQKILAASFNKAMTNIVDAFTGVNDAITQTSQALQTVATALNKIQDVVNQQ
KY684760.1      ALQTDVLQENQRILAASFNKAMTNIVDAFTGVNDAITQTSQALQTVATALNKIQDVVNQQ
KM055531.1      ALQTDVLQENQRILAASFNKAMTNIVDAFTGVNDAITQTSPALQTVATALNKIQDVVNQQ
KM055537.1      ALQTDVLQENQKILAASFNKAMTNIVDAFTGVNDAITQTSQALQTVATALNKIQDVVNQQ
KM055538.1      ALQTDVLQENQKILAASFNKAMTNIVDAFTGVNDAITQTSQALQTVATALNKIQDVVNQQ
JX503060.1      ALQTDVLQENQKILAASFNKAMTNIVDAFTGVNDAITQTSQALQTVATALNKIQDVVNQQ
KY996417.1      ALQTDVLQENQKILAASFNKAMTNIVDAFTGVNDAITQTSQALQTVATALNKIQDVVNQQ
KM055554.1      ALQTDVLQENQKILAASFNKAMTNIVDAFTGVNDAITQTSQALQTVATALNKIQDVVNQQ
AB691767.1      ALQTDVLQENQKILAASFNKAMTNIVDAFTGVNDAITQTSQALQTVATALNKIQDVVNQQ
KM055551.1      ALQTDVLQENQKILAASFNKAMTNIVDAFTGVNDAITQTSQALQTVATALNKIQDVVNQQ
KM055557.1      ALQTDVLQENQKILAASFNKAMTNIVDAFTGVNDAITQTSQALQTVATALNKIQDVVNQQ
KF514431.1      ALQTDVLQENQKILAASFNKAMTNIVDAFTGVNDAITQTSQALQTVATALNKIQDVVNQQ
KF514433.1      ALQTDVLQENQKILAASFNKAMTNIVDAFTGVNDAITQTSQALQTVATALNKIQDVVNQQ
KF514430.1      ALQTDVLQENQKILAASFNKAMTNIVDAFTGVNDAITQTSQALQTVATALNKIQDVVNQQ
DQ243973.1      ALQTDVLQENQKILAASFNKAMTNIVDAFTGVNDAITQTSQALQTVATALNKIQDVVNQQ
DQ243974.1      ALQTDVLQENQKILAASFNKAMTNIVDAFTGVNDAITQTSQALQTVATALNKIQDVVNQQ
KF514429.1      ALQTDVLQENQKILAASFNKAMTNIVDAFTGVNDAITQTSQALQTVATALNKIQDVVNQQ
DQ243971.1      ALQTDVLQENQKILAASFNKAMTNIVDAFTGVNDAITQTSQALQTVATALNKIQDVVNQQ
NC_002645.1     ALQTDVLQENQKILAASFNKAMTNIVDAFTGVNDAITQTSQALQTVATALNKIQDVVNQQ
AB691763.1      ALQTDVLQENQKILAASFNKAMTNIVDAFTGVNDAITQTSQALQTVATALNKIQDVVNQQ
DQ243966.1      ALQTDVLQENQKILAASFNKAMTNIVDAFTGVNDAITQTSQALQTVATALNKIQDVVNQQ
                ***********:************************** ******************

KY674919.1      GNSLNHLTSQLRQNFQAISSSIQAIYDRLDIIQADQQVDRLITGRLAALNVFVSHTLTKY
JX503061.1      GNSLNHLTSQLRQNFQAISSSIQAIYDRLDIIQADQQVDRLITGRLAALNVFVSHTLTKY
DQ243980.1      GNSLNHLTSQLRQNFQAISSSIQAIYDRLDIIQADQQVDRLITGRLAALNVFVSHTLTKY
DQ243977.1      GNSLNHLTFQLRQNFQAISSSIQAIYDRLDIIQADQQVDRLITGRLAALNVFVSHTLTKY
AB691764.1      GNSLNHLTSQLRQNFQAISSSIQAIYDRLDIIQADQQVDRLITGRLAALNVFVSHTLTKY
DQ243979.1      GNSLNHLTSQLRQNFQAISSSIQAIYDRLDIIQADQQVDRLITGRLAALNVFVSHTLTKY
MN369046.1      GNSLNHLTSQLRQNFQAISSSIQAIYDRLDIIQADQQVDRLITGRLAALNVFVSHTLTKY
MN306046.1      GNSLNHLTSQLRQNFQAISSSIQAIYDRLDIIQADQQVDRLITGRLAALNVFVSHTLTKY
KY983587.1      GNSLNHLTSQLRQNFQAISSSIQAIYDRLDIIQADQQVDRLITGRLAALNVFVSHTLTKY
KY684760.1      GNSLSHLTSQLRQNFQAISSSIQAIYDRLDIIQADQQVDRLITGRLAALNVFVSHTLTKY
KM055531.1      GNSLNHLTSQLRQNFQAISSSIQAIYDRLDIIQADQQVDRLITGRLAALNVFVSHTLTKY
KM055537.1      GNSLNHLTSQLRQNFQAISSSIQAIYDRLDIIQADQQVDRLITGRLAALNVFVSHTLTKY
KM055538.1      GNSLNHLTSQLRQNFQAISSSIQAIYDRLDIIQADQQVDRLITGRLAALNVFVSHTLTKY
JX503060.1      GNSLNHLTSQLRQNFQAISSSIQAIYDRLDIIQADQQVDRLITGRLAALNVFVSHTLTKY
KY996417.1      GNSLNHLTSQLRQNFQAISSSIQAIYDRLDIIQADQQVDRLITGRLAALNVFVSHTLTKY
KM055554.1      GNSLNHLTSQLRQNFQAISSSIQAIYDRLDIIQADQQVDRLITGRLAALNVFVSHTLTKY
AB691767.1      GNSLNHLTSQLRQNFQAISSSIQAIYDRLDIIQADQQVDRLITGRLAALNVFVSHTLTKY
```

```
KM055551.1      GNSLNHLTSQLRQNFQAISSSIQAIYDRLDIIQADQQVDRLITGRLAALNVFVSHTLTKY
KM055557.1      GNSLNHLTSQLRQNFQAISSSIQAIYDRLDIIQADQQVDRLITGRLAALNVFVSHTLTKY
KF514431.1      GNSLNHLTSQLRQNFQAISSSIQAIYDRLDIIQADQQVDRLITGRLAALNVFVSHTLTKY
KF514433.1      GNSLNHLTSQLRQNFQAISSSIQAIYDRLDIIQADQQVDRLITGRLAALNVFVSHTLTKY
KF514430.1      GNSLNHLTSQLRQNFQAISSSIQAIYDRLDIIQADQQVDRLITGRLAALNVFVSHTLTKY
DQ243973.1      GNSLNHLTSQLRQNFQAISSSIQAIYDRLDIIQADQQVDRLITGRLAALNVFVSHTLTKY
DQ243974.1      GNSLNHLTSQLRQNFQAISSSIQAIYDRLDIIQADQQVDRLITGRLAALNVFVSHTLTKY
KF514429.1      GNSLNHLTSQLRQNFQAISSSIQAIYDRLDIIQADQQVDRLITGRLAALNVFVSHTLTKY
DQ243971.1      GNSLNHLTSQLRQNFQAISSSIQAIYDRLDIIQADQQVDRLITGRLAALNVFVSHTLTKY
NC_002645.1     GNSLNHLTSQLRQNFQAISSSIQAIYDRLDTIQADQQVDRLITGRLAALNVFVSHTLTKY
AB691763.1      GNLLNHLNSQLRQNFQAISSSIQAIYDRLDTIQADQQVDRLITGRLAALNVFVSHTLTKY
DQ243966.1      GNSLNHLTSQLRQNFQAISSSIQAIYDRLDIIQADQQVDRLITGRLAALNVFVSHTLTKY
                ** *.**. ******************** ****************************

KY674919.1      TEVRASRQLAQQKVNECVKSQSKRYGFCGNGTHIFSLVNAAPEGLVFLHTVLLPTQYKDV
JX503061.1      TEVRASRQLAQQKVNECVKSQSKRYGFCGNGTHIFSLVNAAPEGLVFLHTVLLPTQYKDV
DQ243980.1      TEVRASRQLAQQKVNECVKSQSERYGFCGNGTHIFSLVNAAPEGLVFLHTVLLPTQYKDV
DQ243977.1      TEVRASRQLAQQKVNECVKSQSKRYGFCGNGTHIFSLVNAAPEGLVFLHTVLLPTQYKDV
AB691764.1      TEVRASRQLAQQKVNECVKSQSKRYGFCGNGTHIFSLVNAAPEGLVFLHTVLLPTQYKDV
DQ243979.1      TEVRASRQLAQQKVNECVKSQSKRYGFCGNGTHIFSLVNAAPEGLVFLHTVLLPTQYKDV
MN369046.1      TEVRASRQLAQQKVNECVKSQSKRYGFCGNGTHIFSLVNAAPEGLVFLHTVLLPTQYKDV
MN306046.1      TEVRASRQLAQQKVNECVKSQSKRYGFCGNGTHIFSLVNAAPEGLVFLHTVLLPTQYKDV
KY983587.1      TEVRASRQLAQQKVNECVKSQSKRYGFCGNGTHIFSLVNAAPEGLVFLHTVLLPTQYKDV
KY684760.1      TEVRASRQLAQQKVNECVKSQSKRYGFCGNGTHIFSLVNAAPEGLVFLHTVLLPTQYKDV
KM055531.1      TEVRASRQLAQQKVNECVKSQSKRYGFCGNGTHIFSLVNAAPEGLVFLHTVLLPTQYKDV
KM055537.1      TEVRASRQLAQQKVNECVKSQSKRYGFCGNGTHIFSLVNAAPEGLVFLHTVLLPTQYKDV
KM055538.1      TEVRASRQLAQQKVNECVKSQSKRYGFCGNGTHIFSLVNAAPEGLVFLHTVLLPTQYKDV
JX503060.1      TEVRASRQLAQQKVNECVKSQSKRYGFCGNGTHIFSLVNAAPEGLVFLHTVLLPTQYKDV
KY996417.1      TEVRASRQLAQQKVNECVKSQSKRYGFCGNGTHIFSLVNAAPEGLVFLHTVLLPTQYKDV
KM055554.1      TEVRASRQLAQQKVNECVKSQSKRYGFCGNGTHIFSLVNAAPEGLVFLHTVLLPTQYKDV
AB691767.1      TEVRASRQLAQQKVNECVKSQSKRYGFCGNGTHIFSLVNAAPEGLVFLHTVLLPTQYKDV
KM055551.1      TEVRASRQLAQQKVNECVKSQSKRYGFCGNGTHIFSLVNAAPEGLVFLHTVLLPTQYKDV
KM055557.1      TEVRASRQLAQQKVNECVKSQSKRYGFCGNGTHIFSLVNAAPEGLVFLHTVLLPTQYKDV
KF514431.1      TEVRASRQLAQQKVNECVKSQSKRYGFCGNGTHIFSLVNAAPEGLVFLHTVLLPTQYKDV
KF514433.1      TEVRASRQLAQQKVNECVKSQSKRYGFCGNGTHIFSLVNAAPEGLVFLHTVLLPTQYKDV
KF514430.1      TEVRASRQLAQQKVNECVKSQSKRYGFCGNGTHIFSLVNAAPEGLVFLHTVLLPTQYKDV
DQ243973.1      TEVRASRQLAQQKVNECVKSQSKRYGFCGNGTHIFSLVNAAPEGLVFLHTVLLPTQYKDV
DQ243974.1      TEVRASRQLAQQKVNECVKSQSKRYGFCGNGTHIFSLVNAAPEGLVFLHTVLLPTQYKDV
KF514429.1      TEVRASRQLAQQKVNECVKSQSKRYGFCGNGTHIFSLVNAAPEGLVFLHTVLLPTQYKDV
DQ243971.1      TEVRASRQLAQQKVNECVKSQSKRYGFCGNGTHIFSLVNAAPEGLVFLHTVLLPTQYKDV
NC_002645.1     TEVRASRQLAQQKVNECVKSQSKRYGFCGNGTHIFSIVNAAPEGLVFLHTVLLPTQYKDV
AB691763.1      TEVRASRQLAQQKVNECVKSQSKRYGFCGNGTHIFSIVNAAPEGLVFLHTVLLPTQYKDV
DQ243966.1      TEVRASRQLAQQKVNECVKSQSKRYGFCGNGTHIFSLVNAAPEGLVFLHTVLLPTQYKDV
                ********************:************:**********************

KY674919.1      EAWSGLCVDGRNGYVLRQPNLALYKEGNYYRITSRIMFEPRIPTIADFVQIENCNVTFVN
JX503061.1      EAWSGLCVDGRNGYVLRQPNLALYKEGNYYRITSRIMFEPRIPTIADFVQIENCNVTFVN
DQ243980.1      EAWSGLCVDGRNGYVLRQPNLALYKEGNYYRITSRIMFEPRIPTIADFVQIENCNVTFVN
DQ243977.1      EAWSGLCVDGRNGYVLRQPNLALYKEGNYYRITSRIMFEPRIPTIADFVQIENCNVTFVN
AB691764.1      EAWSGLCVDGRNGYVLRQPNLALYKEGNYYRITSRIMFEPRIPTIADFVQIENCNVTFVN
DQ243979.1      EAWSGLCVDGRNGYVLRQPNLALYKEGNYYRITSRIMFEPRIPTIADFVQIENCNVTFVN
MN369046.1      EAWSGLCVDGINGYVLRQPNLALYKEGNYYRITSRIMFEPRIPTIADFVQIENCNVTFVN
MN306046.1      EAWSGLCVDGINGYVLRQPNLALYKEGNYYRITSRIMFEPRIPTIADFVQIENCNVTFVN
KY983587.1      EAWSGLCVDGINGYVLRQPNLALYKEGNYYRITSRIMFEPRIPTIADFVQIENCNVTFVN
KY684760.1      EAWSGLCVDGINGYVLRQPNLALYKEGNYYRITSRIMFEPRIPTIADFVQIENCNVTFVN
KM055531.1      EAWSGLCVDGINGYVLRQPNLALYKEGNYYRITSRIMFEPRIPTIADFVQIENCNVTFVN
```

```
KM055537.1      EAWSGLCVDGINGYVLRQPNLALYKEGNYYRITSRIMFEPRIPTIADFVQIENCNVTFVN
KM055538.1      EAWSGLCVDGINGYVLRQPNLALYKEGNYYRITSRIMFEPRIPTIADFVQIENCNVTFVN
JX503060.1      EAWSGLCVDGINGYVLRQPNLALYKEGNYYRITSRIMFEPRIPTIADFVQIENCNVTFVN
KY996417.1      EAWSGLCVDGINGYVLRQPNLALYKEGNYYRITSRIMFEPRIPTIADFVQIENCNVTFVN
KM055554.1      EAWSGLCVDGINGYVLRQPNLALYKEGNYYRITSRIMFEPRIPTIADFVQIENCNVTFVN
AB691767.1      EAWSGLCVDGINGYVLRQPNLALYKEGNYYRITSRIMFEPRIPTIADFVQIENCNVTFVN
KM055551.1      EAWSGLCVDGINGYVLRQPNLALYKEGNYYRITSRIMFEPRIPTIADFVQIENCNVTFVN
KM055557.1      EAWSGLCVDGINGYVLRQPNLALYKEGNYYRITSRIMFEPRIPTIADFVQIENCNVTFVN
KF514431.1      EAWSGLCVDGRNGYVLRQPNLALYKEGNYYRITSRIMFEPRIPTIADFVQIENCNVTFVN
KF514433.1      EAWSGLCVDGRNGYVLRQPNLALYKEGNYYRITSRIMFEPRIPTIADFVQIENCNVTFVN
KF514430.1      EAWSGLCVDGRNGYVLRQPNLALYKEGNYYRITSRIMFEPRIPTIADFVQIENCNVTFVN
DQ243973.1      EAWSGLCVDGRNGYVLRQPNLALYKEGNYYRITSRIMFEPRIPTIADFVQIENCNVTFVN
DQ243974.1      EAWSGLCVDGRNGYVLRQPNLALYKEGNYYRITSRIMFEPRIPTIADFVQIENCNVTFVN
KF514429.1      EAWSGLCVDGRNGYVLRQPNLALYKEGNYYRITSRIMFEPRIPTIADFVQIENCNVTFVN
DQ243971.1      EAWSGLCVDGRNGYVLRQPNLALYKEGNYYRITSRIMFEPRIPTMADFVQIENCNVTFVN
NC_002645.1     EAWSGLCVDGTNGYVLRQPNLALYKEGNYYRITSRIMFEPRIPTMADFVQIENCNVTFVN
AB691763.1      EAWSGLCVDGTNGYVLRQPNLALYKEGNYYRITSRIMFEPRIPTMADFVQIENCNVTFVN
DQ243966.1      EAWSGLCVDGRNGYVLRQPNLALYKEGNYYRITSRIMFEPRIPTMADFVQIENCNVTFVN
                ********** ******************************:***************

KY674919.1      ISRSELQTIVPEYIDVNKTLQELSYKLPNYTVPDLVVEQYNQTILNLTSEISTLENKSAE
JX503061.1      ISRSELQTIVPEYIDVNKTLQELSYKLPNYTVPDLVVEQYNQTILNLTSEISTLENKSAE
DQ243980.1      ISRSELQTIVPEYIDVNKTLQELSYKLPNYTVPDLVVEQYNQTILNLTSEISTLENKSAE
DQ243977.1      ISRSELQTIVPEYIDVNKTLQELSYKLPNYTVPDLVVEQYNQTILNLTSEISTLENKSAE
AB691764.1      ISRSELQTIVPEYIDVNKTLQELSYKLPNYTVPDLVVEQYNQTILNLTSEISTLENKSAE
DQ243979.1      ISRSELQTIVPEYIDVNKTLQELSYKLPNYTVPDLVVEQYNQTILNLTSEISTLENKSAE
MN369046.1      ISRSELQTIVPEYIDVNKTLQELSYKLPNYTVPDLVVEQYNQTILNLTSEISTLENKSAE
MN306046.1      ISRSELQTIVPEYIDVNKTLQELSYKLPNYTVPDLVVEQYNQTILNLTSEISTLENKSAE
KY983587.1      ISRSELQTIVPEYIDVNKTLQELSYKLPNYTVPDLVVEQYNQTILNLTSEISTLENKSAE
KY684760.1      ISRSELQTIVPEYIDVNKTLQELSYKLPNYTVPDLVVEQYNQTILNLTSEISTLENKSAE
KM055531.1      ISRSELQTIVPEYIDVNKTLQELSYKLPNYTVPDLVVEQYNQTILNLTSEISTLENKSAE
KM055537.1      ISRSELQTIVPEYIDVNKTLQELSYKLPNYTVPDLVVEQYNQTILNLTSEISTLENKSAE
KM055538.1      ISRSELQTIVPEYIDVNKTLQELSYKLPNYTVPDLVVEQYNQTILNLTSEISTLENKSAE
JX503060.1      ISRSELQTIVPEYIDVNKTLQELSYKLPNYTVPDLVVEQYNQTILNLTSEISTLENKSAE
KY996417.1      ISRSELQTIVPEYIDVNKTLQELSYKLPNYTVPDLVVEQYNQTILNLTSEISTLENKSAE
KM055554.1      ISRSELQTIVPEYIDVNKTLQELSYKLPNYTVPDLVVEQYNQTILNLTSEISTLENKSAE
AB691767.1      ISRSELQTIVPEYIDVNKTLQELSYKLPNYTVPDLVVEQYNQTILNLTSEISTLENKSAE
KM055551.1      ISRSELQTIVPEYIDVNKTLQELSYKLPNYTVPDLVVEQYNQTILNLTSEISTLENKSAE
KM055557.1      ISRSELQTIVPEYIDVNKTLQELSYKLPNYTVPDLVVEQYNQTILNLTSEISTLENKSAE
KF514431.1      ISRSELQTIVPEYIDVNKTLQELSYKLPNYTVPDLVVEQYNQTILNLTSEISTLENKSAE
KF514433.1      ISRSELQTIVPEYIDVNKTLQELSYKLPNYTVPDLVVEQYNQTILNLTSEISTLENKSAE
KF514430.1      ISRSELQTIVPEYIDVNKTLQELSYKLPNYTVPDLVVEQYNQTILNLTSEISTLENKSAE
DQ243973.1      ISRSELQTIVPEYIDVNKTLQELSYKLPNYTVPDLVVEQYNQTILNLTSEISTLENKSAE
DQ243974.1      ISRSELQTIVPEYIDVNKTLQELSYKLPNYTVPDLVVEQYNQTILNLTSEISTLENKSAE
KF514429.1      ISRSELQTIVPEYIDVNKTLQELSYKLPNYTVPDLVVEQYNQTILNLTSEISTLENKSAE
DQ243971.1      ISRSELQTIVPEYIDVNKTLQELSYKLPNYTVPDLVVEQYNQIILNLTSEISTLENKSAE
NC_002645.1     ISRSELQTIVPEYIDVNKTLQELSYKLPNYTVPDLVVEQYNQTILNLTSEISTLENKSAE
AB691763.1      ISRSELQTIVPEYIDVNKTLQELSYKLPNYTVPDLVVEQYNQTILNLTSEISTLENKSAE
DQ243966.1      ISRSELQTIVPEYIDVNKTLQELSYKLPNYTVPDLVVEQYNQTILNLTSEISTLENKSAE
                ************************************ ****************

KY674919.1      LNYTVQKLQILIDNINSTLVDLKWLNRVETYIKWPWWVWLCISVVLIFVVSMLLLCCCST
JX503061.1      LNYTVQKLQTLIDNINSTLVDLKWLNRVETYIKWPWWVWLCISVVLIFVVSMLLLCCCST
DQ243980.1      LNYTVQKLQTLIDNINSTLVDLKWLNRVETYIKWPWWVWLCISVVLIFVVSMLLLCCCST
DQ243977.1      LNYTVQKLQTLIDNINSTLVDLKWLNRVETYIKWPWWVWLCISVVLIFVVSMLLLCCCST
AB691764.1      LNYTVQKLQTLIDNINSTLVDLKWLNRVETYIKWPWWVWLCISVVLIFVVSMLLLCCCST
```

```
DQ243979.1      LNYTVQKLQTLIDNINSTLVDLKWLNRVETYIKWPWWVWLCISVVLIFVVSMLLLCCCST
MN369046.1      LNYTVQKLQTLIDNINSTLVDLKWLNRVETYIKWPWWVWLCISVVLIFVVSMLLLCCCST
MN306046.1      LNYTVQKLQTLIDNINSTLVDLKWLNRVETYIKWPWWVWLCISVVLIFVVSMLLLCCCST
KY983587.1      LNYTVQKLQTLIDNINSTLVDLKWLNRVETYIKWPWWVWLCISVVLIFVVSMLLLCCCST
KY684760.1      LNYTVQKLQTLIDNINSTLVDLKWLNRVETYIKWPWWVWLCISVVLIFVVSMLLLCCCST
KM055531.1      LNYTVQKLQTLIDNINSTLVDLKWLNRVETYIKWPWWVWLCISVVLIFVVSMLLLCCCST
KM055537.1      LNYTVQKLQTLIDNINSTLVDLKWLNRVETYIKWPWWVWLCISVVLIFVVSMLLLCCCST
KM055538.1      LNYTVQKLQTLIDNINSTLVDLKWLNRVETYIKWPWWVWLCISVVLIFVVSMLLLCCCST
JX503060.1      LNYTVQKLQTLIDNINSTLVDLKWLNRVETYIKWPWWVWLCISVVLIFVVSMLLLCCCST
KY996417.1      LNYTVQKLQTLIDNINSTLVDLKWLNRVETYIKWPWWVWLCISVVLIFVVSMLLLCCCST
KM055554.1      LNYTVQKLQTLIDNINSTLVDLKWLNRVETYIKWPWWVWLCISVVLIFVVSMLLLCCCST
AB691767.1      LNYTVQKLQTLIDNINSTLVDLKWLNRVETYIKWPWWVWLCISVVLIFVVSMLLLCCCST
KM055551.1      LNYTVQKLQTLIDNINSTLVDLKWLNRVETYIKWPWWVWLCISVVLIFVVSMLLLCCCST
KM055557.1      LNYTVQKLQTLIDNINSTLVDLKWLNRVETYIKWPWWVWLCISVVLIFVVSMLLLCCCST
KF514431.1      LNYTVQKLQTLIDNINSTLVDLNWLNRVETYIKWPWWVWLCISVVLIFVVSMLLLCCCST
KF514433.1      LNYTVQKLQTLIDNINSTLVDLKWLNRVETYIKWPWWVWLCISVVLIFVVSMLLLCCCST
KF514430.1      LNYTVQKLQTLIDNINSTLVDLKWLNRVETYIKWPWWVWLCISVVLIFVVSMLLLCCCST
DQ243973.1      LNYTVQKLQTLIDNINSTLVDLKWLNRVETYIKWPWWVWLCISVVLIFVVSMLLLCCCST
DQ243974.1      LNYTVQKLQTLIDNINSTLVDLKWLNRVETYIKWPWWVWLCISVVLIFVVSMLLLCCCST
KF514429.1      LNYTVQKLQTLIDNINSTLVDLKWLNRVETYIKWPWWVWLCISVVLIFVVSMLLLCCCST
DQ243971.1      LNYTVQKLQTLIDNINSTLVDLKWLNRVETYIKWPWWVWLCISVVLIFVVSMLLLCCCST
NC_002645.1     LNYTVQKLQTLIDNINSTLVDLKWLNRVETYIKWPWWVWLCISVVLIFVVSMLLLCCCST
AB691763.1      LNYTVQKLQTLIDNINSTLVDLKWLNRVETYIKWPWWVWLCISVVLIFVVSMLLLCCCST
DQ243966.1      LNYTVQKLQTLIDNINSTLVDLKWLNRVETYIKWPWWVWLCISVVLIFVVSMLLLCCCST
                ********* ***********:**********************************

KY674919.1      GCCGFFSCFASSIRGCCESTKLPYYDVEKIHIQ
JX503061.1      GCCGFFSCFASSIRGCCESTKLPYYDVEKIHIQ
DQ243980.1      GCCGFFSCFASSIRGCCESTKLPYYDVEKIHIQ
DQ243977.1      GCCGFFSCFASSIRGCCESTKLPYYDVEKIHIQ
AB691764.1      GCCGFFSCFASSIRGCCESTKLPYYDVEKIHIQ
DQ243979.1      GCCGFFSCFASSIRGCCESTKLPYYDVEKIHIQ
MN369046.1      GCCGFFSCFASSIRGCCESTKLPYYDVEKIHIQ
MN306046.1      GCCGFFSCFASSIRGCCESTKLPYYDVEKIHIQ
KY983587.1      GCCGFFSCFASSIKGCCESTKLPYYDVEKIHIQ
KY684760.1      GCCGFFSCFASSIRGCCESTKLPYYDVEKIHIQ
KM055531.1      GCCGFFSCFASSIRGCCESTKLPYYDVEKIHIQ
KM055537.1      GCCGFFSCFASSIRGCCESTKLPYYDVEKIHIQ
KM055538.1      GCCGFFSCFASSIRGCCESTKLPYYDVEKIHIQ
JX503060.1      GCCGFFSCFASSIRGCCESTKLPYYDVEKIHIQ
KY996417.1      GCCGFFSCFASSIRGCCESTKLPYYDVEKIHIQ
KM055554.1      GCCGFFSCFASSIRGCCESTKLPYYDVEKIHIQ
AB691767.1      GCCGFFSCFASSIRGCCESTKLPYYDVEKIHIQ
KM055551.1      GCCGFFSCFASSIRGCCESTKLPYYDVEKIHIQ
KM055557.1      GCCGFFSCFASSIRGCCESTKLPYYDVEKIHIQ
KF514431.1      GCCGFFSCFASSIRGCCESTKLPYYDVEKIHIQ
KF514433.1      GCCGFFSCFASSIRGCCESTKLPYYDVEKIHIQ
KF514430.1      GCCGFFSCFASSIRGCCESTKLPYYDVEKIHIQ
DQ243973.1      GCCGFFSCFASSIRGCCESTKLPYYDVEKIHIQ
DQ243974.1      GCCGFFSCFASSIRGCCESTKLPYYDVEKIHIQ
KF514429.1      GCCGFFSCFASSIRGCCESTKLPYYDVEKIHIQ
DQ243971.1      GCCGFFSCFASSIRGCCESTKLPYYDVEKIHIQ
NC_002645.1     GCCGFFSCFASSIRGCCESTKLPYYDVEKIHIQ
AB691763.1      GCCGFFSCFASSIRGCCESTKLPYYDVEKIHIQ
DQ243966.1      GCCGFFSCFASSIRGCCESTKLPYYDVEKIHIQ
                *************:******************
```

clustalw.dnd

```
(
(
(
(
(
(
(
(
(
(
(
(
(
NC_002645.1:0.00000,
AB691763.1:0.00427)
:0.02486,
DQ243966.1:0.00506)
:0.00852,
DQ243971.1:0.00387)
:0.00490,
KF514429.1:0.00108)
:0.00474,
(
DQ243973.1:0.00000,
DQ243974.1:0.00000)
:0.00018)
:0.00077,
KF514430.1:0.00094)
:0.00079,
KF514433.1:0.00000)
:0.00173,
KF514431.1:0.00339)
:0.00333,
(
(
(
(
(
(
(
MN369046.1:0.00123,
MN306046.1:0.00133)
:0.00657,
(
KM055531.1:0.00145,
(
KY983587.1:0.00434,
KY684760.1:0.00334)
:0.00282)
:0.00048)
:0.00418,
KM055537.1:0.00126)
:0.00206,
```

```
(
(
KM055538.1:0.00171,
JX503060.1:0.00085)
:0.00000,
KY996417.1:0.00085)
:0.00125)
:0.00229,
(
KM055554.1:0.00000,
AB691767.1:0.00000)
:0.00161)
:0.00074,
KM055551.1:0.00332)
:0.00015,
KM055557.1:0.00000)
:0.00424)
:0.00084,
(
AB691764.1:0.00173,
DQ243979.1:0.00084)
:0.00080)
:0.00000,
DQ243977.1:0.00171)
:0.00000,
DQ243980.1:0.00085)
:0.00000,
KY674919.1:0.00171,
JX503061.1:0.00171);
```

Select tree menu ▼ Exec

CLUSTALW Result

Supplementary Material 2
Sequences Alignment of
HuCoVOC43 Isolates

[clustalw.aln][clustalw.dnd][readme]
Select tree menu ▼ Exec

```
 CLUSTAL 2.1 Multiple Sequence Alignments


Sequence type explicitly set to Protein
Sequence format is Pearson
Sequence 1: NC_005147.1  1361 aa
Sequence 2: MN306036.1   1358 aa
Sequence 3: MN306042.1   1358 aa
Sequence 4: MN306053.1   1358 aa
Sequence 5: MK303619.1   1358 aa
Sequence 6: KU745533.1   1358 aa
Sequence 7: NC_006213.1  1353 aa
Sequence 8: MH121121.1   1358 aa
Sequence 9: MG197709.1   1362 aa
Sequence 10: MG977444.1   1359 aa
Sequence 11: MF314143.1   1362 aa
Sequence 12: KY014282.1   1362 aa
Sequence 13: MF374983.2   1358 aa
Sequence 14: KY983583.1   1358 aa
Sequence 15: KY554972.1   1358 aa
Sequence 16: KY674917.1   1358 aa
Sequence 17: KX538964.1   1358 aa
Sequence 18: KX344031.1   1358 aa
Sequence 19: KU131570.1   1359 aa
Sequence 20: KF572840.1   1361 aa
Sequence 21: KF923886.1   1362 aa
Sequence 22: KF923889.1   1362 aa
Sequence 23: KF923890.1   1358 aa
Sequence 24: KF923897.1   1358 aa
Sequence 25: KF923914.1   1358 aa
Sequence 26: KF923923.1   1358 aa
Sequence 27: KF963229.1   1353 aa
Sequence 28: KF963231.1   1361 aa
Sequence 29: KF963232.1   1361 aa
Sequence 30: KF963234.1   1363 aa
Sequence 31: KF963240.1   1358 aa
Sequence 32: KF572808.1   1362 aa
Sequence 33: KF572818.1   1361 aa
Sequence 34: KF572833.1   1358 aa
Sequence 35: KF572872.1   1358 aa
Sequence 36: KF923891.1   1358 aa
Sequence 37: KF923900.1   1361 aa
Sequence 38: KJ958218.1   1358 aa
Sequence 39: KF530062.1   1356 aa
Sequence 40: KF530065.1   1356 aa
```

```
Sequence 41: KF530068.1   1361 aa
Sequence 42: KF530073.1   1356 aa
Sequence 43: KF530083.1   1356 aa
Sequence 44: JN129834.1   1361 aa
Sequence 45: AY903458.1   1361 aa
Sequence 46: AY903460.1   1361 aa
Start of Pairwise alignments
Aligning...



Sequences (1:2) Aligned. Score: 94.3299
Sequences (1:3) Aligned. Score: 94.4035
Sequences (1:4) Aligned. Score: 94.3299
Sequences (1:5) Aligned. Score: 94.3299
Sequences (1:6) Aligned. Score: 94.5508
Sequences (1:7) Aligned. Score: 98.8914
Sequences (1:8) Aligned. Score: 94.4035
Sequences (1:9) Aligned. Score: 95.7384
Sequences (1:10) Aligned. Score: 94.0397
Sequences (1:11) Aligned. Score: 95.2976
Sequences (1:12) Aligned. Score: 95.4445
Sequences (1:13) Aligned. Score: 94.4772
Sequences (1:14) Aligned. Score: 94.4035
Sequences (1:15) Aligned. Score: 94.5508
Sequences (1:16) Aligned. Score: 94.5508
Sequences (1:17) Aligned. Score: 94.5508
Sequences (1:18) Aligned. Score: 94.6981
Sequences (1:19) Aligned. Score: 94.702
Sequences (1:20) Aligned. Score: 94.8567
Sequences (1:21) Aligned. Score: 95.3711
Sequences (1:22) Aligned. Score: 95.2976
Sequences (1:23) Aligned. Score: 94.6981
Sequences (1:24) Aligned. Score: 94.4772
Sequences (1:25) Aligned. Score: 94.6244
Sequences (1:26) Aligned. Score: 94.5508
Sequences (1:27) Aligned. Score: 98.6696
Sequences (1:28) Aligned. Score: 95.3711
Sequences (1:29) Aligned. Score: 95.0037
Sequences (1:30) Aligned. Score: 95.8119
Sequences (1:31) Aligned. Score: 94.4035
Sequences (1:32) Aligned. Score: 95.3711
Sequences (1:33) Aligned. Score: 94.7832
Sequences (1:34) Aligned. Score: 94.6244
Sequences (1:35) Aligned. Score: 94.6244
Sequences (1:36) Aligned. Score: 94.6981
Sequences (1:37) Aligned. Score: 94.7832
Sequences (1:38) Aligned. Score: 94.6981
Sequences (1:39) Aligned. Score: 96.6814
Sequences (1:40) Aligned. Score: 96.9027
Sequences (1:41) Aligned. Score: 95.3711
Sequences (1:42) Aligned. Score: 96.8289
Sequences (1:43) Aligned. Score: 96.9027
Sequences (1:44) Aligned. Score: 95.0037
Sequences (1:45) Aligned. Score: 95.0771
Sequences (1:46) Aligned. Score: 95.1506
```

Sequences (2:3) Aligned. Score: 99.7791
Sequences (2:4) Aligned. Score: 99.8527
Sequences (2:5) Aligned. Score: 98.1591
Sequences (2:6) Aligned. Score: 98.9691
Sequences (2:7) Aligned. Score: 93.9394
Sequences (2:8) Aligned. Score: 99.1163
Sequences (2:9) Aligned. Score: 94.919
Sequences (2:10) Aligned. Score: 97.9381
Sequences (2:11) Aligned. Score: 94.2563
Sequences (2:12) Aligned. Score: 94.4772
Sequences (2:13) Aligned. Score: 98.8954
Sequences (2:14) Aligned. Score: 99.1163
Sequences (2:15) Aligned. Score: 98.3063
Sequences (2:16) Aligned. Score: 98.3063
Sequences (2:17) Aligned. Score: 98.8218
Sequences (2:18) Aligned. Score: 98.3063
Sequences (2:19) Aligned. Score: 93.4462
Sequences (2:20) Aligned. Score: 97.7172
Sequences (2:21) Aligned. Score: 94.4772
Sequences (2:22) Aligned. Score: 94.4035
Sequences (2:23) Aligned. Score: 98.3063
Sequences (2:24) Aligned. Score: 97.9381
Sequences (2:25) Aligned. Score: 98.2327
Sequences (2:26) Aligned. Score: 98.2327
Sequences (2:27) Aligned. Score: 93.7177
Sequences (2:28) Aligned. Score: 96.6127
Sequences (2:29) Aligned. Score: 96.6863
Sequences (2:30) Aligned. Score: 95.1399
Sequences (2:31) Aligned. Score: 98.0118
Sequences (2:32) Aligned. Score: 94.8454
Sequences (2:33) Aligned. Score: 97.7172
Sequences (2:34) Aligned. Score: 98.8954
Sequences (2:35) Aligned. Score: 98.38
Sequences (2:36) Aligned. Score: 98.3063
Sequences (2:37) Aligned. Score: 97.7172
Sequences (2:38) Aligned. Score: 98.2327
Sequences (2:39) Aligned. Score: 93.0678
Sequences (2:40) Aligned. Score: 93.1416
Sequences (2:41) Aligned. Score: 96.6863
Sequences (2:42) Aligned. Score: 93.0678
Sequences (2:43) Aligned. Score: 93.1416
Sequences (2:44) Aligned. Score: 97.6436
Sequences (2:45) Aligned. Score: 97.6436
Sequences (2:46) Aligned. Score: 97.7172
Sequences (3:4) Aligned. Score: 99.7791
Sequences (3:5) Aligned. Score: 98.1591
Sequences (3:6) Aligned. Score: 98.9691
Sequences (3:7) Aligned. Score: 94.0133
Sequences (3:8) Aligned. Score: 99.1163
Sequences (3:9) Aligned. Score: 94.9926
Sequences (3:10) Aligned. Score: 97.9381
Sequences (3:11) Aligned. Score: 94.3299
Sequences (3:12) Aligned. Score: 94.5508
Sequences (3:13) Aligned. Score: 98.8954
Sequences (3:14) Aligned. Score: 99.1163
Sequences (3:15) Aligned. Score: 98.3063

Sequences (3:16) Aligned. Score: 98.3063
Sequences (3:17) Aligned. Score: 98.8218
Sequences (3:18) Aligned. Score: 98.3063
Sequences (3:19) Aligned. Score: 93.5199
Sequences (3:20) Aligned. Score: 97.7172
Sequences (3:21) Aligned. Score: 94.5508
Sequences (3:22) Aligned. Score: 94.4772
Sequences (3:23) Aligned. Score: 98.3063
Sequences (3:24) Aligned. Score: 97.9381
Sequences (3:25) Aligned. Score: 98.2327
Sequences (3:26) Aligned. Score: 98.2327
Sequences (3:27) Aligned. Score: 93.7916
Sequences (3:28) Aligned. Score: 96.6127
Sequences (3:29) Aligned. Score: 96.6863
Sequences (3:30) Aligned. Score: 95.1399
Sequences (3:31) Aligned. Score: 98.0118
Sequences (3:32) Aligned. Score: 94.919
Sequences (3:33) Aligned. Score: 97.7172
Sequences (3:34) Aligned. Score: 98.8954
Sequences (3:35) Aligned. Score: 98.38
Sequences (3:36) Aligned. Score: 98.3063
Sequences (3:37) Aligned. Score: 97.7172
Sequences (3:38) Aligned. Score: 98.2327
Sequences (3:39) Aligned. Score: 93.1416
Sequences (3:40) Aligned. Score: 93.2153
Sequences (3:41) Aligned. Score: 96.6863
Sequences (3:42) Aligned. Score: 93.1416
Sequences (3:43) Aligned. Score: 93.2153
Sequences (3:44) Aligned. Score: 97.6436
Sequences (3:45) Aligned. Score: 97.6436
Sequences (3:46) Aligned. Score: 97.7172
Sequences (4:5) Aligned. Score: 98.1591
Sequences (4:6) Aligned. Score: 98.9691
Sequences (4:7) Aligned. Score: 93.9394
Sequences (4:8) Aligned. Score: 99.1163
Sequences (4:9) Aligned. Score: 94.919
Sequences (4:10) Aligned. Score: 97.9381
Sequences (4:11) Aligned. Score: 94.2563
Sequences (4:12) Aligned. Score: 94.4772
Sequences (4:13) Aligned. Score: 98.8954
Sequences (4:14) Aligned. Score: 99.1163
Sequences (4:15) Aligned. Score: 98.3063
Sequences (4:16) Aligned. Score: 98.3063
Sequences (4:17) Aligned. Score: 98.8218
Sequences (4:18) Aligned. Score: 98.3063
Sequences (4:19) Aligned. Score: 93.4462
Sequences (4:20) Aligned. Score: 97.7172
Sequences (4:21) Aligned. Score: 94.4772
Sequences (4:22) Aligned. Score: 94.4035
Sequences (4:23) Aligned. Score: 98.3063
Sequences (4:24) Aligned. Score: 97.9381
Sequences (4:25) Aligned. Score: 98.2327
Sequences (4:26) Aligned. Score: 98.2327
Sequences (4:27) Aligned. Score: 93.7177
Sequences (4:28) Aligned. Score: 96.6127
Sequences (4:29) Aligned. Score: 96.6863

Sequences (4:30) Aligned. Score: 95.1399
Sequences (4:31) Aligned. Score: 98.0118
Sequences (4:32) Aligned. Score: 94.8454
Sequences (4:33) Aligned. Score: 97.7172
Sequences (4:34) Aligned. Score: 98.8954
Sequences (4:35) Aligned. Score: 98.38
Sequences (4:36) Aligned. Score: 98.3063
Sequences (4:37) Aligned. Score: 97.7172
Sequences (4:38) Aligned. Score: 98.2327
Sequences (4:39) Aligned. Score: 93.0678
Sequences (4:40) Aligned. Score: 93.1416
Sequences (4:41) Aligned. Score: 96.6863
Sequences (4:42) Aligned. Score: 93.0678
Sequences (4:43) Aligned. Score: 93.1416
Sequences (4:44) Aligned. Score: 97.6436
Sequences (4:45) Aligned. Score: 97.6436
Sequences (4:46) Aligned. Score: 97.7172
Sequences (5:6) Aligned. Score: 98.8954
Sequences (5:7) Aligned. Score: 94.0133
Sequences (5:8) Aligned. Score: 98.6745
Sequences (5:9) Aligned. Score: 95.0663
Sequences (5:10) Aligned. Score: 98.9691
Sequences (5:11) Aligned. Score: 94.5508
Sequences (5:12) Aligned. Score: 94.7717
Sequences (5:13) Aligned. Score: 98.9691
Sequences (5:14) Aligned. Score: 98.6745
Sequences (5:15) Aligned. Score: 99.0427
Sequences (5:16) Aligned. Score: 99.0427
Sequences (5:17) Aligned. Score: 98.8218
Sequences (5:18) Aligned. Score: 99.4109
Sequences (5:19) Aligned. Score: 93.8144
Sequences (5:20) Aligned. Score: 98.6009
Sequences (5:21) Aligned. Score: 94.7717
Sequences (5:22) Aligned. Score: 94.6981
Sequences (5:23) Aligned. Score: 99.19
Sequences (5:24) Aligned. Score: 99.2636
Sequences (5:25) Aligned. Score: 99.1163
Sequences (5:26) Aligned. Score: 99.19
Sequences (5:27) Aligned. Score: 93.7916
Sequences (5:28) Aligned. Score: 97.7909
Sequences (5:29) Aligned. Score: 97.7172
Sequences (5:30) Aligned. Score: 95.8763
Sequences (5:31) Aligned. Score: 99.19
Sequences (5:32) Aligned. Score: 94.9926
Sequences (5:33) Aligned. Score: 98.4536
Sequences (5:34) Aligned. Score: 98.8954
Sequences (5:35) Aligned. Score: 99.19
Sequences (5:36) Aligned. Score: 99.19
Sequences (5:37) Aligned. Score: 98.4536
Sequences (5:38) Aligned. Score: 99.1163
Sequences (5:39) Aligned. Score: 93.1416
Sequences (5:40) Aligned. Score: 93.3628
Sequences (5:41) Aligned. Score: 97.8645
Sequences (5:42) Aligned. Score: 93.2891
Sequences (5:43) Aligned. Score: 93.3628
Sequences (5:44) Aligned. Score: 98.5272

Sequences (5:45) Aligned. Score: 98.5272
Sequences (5:46) Aligned. Score: 98.6009
Sequences (6:7) Aligned. Score: 94.1611
Sequences (6:8) Aligned. Score: 99.7054
Sequences (6:9) Aligned. Score: 94.9926
Sequences (6:10) Aligned. Score: 98.7482
Sequences (6:11) Aligned. Score: 94.4035
Sequences (6:12) Aligned. Score: 94.6244
Sequences (6:13) Aligned. Score: 99.5582
Sequences (6:14) Aligned. Score: 99.7054
Sequences (6:15) Aligned. Score: 98.9691
Sequences (6:16) Aligned. Score: 98.9691
Sequences (6:17) Aligned. Score: 99.6318
Sequences (6:18) Aligned. Score: 99.1163
Sequences (6:19) Aligned. Score: 93.7408
Sequences (6:20) Aligned. Score: 98.4536
Sequences (6:21) Aligned. Score: 94.6244
Sequences (6:22) Aligned. Score: 94.5508
Sequences (6:23) Aligned. Score: 99.1163
Sequences (6:24) Aligned. Score: 98.8954
Sequences (6:25) Aligned. Score: 99.0427
Sequences (6:26) Aligned. Score: 99.0427
Sequences (6:27) Aligned. Score: 93.9394
Sequences (6:28) Aligned. Score: 97.4963
Sequences (6:29) Aligned. Score: 97.4963
Sequences (6:30) Aligned. Score: 95.5817
Sequences (6:31) Aligned. Score: 98.8954
Sequences (6:32) Aligned. Score: 94.9926
Sequences (6:33) Aligned. Score: 98.5272
Sequences (6:34) Aligned. Score: 99.7054
Sequences (6:35) Aligned. Score: 99.1163
Sequences (6:36) Aligned. Score: 99.1163
Sequences (6:37) Aligned. Score: 98.5272
Sequences (6:38) Aligned. Score: 99.0427
Sequences (6:39) Aligned. Score: 93.5103
Sequences (6:40) Aligned. Score: 93.5841
Sequences (6:41) Aligned. Score: 97.57
Sequences (6:42) Aligned. Score: 93.5103
Sequences (6:43) Aligned. Score: 93.5841
Sequences (6:44) Aligned. Score: 98.4536
Sequences (6:45) Aligned. Score: 98.4536
Sequences (6:46) Aligned. Score: 98.5272
Sequences (7:8) Aligned. Score: 94.0133
Sequences (7:9) Aligned. Score: 96.1567
Sequences (7:10) Aligned. Score: 93.7916
Sequences (7:11) Aligned. Score: 95.7132
Sequences (7:12) Aligned. Score: 95.861
Sequences (7:13) Aligned. Score: 94.1611
Sequences (7:14) Aligned. Score: 94.0133
Sequences (7:15) Aligned. Score: 94.3089
Sequences (7:16) Aligned. Score: 94.3089
Sequences (7:17) Aligned. Score: 94.235
Sequences (7:18) Aligned. Score: 94.3829
Sequences (7:19) Aligned. Score: 94.9741
Sequences (7:20) Aligned. Score: 94.7524
Sequences (7:21) Aligned. Score: 95.7871

Sequences (7:22) Aligned. Score: 95.7132
Sequences (7:23) Aligned. Score: 94.4568
Sequences (7:24) Aligned. Score: 94.1611
Sequences (7:25) Aligned. Score: 94.3829
Sequences (7:26) Aligned. Score: 94.235
Sequences (7:27) Aligned. Score: 99.7783
Sequences (7:28) Aligned. Score: 95.122
Sequences (7:29) Aligned. Score: 94.7524
Sequences (7:30) Aligned. Score: 96.1567
Sequences (7:31) Aligned. Score: 94.0872
Sequences (7:32) Aligned. Score: 95.861
Sequences (7:33) Aligned. Score: 94.6785
Sequences (7:34) Aligned. Score: 94.3089
Sequences (7:35) Aligned. Score: 94.3829
Sequences (7:36) Aligned. Score: 94.4568
Sequences (7:37) Aligned. Score: 94.6785
Sequences (7:38) Aligned. Score: 94.4568
Sequences (7:39) Aligned. Score: 96.3784
Sequences (7:40) Aligned. Score: 96.6001
Sequences (7:41) Aligned. Score: 95.122
Sequences (7:42) Aligned. Score: 96.5262
Sequences (7:43) Aligned. Score: 96.6001
Sequences (7:44) Aligned. Score: 94.9002
Sequences (7:45) Aligned. Score: 94.9741
Sequences (7:46) Aligned. Score: 95.048
Sequences (8:9) Aligned. Score: 94.919
Sequences (8:10) Aligned. Score: 98.4536
Sequences (8:11) Aligned. Score: 94.3299
Sequences (8:12) Aligned. Score: 94.5508
Sequences (8:13) Aligned. Score: 99.4109
Sequences (8:14) Aligned. Score: 100
Sequences (8:15) Aligned. Score: 98.8218
Sequences (8:16) Aligned. Score: 98.8218
Sequences (8:17) Aligned. Score: 99.4845
Sequences (8:18) Aligned. Score: 98.9691
Sequences (8:19) Aligned. Score: 93.6672
Sequences (8:20) Aligned. Score: 98.38
Sequences (8:21) Aligned. Score: 94.5508
Sequences (8:22) Aligned. Score: 94.4772
Sequences (8:23) Aligned. Score: 98.9691
Sequences (8:24) Aligned. Score: 98.6009
Sequences (8:25) Aligned. Score: 98.8954
Sequences (8:26) Aligned. Score: 98.8954
Sequences (8:27) Aligned. Score: 93.7916
Sequences (8:28) Aligned. Score: 97.2754
Sequences (8:29) Aligned. Score: 97.349
Sequences (8:30) Aligned. Score: 95.3608
Sequences (8:31) Aligned. Score: 98.6745
Sequences (8:32) Aligned. Score: 94.919
Sequences (8:33) Aligned. Score: 98.38
Sequences (8:34) Aligned. Score: 99.5582
Sequences (8:35) Aligned. Score: 99.0427
Sequences (8:36) Aligned. Score: 98.9691
Sequences (8:37) Aligned. Score: 98.38
Sequences (8:38) Aligned. Score: 98.8954
Sequences (8:39) Aligned. Score: 93.2891

Sequences (8:40) Aligned. Score: 93.3628
Sequences (8:41) Aligned. Score: 97.349
Sequences (8:42) Aligned. Score: 93.2891
Sequences (8:43) Aligned. Score: 93.3628
Sequences (8:44) Aligned. Score: 98.3063
Sequences (8:45) Aligned. Score: 98.3063
Sequences (8:46) Aligned. Score: 98.38
Sequences (9:10) Aligned. Score: 94.4812
Sequences (9:11) Aligned. Score: 99.1189
Sequences (9:12) Aligned. Score: 99.3392
Sequences (9:13) Aligned. Score: 94.919
Sequences (9:14) Aligned. Score: 94.919
Sequences (9:15) Aligned. Score: 95.4345
Sequences (9:16) Aligned. Score: 95.4345
Sequences (9:17) Aligned. Score: 94.9926
Sequences (9:18) Aligned. Score: 95.5081
Sequences (9:19) Aligned. Score: 98.5283
Sequences (9:20) Aligned. Score: 95.518
Sequences (9:21) Aligned. Score: 99.1924
Sequences (9:22) Aligned. Score: 99.0455
Sequences (9:23) Aligned. Score: 95.5817
Sequences (9:24) Aligned. Score: 95.1399
Sequences (9:25) Aligned. Score: 95.5081
Sequences (9:26) Aligned. Score: 95.5081
Sequences (9:27) Aligned. Score: 95.935
Sequences (9:28) Aligned. Score: 95.9589
Sequences (9:29) Aligned. Score: 95.9589
Sequences (9:30) Aligned. Score: 98.5316
Sequences (9:31) Aligned. Score: 95.2135
Sequences (9:32) Aligned. Score: 99.1924
Sequences (9:33) Aligned. Score: 95.5915
Sequences (9:34) Aligned. Score: 95.0663
Sequences (9:35) Aligned. Score: 95.4345
Sequences (9:36) Aligned. Score: 95.5817
Sequences (9:37) Aligned. Score: 95.5915
Sequences (9:38) Aligned. Score: 95.2872
Sequences (9:39) Aligned. Score: 96.6077
Sequences (9:40) Aligned. Score: 96.6814
Sequences (9:41) Aligned. Score: 96.0323
Sequences (9:42) Aligned. Score: 96.6077
Sequences (9:43) Aligned. Score: 96.6814
Sequences (9:44) Aligned. Score: 95.7384
Sequences (9:45) Aligned. Score: 95.665
Sequences (9:46) Aligned. Score: 95.7384
Sequences (10:11) Aligned. Score: 93.9662
Sequences (10:12) Aligned. Score: 94.1869
Sequences (10:13) Aligned. Score: 98.6745
Sequences (10:14) Aligned. Score: 98.4536
Sequences (10:15) Aligned. Score: 98.5272
Sequences (10:16) Aligned. Score: 98.5272
Sequences (10:17) Aligned. Score: 98.6009
Sequences (10:18) Aligned. Score: 98.8954
Sequences (10:19) Aligned. Score: 93.2303
Sequences (10:20) Aligned. Score: 98.0132
Sequences (10:21) Aligned. Score: 94.1869
Sequences (10:22) Aligned. Score: 94.1133

Sequences (10:23) Aligned. Score: 98.6745
Sequences (10:24) Aligned. Score: 99.1163
Sequences (10:25) Aligned. Score: 98.6009
Sequences (10:26) Aligned. Score: 98.6745
Sequences (10:27) Aligned. Score: 93.5698
Sequences (10:28) Aligned. Score: 97.1302
Sequences (10:29) Aligned. Score: 97.1302
Sequences (10:30) Aligned. Score: 95.2171
Sequences (10:31) Aligned. Score: 98.6745
Sequences (10:32) Aligned. Score: 94.4077
Sequences (10:33) Aligned. Score: 98.0132
Sequences (10:34) Aligned. Score: 98.6745
Sequences (10:35) Aligned. Score: 98.6745
Sequences (10:36) Aligned. Score: 98.6745
Sequences (10:37) Aligned. Score: 98.0132
Sequences (10:38) Aligned. Score: 98.6009
Sequences (10:39) Aligned. Score: 92.9941
Sequences (10:40) Aligned. Score: 93.0678
Sequences (10:41) Aligned. Score: 97.2038
Sequences (10:42) Aligned. Score: 92.9941
Sequences (10:43) Aligned. Score: 93.0678
Sequences (10:44) Aligned. Score: 97.9397
Sequences (10:45) Aligned. Score: 97.9397
Sequences (10:46) Aligned. Score: 98.0132
Sequences (11:12) Aligned. Score: 99.7797
Sequences (11:13) Aligned. Score: 94.3299
Sequences (11:14) Aligned. Score: 94.3299
Sequences (11:15) Aligned. Score: 95.0663
Sequences (11:16) Aligned. Score: 95.0663
Sequences (11:17) Aligned. Score: 94.4035
Sequences (11:18) Aligned. Score: 94.9926
Sequences (11:19) Aligned. Score: 98.9698
Sequences (11:20) Aligned. Score: 95.0037
Sequences (11:21) Aligned. Score: 99.0455
Sequences (11:22) Aligned. Score: 98.8987
Sequences (11:23) Aligned. Score: 95.2135
Sequences (11:24) Aligned. Score: 94.6981
Sequences (11:25) Aligned. Score: 95.1399
Sequences (11:26) Aligned. Score: 95.1399
Sequences (11:27) Aligned. Score: 95.4915
Sequences (11:28) Aligned. Score: 95.7384
Sequences (11:29) Aligned. Score: 95.7384
Sequences (11:30) Aligned. Score: 98.3847
Sequences (11:31) Aligned. Score: 94.6981
Sequences (11:32) Aligned. Score: 98.605
Sequences (11:33) Aligned. Score: 95.1506
Sequences (11:34) Aligned. Score: 94.4772
Sequences (11:35) Aligned. Score: 95.0663
Sequences (11:36) Aligned. Score: 95.2135
Sequences (11:37) Aligned. Score: 95.1506
Sequences (11:38) Aligned. Score: 94.7717
Sequences (11:39) Aligned. Score: 96.6814
Sequences (11:40) Aligned. Score: 96.7552
Sequences (11:41) Aligned. Score: 95.8119
Sequences (11:42) Aligned. Score: 96.6814
Sequences (11:43) Aligned. Score: 96.6077

Sequences (11:44) Aligned. Score: 95.3711
Sequences (11:45) Aligned. Score: 95.4445
Sequences (11:46) Aligned. Score: 95.518
Sequences (12:13) Aligned. Score: 94.5508
Sequences (12:14) Aligned. Score: 94.5508
Sequences (12:15) Aligned. Score: 95.2872
Sequences (12:16) Aligned. Score: 95.2872
Sequences (12:17) Aligned. Score: 94.6244
Sequences (12:18) Aligned. Score: 95.2135
Sequences (12:19) Aligned. Score: 99.0434
Sequences (12:20) Aligned. Score: 95.1506
Sequences (12:21) Aligned. Score: 99.2658
Sequences (12:22) Aligned. Score: 99.1189
Sequences (12:23) Aligned. Score: 95.4345
Sequences (12:24) Aligned. Score: 94.919
Sequences (12:25) Aligned. Score: 95.3608
Sequences (12:26) Aligned. Score: 95.3608
Sequences (12:27) Aligned. Score: 95.6393
Sequences (12:28) Aligned. Score: 95.8854
Sequences (12:29) Aligned. Score: 95.8854
Sequences (12:30) Aligned. Score: 98.605
Sequences (12:31) Aligned. Score: 94.919
Sequences (12:32) Aligned. Score: 98.8253
Sequences (12:33) Aligned. Score: 95.3711
Sequences (12:34) Aligned. Score: 94.6981
Sequences (12:35) Aligned. Score: 95.2872
Sequences (12:36) Aligned. Score: 95.4345
Sequences (12:37) Aligned. Score: 95.3711
Sequences (12:38) Aligned. Score: 94.9926
Sequences (12:39) Aligned. Score: 96.7552
Sequences (12:40) Aligned. Score: 96.8289
Sequences (12:41) Aligned. Score: 95.9589
Sequences (12:42) Aligned. Score: 96.7552
Sequences (12:43) Aligned. Score: 96.6814
Sequences (12:44) Aligned. Score: 95.518
Sequences (12:45) Aligned. Score: 95.5915
Sequences (12:46) Aligned. Score: 95.665
Sequences (13:14) Aligned. Score: 99.4109
Sequences (13:15) Aligned. Score: 98.8954
Sequences (13:16) Aligned. Score: 98.8954
Sequences (13:17) Aligned. Score: 99.5582
Sequences (13:18) Aligned. Score: 98.9691
Sequences (13:19) Aligned. Score: 93.6672
Sequences (13:20) Aligned. Score: 98.3063
Sequences (13:21) Aligned. Score: 94.5508
Sequences (13:22) Aligned. Score: 94.4772
Sequences (13:23) Aligned. Score: 99.0427
Sequences (13:24) Aligned. Score: 98.6745
Sequences (13:25) Aligned. Score: 98.9691
Sequences (13:26) Aligned. Score: 98.8954
Sequences (13:27) Aligned. Score: 93.9394
Sequences (13:28) Aligned. Score: 97.4227
Sequences (13:29) Aligned. Score: 97.349
Sequences (13:30) Aligned. Score: 95.5817
Sequences (13:31) Aligned. Score: 98.7482
Sequences (13:32) Aligned. Score: 94.7717

Sequences (13:33) Aligned. Score: 98.4536
Sequences (13:34) Aligned. Score: 99.6318
Sequences (13:35) Aligned. Score: 99.0427
Sequences (13:36) Aligned. Score: 99.0427
Sequences (13:37) Aligned. Score: 98.4536
Sequences (13:38) Aligned. Score: 98.9691
Sequences (13:39) Aligned. Score: 93.4366
Sequences (13:40) Aligned. Score: 93.5103
Sequences (13:41) Aligned. Score: 97.4963
Sequences (13:42) Aligned. Score: 93.4366
Sequences (13:43) Aligned. Score: 93.5103
Sequences (13:44) Aligned. Score: 98.38
Sequences (13:45) Aligned. Score: 98.38
Sequences (13:46) Aligned. Score: 98.4536
Sequences (14:15) Aligned. Score: 98.8218
Sequences (14:16) Aligned. Score: 98.8218
Sequences (14:17) Aligned. Score: 99.4845
Sequences (14:18) Aligned. Score: 98.9691
Sequences (14:19) Aligned. Score: 93.6672
Sequences (14:20) Aligned. Score: 98.38
Sequences (14:21) Aligned. Score: 94.5508
Sequences (14:22) Aligned. Score: 94.4772
Sequences (14:23) Aligned. Score: 98.9691
Sequences (14:24) Aligned. Score: 98.6009
Sequences (14:25) Aligned. Score: 98.8954
Sequences (14:26) Aligned. Score: 98.8954
Sequences (14:27) Aligned. Score: 93.7916
Sequences (14:28) Aligned. Score: 97.2754
Sequences (14:29) Aligned. Score: 97.349
Sequences (14:30) Aligned. Score: 95.3608
Sequences (14:31) Aligned. Score: 98.6745
Sequences (14:32) Aligned. Score: 94.919
Sequences (14:33) Aligned. Score: 98.38
Sequences (14:34) Aligned. Score: 99.5582
Sequences (14:35) Aligned. Score: 99.0427
Sequences (14:36) Aligned. Score: 98.9691
Sequences (14:37) Aligned. Score: 98.38
Sequences (14:38) Aligned. Score: 98.8954
Sequences (14:39) Aligned. Score: 93.2891
Sequences (14:40) Aligned. Score: 93.3628
Sequences (14:41) Aligned. Score: 97.349
Sequences (14:42) Aligned. Score: 93.2891
Sequences (14:43) Aligned. Score: 93.3628
Sequences (14:44) Aligned. Score: 98.3063
Sequences (14:45) Aligned. Score: 98.3063
Sequences (14:46) Aligned. Score: 98.38
Sequences (15:16) Aligned. Score: 100
Sequences (15:17) Aligned. Score: 99.0427
Sequences (15:18) Aligned. Score: 99.4845
Sequences (15:19) Aligned. Score: 94.3299
Sequences (15:20) Aligned. Score: 98.8218
Sequences (15:21) Aligned. Score: 95.2872
Sequences (15:22) Aligned. Score: 95.2135
Sequences (15:23) Aligned. Score: 99.8527
Sequences (15:24) Aligned. Score: 99.1163
Sequences (15:25) Aligned. Score: 99.7791

Sequences (15:26) Aligned. Score: 99.6318
Sequences (15:27) Aligned. Score: 94.0872
Sequences (15:28) Aligned. Score: 98.0854
Sequences (15:29) Aligned. Score: 98.1591
Sequences (15:30) Aligned. Score: 96.1708
Sequences (15:31) Aligned. Score: 99.19
Sequences (15:32) Aligned. Score: 95.3608
Sequences (15:33) Aligned. Score: 99.1163
Sequences (15:34) Aligned. Score: 99.1163
Sequences (15:35) Aligned. Score: 99.6318
Sequences (15:36) Aligned. Score: 99.8527
Sequences (15:37) Aligned. Score: 99.1163
Sequences (15:38) Aligned. Score: 99.4109
Sequences (15:39) Aligned. Score: 93.2153
Sequences (15:40) Aligned. Score: 93.4366
Sequences (15:41) Aligned. Score: 98.1591
Sequences (15:42) Aligned. Score: 93.3628
Sequences (15:43) Aligned. Score: 93.4366
Sequences (15:44) Aligned. Score: 99.19
Sequences (15:45) Aligned. Score: 99.19
Sequences (15:46) Aligned. Score: 99.2636
Sequences (16:17) Aligned. Score: 99.0427
Sequences (16:18) Aligned. Score: 99.4845
Sequences (16:19) Aligned. Score: 94.3299
Sequences (16:20) Aligned. Score: 98.8218
Sequences (16:21) Aligned. Score: 95.2872
Sequences (16:22) Aligned. Score: 95.2135
Sequences (16:23) Aligned. Score: 99.8527
Sequences (16:24) Aligned. Score: 99.1163
Sequences (16:25) Aligned. Score: 99.7791
Sequences (16:26) Aligned. Score: 99.6318
Sequences (16:27) Aligned. Score: 94.0872
Sequences (16:28) Aligned. Score: 98.0854
Sequences (16:29) Aligned. Score: 98.1591
Sequences (16:30) Aligned. Score: 96.1708
Sequences (16:31) Aligned. Score: 99.19
Sequences (16:32) Aligned. Score: 95.3608
Sequences (16:33) Aligned. Score: 99.1163
Sequences (16:34) Aligned. Score: 99.1163
Sequences (16:35) Aligned. Score: 99.6318
Sequences (16:36) Aligned. Score: 99.8527
Sequences (16:37) Aligned. Score: 99.1163
Sequences (16:38) Aligned. Score: 99.4109
Sequences (16:39) Aligned. Score: 93.2153
Sequences (16:40) Aligned. Score: 93.4366
Sequences (16:41) Aligned. Score: 98.1591
Sequences (16:42) Aligned. Score: 93.3628
Sequences (16:43) Aligned. Score: 93.4366
Sequences (16:44) Aligned. Score: 99.19
Sequences (16:45) Aligned. Score: 99.19
Sequences (16:46) Aligned. Score: 99.2636
Sequences (17:18) Aligned. Score: 99.1163
Sequences (17:19) Aligned. Score: 93.7408
Sequences (17:20) Aligned. Score: 98.4536
Sequences (17:21) Aligned. Score: 94.6244
Sequences (17:22) Aligned. Score: 94.5508

Sequences (17:23) Aligned. Score: 99.19
Sequences (17:24) Aligned. Score: 98.7482
Sequences (17:25) Aligned. Score: 99.1163
Sequences (17:26) Aligned. Score: 99.0427
Sequences (17:27) Aligned. Score: 94.0133
Sequences (17:28) Aligned. Score: 97.4227
Sequences (17:29) Aligned. Score: 97.4963
Sequences (17:30) Aligned. Score: 95.5081
Sequences (17:31) Aligned. Score: 98.8218
Sequences (17:32) Aligned. Score: 94.919
Sequences (17:33) Aligned. Score: 98.6009
Sequences (17:34) Aligned. Score: 99.9264
Sequences (17:35) Aligned. Score: 99.19
Sequences (17:36) Aligned. Score: 99.19
Sequences (17:37) Aligned. Score: 98.6009
Sequences (17:38) Aligned. Score: 99.1163
Sequences (17:39) Aligned. Score: 93.4366
Sequences (17:40) Aligned. Score: 93.5103
Sequences (17:41) Aligned. Score: 97.4963
Sequences (17:42) Aligned. Score: 93.4366
Sequences (17:43) Aligned. Score: 93.5103
Sequences (17:44) Aligned. Score: 98.5272
Sequences (17:45) Aligned. Score: 98.5272
Sequences (17:46) Aligned. Score: 98.6009
Sequences (18:19) Aligned. Score: 94.2563
Sequences (18:20) Aligned. Score: 99.0427
Sequences (18:21) Aligned. Score: 95.2135
Sequences (18:22) Aligned. Score: 95.1399
Sequences (18:23) Aligned. Score: 99.6318
Sequences (18:24) Aligned. Score: 99.6318
Sequences (18:25) Aligned. Score: 99.5582
Sequences (18:26) Aligned. Score: 99.5582
Sequences (18:27) Aligned. Score: 94.1611
Sequences (18:28) Aligned. Score: 98.0118
Sequences (18:29) Aligned. Score: 98.0854
Sequences (18:30) Aligned. Score: 96.0972
Sequences (18:31) Aligned. Score: 99.7054
Sequences (18:32) Aligned. Score: 95.4345
Sequences (18:33) Aligned. Score: 98.8954
Sequences (18:34) Aligned. Score: 99.19
Sequences (18:35) Aligned. Score: 99.5582
Sequences (18:36) Aligned. Score: 99.6318
Sequences (18:37) Aligned. Score: 98.8954
Sequences (18:38) Aligned. Score: 99.4845
Sequences (18:39) Aligned. Score: 93.4366
Sequences (18:40) Aligned. Score: 93.6578
Sequences (18:41) Aligned. Score: 98.0854
Sequences (18:42) Aligned. Score: 93.5841
Sequences (18:43) Aligned. Score: 93.6578
Sequences (18:44) Aligned. Score: 98.9691
Sequences (18:45) Aligned. Score: 98.9691
Sequences (18:46) Aligned. Score: 99.0427
Sequences (19:20) Aligned. Score: 94.4077
Sequences (19:21) Aligned. Score: 98.3076
Sequences (19:22) Aligned. Score: 98.1604
Sequences (19:23) Aligned. Score: 94.4772

Sequences (19:24) Aligned. Score: 93.9617
Sequences (19:25) Aligned. Score: 94.4035
Sequences (19:26) Aligned. Score: 94.4035
Sequences (19:27) Aligned. Score: 94.7524
Sequences (19:28) Aligned. Score: 95.0699
Sequences (19:29) Aligned. Score: 95.0699
Sequences (19:30) Aligned. Score: 97.8661
Sequences (19:31) Aligned. Score: 94.109
Sequences (19:32) Aligned. Score: 98.0132
Sequences (19:33) Aligned. Score: 94.5548
Sequences (19:34) Aligned. Score: 93.8144
Sequences (19:35) Aligned. Score: 94.3299
Sequences (19:36) Aligned. Score: 94.4772
Sequences (19:37) Aligned. Score: 94.5548
Sequences (19:38) Aligned. Score: 94.109
Sequences (19:39) Aligned. Score: 96.4602
Sequences (19:40) Aligned. Score: 96.5339
Sequences (19:41) Aligned. Score: 95.1435
Sequences (19:42) Aligned. Score: 96.4602
Sequences (19:43) Aligned. Score: 96.3864
Sequences (19:44) Aligned. Score: 94.702
Sequences (19:45) Aligned. Score: 94.7756
Sequences (19:46) Aligned. Score: 94.8492
Sequences (20:21) Aligned. Score: 95.1506
Sequences (20:22) Aligned. Score: 95.0771
Sequences (20:23) Aligned. Score: 98.9691
Sequences (20:24) Aligned. Score: 98.6745
Sequences (20:25) Aligned. Score: 98.8954
Sequences (20:26) Aligned. Score: 98.8954
Sequences (20:27) Aligned. Score: 94.5307
Sequences (20:28) Aligned. Score: 98.1631
Sequences (20:29) Aligned. Score: 98.2366
Sequences (20:30) Aligned. Score: 95.9589
Sequences (20:31) Aligned. Score: 98.8218
Sequences (20:32) Aligned. Score: 95.3711
Sequences (20:33) Aligned. Score: 98.9713
Sequences (20:34) Aligned. Score: 98.5272
Sequences (20:35) Aligned. Score: 99.0427
Sequences (20:36) Aligned. Score: 98.9691
Sequences (20:37) Aligned. Score: 98.9713
Sequences (20:38) Aligned. Score: 99.1163
Sequences (20:39) Aligned. Score: 93.6578
Sequences (20:40) Aligned. Score: 93.8791
Sequences (20:41) Aligned. Score: 98.2366
Sequences (20:42) Aligned. Score: 93.8053
Sequences (20:43) Aligned. Score: 93.8791
Sequences (20:44) Aligned. Score: 99.1918
Sequences (20:45) Aligned. Score: 99.1183
Sequences (20:46) Aligned. Score: 99.1918
Sequences (21:22) Aligned. Score: 99.1189
Sequences (21:23) Aligned. Score: 95.4345
Sequences (21:24) Aligned. Score: 94.8454
Sequences (21:25) Aligned. Score: 95.3608
Sequences (21:26) Aligned. Score: 95.3608
Sequences (21:27) Aligned. Score: 95.5654
Sequences (21:28) Aligned. Score: 95.8854

Sequences (21:29) Aligned. Score: 95.8854
Sequences (21:30) Aligned. Score: 98.605
Sequences (21:31) Aligned. Score: 94.919
Sequences (21:32) Aligned. Score: 98.8253
Sequences (21:33) Aligned. Score: 95.3711
Sequences (21:34) Aligned. Score: 94.6981
Sequences (21:35) Aligned. Score: 95.2872
Sequences (21:36) Aligned. Score: 95.4345
Sequences (21:37) Aligned. Score: 95.3711
Sequences (21:38) Aligned. Score: 94.9926
Sequences (21:39) Aligned. Score: 96.3864
Sequences (21:40) Aligned. Score: 96.4602
Sequences (21:41) Aligned. Score: 95.9589
Sequences (21:42) Aligned. Score: 96.3864
Sequences (21:43) Aligned. Score: 96.3127
Sequences (21:44) Aligned. Score: 95.518
Sequences (21:45) Aligned. Score: 95.5915
Sequences (21:46) Aligned. Score: 95.665
Sequences (22:23) Aligned. Score: 95.3608
Sequences (22:24) Aligned. Score: 94.7717
Sequences (22:25) Aligned. Score: 95.2872
Sequences (22:26) Aligned. Score: 95.2872
Sequences (22:27) Aligned. Score: 95.4915
Sequences (22:28) Aligned. Score: 95.8119
Sequences (22:29) Aligned. Score: 95.8119
Sequences (22:30) Aligned. Score: 98.4581
Sequences (22:31) Aligned. Score: 94.8454
Sequences (22:32) Aligned. Score: 98.6784
Sequences (22:33) Aligned. Score: 95.2976
Sequences (22:34) Aligned. Score: 94.6244
Sequences (22:35) Aligned. Score: 95.2135
Sequences (22:36) Aligned. Score: 95.3608
Sequences (22:37) Aligned. Score: 95.2976
Sequences (22:38) Aligned. Score: 94.919
Sequences (22:39) Aligned. Score: 96.3127
Sequences (22:40) Aligned. Score: 96.3127
Sequences (22:41) Aligned. Score: 95.8854
Sequences (22:42) Aligned. Score: 96.2389
Sequences (22:43) Aligned. Score: 96.1652
Sequences (22:44) Aligned. Score: 95.4445
Sequences (22:45) Aligned. Score: 95.518
Sequences (22:46) Aligned. Score: 95.5915
Sequences (23:24) Aligned. Score: 99.2636
Sequences (23:25) Aligned. Score: 99.9264
Sequences (23:26) Aligned. Score: 99.7791
Sequences (23:27) Aligned. Score: 94.235
Sequences (23:28) Aligned. Score: 98.2327
Sequences (23:29) Aligned. Score: 98.3063
Sequences (23:30) Aligned. Score: 96.3181
Sequences (23:31) Aligned. Score: 99.3373
Sequences (23:32) Aligned. Score: 95.5081
Sequences (23:33) Aligned. Score: 99.2636
Sequences (23:34) Aligned. Score: 99.2636
Sequences (23:35) Aligned. Score: 99.7791
Sequences (23:36) Aligned. Score: 100
Sequences (23:37) Aligned. Score: 99.2636

```
Sequences (23:38) Aligned. Score: 99.5582
Sequences (23:39) Aligned. Score: 93.3628
Sequences (23:40) Aligned. Score: 93.5841
Sequences (23:41) Aligned. Score: 98.3063
Sequences (23:42) Aligned. Score: 93.5103
Sequences (23:43) Aligned. Score: 93.5841
Sequences (23:44) Aligned. Score: 99.3373
Sequences (23:45) Aligned. Score: 99.3373
Sequences (23:46) Aligned. Score: 99.4109
Sequences (24:25) Aligned. Score: 99.19
Sequences (24:26) Aligned. Score: 99.19
Sequences (24:27) Aligned. Score: 93.9394
Sequences (24:28) Aligned. Score: 97.7909
Sequences (24:29) Aligned. Score: 97.7909
Sequences (24:30) Aligned. Score: 95.8763
Sequences (24:31) Aligned. Score: 99.4109
Sequences (24:32) Aligned. Score: 95.0663
Sequences (24:33) Aligned. Score: 98.5272
Sequences (24:34) Aligned. Score: 98.8218
Sequences (24:35) Aligned. Score: 99.19
Sequences (24:36) Aligned. Score: 99.2636
Sequences (24:37) Aligned. Score: 98.5272
Sequences (24:38) Aligned. Score: 99.1163
Sequences (24:39) Aligned. Score: 93.2891
Sequences (24:40) Aligned. Score: 93.5103
Sequences (24:41) Aligned. Score: 97.8645
Sequences (24:42) Aligned. Score: 93.4366
Sequences (24:43) Aligned. Score: 93.5103
Sequences (24:44) Aligned. Score: 98.6009
Sequences (24:45) Aligned. Score: 98.6009
Sequences (24:46) Aligned. Score: 98.6745
Sequences (25:26) Aligned. Score: 99.7054
Sequences (25:27) Aligned. Score: 94.1611
Sequences (25:28) Aligned. Score: 98.1591
Sequences (25:29) Aligned. Score: 98.2327
Sequences (25:30) Aligned. Score: 96.2445
Sequences (25:31) Aligned. Score: 99.2636
Sequences (25:32) Aligned. Score: 95.4345
Sequences (25:33) Aligned. Score: 99.19
Sequences (25:34) Aligned. Score: 99.19
Sequences (25:35) Aligned. Score: 99.7054
Sequences (25:36) Aligned. Score: 99.9264
Sequences (25:37) Aligned. Score: 99.19
Sequences (25:38) Aligned. Score: 99.4845
Sequences (25:39) Aligned. Score: 93.2891
Sequences (25:40) Aligned. Score: 93.5103
Sequences (25:41) Aligned. Score: 98.2327
Sequences (25:42) Aligned. Score: 93.4366
Sequences (25:43) Aligned. Score: 93.5103
Sequences (25:44) Aligned. Score: 99.2636
Sequences (25:45) Aligned. Score: 99.2636
Sequences (25:46) Aligned. Score: 99.3373
Sequences (26:27) Aligned. Score: 94.0133
Sequences (26:28) Aligned. Score: 98.1591
Sequences (26:29) Aligned. Score: 98.2327
Sequences (26:30) Aligned. Score: 96.2445
```

Sequences (26:31) Aligned. Score: 99.2636
Sequences (26:32) Aligned. Score: 95.4345
Sequences (26:33) Aligned. Score: 99.0427
Sequences (26:34) Aligned. Score: 99.1163
Sequences (26:35) Aligned. Score: 99.7054
Sequences (26:36) Aligned. Score: 99.7791
Sequences (26:37) Aligned. Score: 99.0427
Sequences (26:38) Aligned. Score: 99.4845
Sequences (26:39) Aligned. Score: 93.2891
Sequences (26:40) Aligned. Score: 93.5103
Sequences (26:41) Aligned. Score: 98.2327
Sequences (26:42) Aligned. Score: 93.4366
Sequences (26:43) Aligned. Score: 93.5103
Sequences (26:44) Aligned. Score: 99.1163
Sequences (26:45) Aligned. Score: 99.1163
Sequences (26:46) Aligned. Score: 99.19
Sequences (27:28) Aligned. Score: 94.9002
Sequences (27:29) Aligned. Score: 94.5307
Sequences (27:30) Aligned. Score: 95.935
Sequences (27:31) Aligned. Score: 93.8655
Sequences (27:32) Aligned. Score: 95.6393
Sequences (27:33) Aligned. Score: 94.4568
Sequences (27:34) Aligned. Score: 94.0872
Sequences (27:35) Aligned. Score: 94.1611
Sequences (27:36) Aligned. Score: 94.235
Sequences (27:37) Aligned. Score: 94.4568
Sequences (27:38) Aligned. Score: 94.235
Sequences (27:39) Aligned. Score: 96.1567
Sequences (27:40) Aligned. Score: 96.3784
Sequences (27:41) Aligned. Score: 94.9002
Sequences (27:42) Aligned. Score: 96.3045
Sequences (27:43) Aligned. Score: 96.3784
Sequences (27:44) Aligned. Score: 94.6785
Sequences (27:45) Aligned. Score: 94.7524
Sequences (27:46) Aligned. Score: 94.8263
Sequences (28:29) Aligned. Score: 98.9713
Sequences (28:30) Aligned. Score: 97.1345
Sequences (28:31) Aligned. Score: 97.7909
Sequences (28:32) Aligned. Score: 95.8119
Sequences (28:33) Aligned. Score: 98.457
Sequences (28:34) Aligned. Score: 97.4963
Sequences (28:35) Aligned. Score: 98.0118
Sequences (28:36) Aligned. Score: 98.2327
Sequences (28:37) Aligned. Score: 98.457
Sequences (28:38) Aligned. Score: 97.7909
Sequences (28:39) Aligned. Score: 94.3215
Sequences (28:40) Aligned. Score: 94.5428
Sequences (28:41) Aligned. Score: 99.853
Sequences (28:42) Aligned. Score: 94.469
Sequences (28:43) Aligned. Score: 94.5428
Sequences (28:44) Aligned. Score: 98.6774
Sequences (28:45) Aligned. Score: 98.7509
Sequences (28:46) Aligned. Score: 98.8244
Sequences (29:30) Aligned. Score: 96.4732
Sequences (29:31) Aligned. Score: 97.7909
Sequences (29:32) Aligned. Score: 95.9589

Sequences (29:33) Aligned. Score: 98.5305
Sequences (29:34) Aligned. Score: 97.57
Sequences (29:35) Aligned. Score: 98.0854
Sequences (29:36) Aligned. Score: 98.3063
Sequences (29:37) Aligned. Score: 98.5305
Sequences (29:38) Aligned. Score: 97.8645
Sequences (29:39) Aligned. Score: 93.9528
Sequences (29:40) Aligned. Score: 94.174
Sequences (29:41) Aligned. Score: 99.0448
Sequences (29:42) Aligned. Score: 94.1003
Sequences (29:43) Aligned. Score: 94.174
Sequences (29:44) Aligned. Score: 98.7509
Sequences (29:45) Aligned. Score: 98.8244
Sequences (29:46) Aligned. Score: 98.8979
Sequences (30:31) Aligned. Score: 95.8763
Sequences (30:32) Aligned. Score: 98.1645
Sequences (30:33) Aligned. Score: 96.3262
Sequences (30:34) Aligned. Score: 95.5817
Sequences (30:35) Aligned. Score: 96.0972
Sequences (30:36) Aligned. Score: 96.3181
Sequences (30:37) Aligned. Score: 96.3262
Sequences (30:38) Aligned. Score: 95.8763
Sequences (30:39) Aligned. Score: 97.0501
Sequences (30:40) Aligned. Score: 97.1239
Sequences (30:41) Aligned. Score: 97.2079
Sequences (30:42) Aligned. Score: 97.0501
Sequences (30:43) Aligned. Score: 96.9764
Sequences (30:44) Aligned. Score: 96.4732
Sequences (30:45) Aligned. Score: 96.5467
Sequences (30:46) Aligned. Score: 96.6201
Sequences (31:32) Aligned. Score: 95.1399
Sequences (31:33) Aligned. Score: 98.6009
Sequences (31:34) Aligned. Score: 98.8954
Sequences (31:35) Aligned. Score: 99.2636
Sequences (31:36) Aligned. Score: 99.3373
Sequences (31:37) Aligned. Score: 98.6009
Sequences (31:38) Aligned. Score: 99.2636
Sequences (31:39) Aligned. Score: 93.2153
Sequences (31:40) Aligned. Score: 93.4366
Sequences (31:41) Aligned. Score: 97.8645
Sequences (31:42) Aligned. Score: 93.3628
Sequences (31:43) Aligned. Score: 93.4366
Sequences (31:44) Aligned. Score: 98.6745
Sequences (31:45) Aligned. Score: 98.6745
Sequences (31:46) Aligned. Score: 98.7482
Sequences (32:33) Aligned. Score: 95.4445
Sequences (32:34) Aligned. Score: 94.9926
Sequences (32:35) Aligned. Score: 95.3608
Sequences (32:36) Aligned. Score: 95.5081
Sequences (32:37) Aligned. Score: 95.4445
Sequences (32:38) Aligned. Score: 95.2135
Sequences (32:39) Aligned. Score: 96.2389
Sequences (32:40) Aligned. Score: 96.3127
Sequences (32:41) Aligned. Score: 95.8854
Sequences (32:42) Aligned. Score: 96.2389
Sequences (32:43) Aligned. Score: 96.1652

Sequences (32:44) Aligned. Score: 95.5915
Sequences (32:45) Aligned. Score: 95.665
Sequences (32:46) Aligned. Score: 95.7384
Sequences (33:34) Aligned. Score: 98.6745
Sequences (33:35) Aligned. Score: 99.0427
Sequences (33:36) Aligned. Score: 99.2636
Sequences (33:37) Aligned. Score: 100
Sequences (33:38) Aligned. Score: 98.8218
Sequences (33:39) Aligned. Score: 93.5841
Sequences (33:40) Aligned. Score: 93.8053
Sequences (33:41) Aligned. Score: 98.5305
Sequences (33:42) Aligned. Score: 93.7316
Sequences (33:43) Aligned. Score: 93.8053
Sequences (33:44) Aligned. Score: 99.7796
Sequences (33:45) Aligned. Score: 99.5591
Sequences (33:46) Aligned. Score: 99.6326
Sequences (34:35) Aligned. Score: 99.2636
Sequences (34:36) Aligned. Score: 99.2636
Sequences (34:37) Aligned. Score: 98.6745
Sequences (34:38) Aligned. Score: 99.19
Sequences (34:39) Aligned. Score: 93.5103
Sequences (34:40) Aligned. Score: 93.5841
Sequences (34:41) Aligned. Score: 97.57
Sequences (34:42) Aligned. Score: 93.5103
Sequences (34:43) Aligned. Score: 93.5841
Sequences (34:44) Aligned. Score: 98.6009
Sequences (34:45) Aligned. Score: 98.6009
Sequences (34:46) Aligned. Score: 98.6745
Sequences (35:36) Aligned. Score: 99.7791
Sequences (35:37) Aligned. Score: 99.0427
Sequences (35:38) Aligned. Score: 99.6318
Sequences (35:39) Aligned. Score: 93.2891
Sequences (35:40) Aligned. Score: 93.5103
Sequences (35:41) Aligned. Score: 98.0854
Sequences (35:42) Aligned. Score: 93.4366
Sequences (35:43) Aligned. Score: 93.5103
Sequences (35:44) Aligned. Score: 99.1163
Sequences (35:45) Aligned. Score: 99.1163
Sequences (35:46) Aligned. Score: 99.19
Sequences (36:37) Aligned. Score: 99.2636
Sequences (36:38) Aligned. Score: 99.5582
Sequences (36:39) Aligned. Score: 93.3628
Sequences (36:40) Aligned. Score: 93.5841
Sequences (36:41) Aligned. Score: 98.3063
Sequences (36:42) Aligned. Score: 93.5103
Sequences (36:43) Aligned. Score: 93.5841
Sequences (36:44) Aligned. Score: 99.3373
Sequences (36:45) Aligned. Score: 99.3373
Sequences (36:46) Aligned. Score: 99.4109
Sequences (37:38) Aligned. Score: 98.8218
Sequences (37:39) Aligned. Score: 93.5841
Sequences (37:40) Aligned. Score: 93.8053
Sequences (37:41) Aligned. Score: 98.5305
Sequences (37:42) Aligned. Score: 93.7316
Sequences (37:43) Aligned. Score: 93.8053
Sequences (37:44) Aligned. Score: 99.7796

```
Sequences (37:45) Aligned. Score: 99.5591
Sequences (37:46) Aligned. Score: 99.6326
Sequences (38:39) Aligned. Score: 93.3628
Sequences (38:40) Aligned. Score: 93.5841
Sequences (38:41) Aligned. Score: 97.8645
Sequences (38:42) Aligned. Score: 93.5103
Sequences (38:43) Aligned. Score: 93.5841
Sequences (38:44) Aligned. Score: 98.8954
Sequences (38:45) Aligned. Score: 98.8954
Sequences (38:46) Aligned. Score: 98.9691
Sequences (39:40) Aligned. Score: 99.7788
Sequences (39:41) Aligned. Score: 94.3953
Sequences (39:42) Aligned. Score: 99.705
Sequences (39:43) Aligned. Score: 99.6313
Sequences (39:44) Aligned. Score: 93.7316
Sequences (39:45) Aligned. Score: 93.8053
Sequences (39:46) Aligned. Score: 93.8791
Sequences (40:41) Aligned. Score: 94.6165
Sequences (40:42) Aligned. Score: 99.9263
Sequences (40:43) Aligned. Score: 99.8525
Sequences (40:44) Aligned. Score: 93.9528
Sequences (40:45) Aligned. Score: 94.0265
Sequences (40:46) Aligned. Score: 94.1003
Sequences (41:42) Aligned. Score: 94.5428
Sequences (41:43) Aligned. Score: 94.6165
Sequences (41:44) Aligned. Score: 98.7509
Sequences (41:45) Aligned. Score: 98.8244
Sequences (41:46) Aligned. Score: 98.8979
Sequences (42:43) Aligned. Score: 99.7788
Sequences (42:44) Aligned. Score: 93.8791
Sequences (42:45) Aligned. Score: 93.9528
Sequences (42:46) Aligned. Score: 94.0265
Sequences (43:44) Aligned. Score: 93.9528
Sequences (43:45) Aligned. Score: 94.0265
Sequences (43:46) Aligned. Score: 94.1003
Sequences (44:45) Aligned. Score: 99.7796
Sequences (44:46) Aligned. Score: 99.853
Sequences (45:46) Aligned. Score: 99.9265
Guide tree file created:   [clustalw.dnd]

There are 45 groups
Start of Multiple Alignment

Aligning...
Group 1: Sequences:   2      Score:22616
Group 2: Sequences:   3      Score:22621
Group 3: Sequences:   2      Score:22625
Group 4: Sequences:   5      Score:22601
Group 5: Sequences:   6      Score:22590
Group 6: Sequences:   7      Score:22585
Group 7: Sequences:   2      Score:22604
Group 8: Sequences:   3      Score:22603
Group 9: Sequences:   2      Score:22624
Group 10: Sequences:   5      Score:22516
Group 11: Sequences:   6      Score:22521
Group 12: Sequences:   7      Score:22508
```

```
Group 13: Sequences:    2      Score:22597
Group 14: Sequences:    9      Score:22523
Group 15: Sequences:    2      Score:22431
Group 16: Sequences:    3      Score:22437
Group 17: Sequences:    2      Score:22594
Group 18: Sequences:    5      Score:22472
Group 19: Sequences:   14      Score:22385
Group 20: Sequences:   15      Score:22442
Group 21: Sequences:   22      Score:22444
Group 22: Sequences:   23      Score:22359
Group 23: Sequences:    2      Score:22656
Group 24: Sequences:    3      Score:22622
Group 25: Sequences:    2      Score:22653
Group 26: Sequences:    5      Score:22611
Group 27: Sequences:   28      Score:22421
Group 28: Sequences:    2      Score:22619
Group 29: Sequences:    3      Score:22518
Group 30: Sequences:   31      Score:22285
Group 31: Sequences:    2      Score:22494
Group 32: Sequences:    3      Score:22175
Group 33: Sequences:    2      Score:22560
Group 34: Sequences:    3      Score:22540
Group 35: Sequences:    4      Score:22536
Group 36: Sequences:    7      Score:21911
Group 37: Sequences:    2      Score:22435
Group 38: Sequences:    3      Score:22515
Group 39: Sequences:    4      Score:22419
Group 40: Sequences:    5      Score:22403
Group 41: Sequences:    6      Score:22451
Group 42: Sequences:    7      Score:22388
Group 43: Sequences:    8      Score:22308
Group 44: Sequences:   15      Score:21814
Group 45: Sequences:   46      Score:21571
Alignment Score 8581234

CLUSTAL-Alignment file created  [clustalw.aln]
```

---

clustalw.aln

```
CLUSTAL 2.1 multiple sequence alignment


KF923914.1       MFLILLISLPTAFAVIGDLNCPLDPRLKGSFNNRDTGPPSISTDTVDVTNGLGTYYVLDR
KF923891.1       MFLILLISLPTAFAVIGDLNCPLDPRLKGSFNNRDTGPPSISTDTVDVTNGLGTYYVLDR
KF923890.1       MFLILLISLPTAFAVIGDLNCPLDPRLKGSFNNRDTGPPSISTDTVDVTNGLGTYYVLDR
KY554972.1       MFLILLISLPTAFAVIGDLNCPLDPRLKGSFNNRDTGPPSISTDTVDVTNGLGTYYVLDR
KY674917.1       MFLILLISLPTAFAVIGDLNCPLDPRLKGSFNNRDTGPPSISTDTVDVTNGLGTYYVLDR
KF923923.1       MFLILLISLPTAFAVIGDLNCPLDPRLKGSFNNRDTGPPSISTDTVDVTNGLGTYYVLDR
KF572872.1       MFLILLISLPTAFAVIGDLNCPLDPRLKGSFNNRDTGPPSISTDTVDVTNGLGTYYVLDR
MN306036.1       MFLILLISLPTAFAVIGDLNCTLDPRLKGSFNNRDTGPPSISIDTVDVTNGLGTYYVLDR
MN306053.1       MFLILLISLPTAFAVIGDLNCTLDPRLKGSFNNRDTGPPSISIDTVDVTNGLGTYYVLDR
MN306042.1       MFLILLISLPTAFAVIGDLNCTLDPRLRGSFNNRDTGPPSISIDTVDVTNGLGTYYVLDR
MH121121.1       MFLILLISLPTAFAVIGDLNCTLDPRLKGSFNNRDTGPPSISIDTVDVTNGLGTYYVLDR
KY983583.1       MFLILLISLPTAFAVIGDLNCTLDPRLKGSFNNRDTGPPSISIDTVDVTNGLGTYYVLDR
```

```
KU745533.1        MFLILLISLPTAFAVIGDLNCTLDPRLKGSFNNRDTGLPSISTDTVDVTNGLGTYYVLDR
MF374983.2        MFLILLISLPTAFAVIGDLNCTLDPRLKGSFNNRDTGSPSISSDTVDVTNGLGTYYVLDR
KX538964.1        MFLILLISLPTAFAVIGDLNCTLDPRLKGSFNNRDTGPPSISTDTVDVTNGLGTYYVLDR
KF572833.1        MFLILLISLPTAFAVIGDLNCTLDPRLKGSFNNRDTGPPSISTDTVDVTNGLGTYYVLDR
MG977444.1        MFLILLISLPTAFAVIGDLNCPLDPKLKGSFNNRDTGLPPISTDTVDVTNGLGTYYVLDR
KF923897.1        MFLILLISLPTAFAVIGDLNCPLDPKLKGSFNNRDTGLPSISTDTVDVTNGLGTYYVLDR
MK303619.1        MFLILLISLPTAFAVVGDLNCPLDPKLKGSFNNRDTGSPSISTDTVDVTNGLGTYYVLDR
KX344031.1        MFLILLISLPTAFAVIGDLNCPLDPRLKGSFNNRDTGPPSISTDTVDVTNGLGTYYVLDR
KF963240.1        MFLILLISLPTAFAVIGDLNCPLDPRLKGSFNNRDTGHPSISTDTVDVTNGLGTYYVLDR
KJ958218.1        MFLILLISLPTAFAVIGDLNCPLDPRLKGSFNDRDTGPPSISTDTVDVTNGLGTYYVLDR
KF572840.1        MFLILLISLPTAFAVIGDLNCPLDPRLKGSFNDRDTGPPSISTDTVDVTNGLGTYYVLDR
KF572818.1        MFLILLISLPTAFAVIGDLNCPLDTRLKGSFNNRDTGPPSISTDTVDVTNGLGTYYVLDR
KF923900.1        MFLILLISLPTAFAVIGDLNCPLDTRLKGSFNNRDTGPPSISTDTVDVTNGLGTYYVLDR
JN129834.1        MFLILLISLPTAFAVIGDLNCPLDTRLKGSFNNRDTGPPSISTDTVDVTNGLGTYYVLDR
AY903458.1        MFLILLISLPTAFAVIGDLNCPLDTRLKGSFNNRDTGPPSISTDTVDVTNGLGTYYVLDR
AY903460.1        MFLILLISLPTAFAVIGDLNCPLDTRLKGSFNNRDTGPPSISTDTVDVTNGLGTYYVLDR
KF963231.1        MFLILLISLPTAFAVIGDLKCPLDTSLKGSFNNRDTGSPSISTDTVDVTNGLGTYYVLDR
KF530068.1        MFLILLISLPTAFAVIGDLKCPLDTSLKGSFNNRDTGSPSISTDTVDVTNGLGTYYVLDR
KF963232.1        MFLILLISLPTAFAVIGDLKCPLDTSRKGSFNNRDTGPPSISTATVDVTNGLGTYYVLDR
NC_006213.1       MFLILLISLPTAFAVIGDLKC---TSDN--INDKDTGPPPISTDTVDVTNGLGTYYVLDR
KF963229.1        MFLILLISLPTAFAVIGDLKC---TSDN--INDKDTGPPPISTDTVDVTNGLGTYYVLDR
NC_005147.1       MFLILLISLPTAFAVIGDLKC---TSDTSYINDKDTGPPPISTDTVDVTNGLGTYYVLDR
KF530065.1        MFLILLISLPMAFAVIGDLKC---TSDTSYINDVDTGVPPISTDTVDVTNGLGTYYVLDR
KF530073.1        MFLILLISLPMAFAVIGDLKC---TSDTSYINDVDTGVPPISTDTVDVTNGLGTYYVLDR
KF530062.1        MFLILLISLPMAFAVIGDLKC---TSDTSYINDVDTGVPPISTDTVDVTNGLGTYYVLDR
KF530083.1        MFLILLISLPMAFAVIGDLKC---TSDTSYINDVDTGVPPISTDTVDVTNGLGTYYVLDR
MF314143.1        MFLILLISLPTAFAVIGDLKCPLDSRTG-SLNNIDTGPPSISTATVDVTNGLGTYYVLDR
KU131570.1        MFLILLISLPTAFAVIGDLKCPLDSRTG-SLNNVDTGPPSISTATVDVTNGLGTYYVLDR
KY014282.1        MFLILLISLPTAFAVIGDLKCPLDSRTG-SLNNIDTGPPSISTATVDVTNGLGTYYVLDR
KF923886.1        MFLILLISLPTAFAVIGDLKCPLDSRTG-SFNNIDTGPPSISTATVDVTNGLGTYYVLDR
KF923889.1        MFLILLISLPTAFAVIGDLKCPLDSRTG-SFNNIDTGPPSISTATVDVTNGLGTYYVLDR
MG197709.1        MFLILLISLPTAFAVIGDLKCPLDSRTG-SLNNIDTGPPSISTATVDVTNGLGTYYVLDR
KF572808.1        MFLILLISLPTAFAVIGDLKCPLDSRTG-SFNNIDTGPPSISTATVDVTNGLGTYYVLDR
KF963234.1        MFLILLISLPTAFAVIGDLKCPLDTSLKGSFNNRDTGSPSISTDTVDVTNGLGTYYVLDR
                  ********** ****:***:*   .     :*: *** *.**  ***************

KF923914.1        VYLNTTLFLNGYYPTSGSTYRNMALKGTDKLSTLWFKPPFLSDFINGIFAKVKNTKVFKD
KF923891.1        VYLNTTLFLNGYYPTSGSTYRNMALKGTDKLSTLWFKPPFLSDFINGIFAKVKNTKVFKD
KF923890.1        VYLNTTLFLNGYYPTSGSTYRNMALKGTDKLSTLWFKPPFLSDFINGIFAKVKNTKVFKD
KY554972.1        VYLNTTLFLNGYYPTSGSTYRNMALKGTDKLSTLWFKPPFLSDFINGIFAKVKNTKVFKD
KY674917.1        VYLNTTLFLNGYYPTSGSTYRNMALKGTDKLSTLWFKPPFLSDFINGIFAKVKNTKVFKD
KF923923.1        VYLNTTLFLNGYYPTSGSTYRNMALKGTDKLSTLWFKPPFLSDFINGIFAKVKNTKVFKD
KF572872.1        VYLNTTLFLNGYYPTSGSTYRNMALKGTDLLSTLWFKPPFLSDFINGIFAKVKNTKVFKD
MN306036.1        VYLNTTLFLNGYYPTSGSTYRNMALKGTDLLSTLWFKPPFLSDFINGIFAKVKNTKVFKD
MN306053.1        VYLNTTLFLNGYYPTSGSTYRNMALKGTDLLSTLWFKPPFLSDFINGIFAKVKNTKVFKD
MN306042.1        VYLNTTLFLNGYYPTSGSTYRNMALKGTDLLSTLWFKPPFLSDFINGIFAKVKNTKVFKD
MH121121.1        VYLNTTLFLNGYYPTSGSTYRNMALKGTDLLSTLWFKPPFLSDFINGIFAKVKNTKVFKD
KY983583.1        VYLNTTLFLNGYYPTSGSTYRNMALKGTDLLSTLWFKPPFLSDFINGIFAKVKNTKVFKD
KU745533.1        VYLNTTLFLNGYYPTSGSTYRNMALKGTDLLSTLWFKPPFLSDFINGIFAKVKNTKVFKD
MF374983.2        VYLNTTLFLNGYYPTSGSTYRNMALKGTDLLSTLWFKPPFLSDFINGIFAKVKNTKVFKD
KX538964.1        VYLNTTLFLNGYYPTSGSTYRNMALKGTDLLSTLWFKPPFLSDFINGIFAKVKNTKVFKD
KF572833.1        VYLNTTLFLNGYYPTSGSTYRNMALKGTDLLSTLWFKPPFLSDFINGIFAKVKNTKVFKD
MG977444.1        VYLNTTLFLNGYYPTSGSTYRNMALKGTDLLSKLWFKPPFLSDFINGIFAKVKNTKVVGK
KF923897.1        VYLNTTLFLNGYYPTSGSTYRNMALKGTDLLSKLWFKPPFLSDFINGIFAKVKNTKVFKD
MK303619.1        VYLNTTLFLNGYYPTSGSTYRNMALKGTDLLSTLWFKPPFLSDFINAIFAKVKNTKVFKD
KX344031.1        VYLNTTLFLNGYYPTSGSTYRNMALKGTDLLSTLWFKPPFLSDFINGIFAKVKNTKVFKD
```

```
KF963240.1      VYLNTTLFLNGYYPTSGSTYRNMALKGTDLLSTLWFKPPFLSDFINGIFAKVKNTKVFKE
KJ958218.1      VYLNTTLFLNGYYPTSGSTYRNMALKGTDLLSTLWFKPPFLSDFINGIFAKVKNTKVFKH
KF572840.1      VYLNTTLFLNGYYPTSGSTYRNMALKGTDLLSTLWFKPPFLSDFINGIFAKVKNTKVFKH
KF572818.1      VYLNTTLFLNGYYPTSGSTYRNMALKGTDKLSTLWFKPPFLSDFINGIFAKVKNTKVFKD
KF923900.1      VYLNTTLFLNGYYPTSGSTYRNMALKGTDKLSTLWFKPPFLSDFINGIFAKVKNTKVFKD
JN129834.1      VYLNTTLFLNGYYPTSGSTYRNMALKGTDKLSTLWFKPPFLSDFINGIFAKVKNTKVFKD
AY903458.1      VYLNTTLFLNGYYPTSGSTYRNMALKGTDKLSTLWFKPPFLSDFINGIFAKVKNTKVFKD
AY903460.1      VYLNTTLFLNGYYPTSGSTYRNMALKGTDKLSTLWFKPPFLSDFINGIFAKVKNTKVFKD
KF963231.1      VYLNTTLFLNGYYPTSGSTYRNMALKGTDKLSTLWFKPPFLSDFINGIFAKVKNTKVFKD
KF530068.1      VYLNTTLFLNGYYPTSGSTYRNMALKGTDKLSTLWFKPPFLSDFINGIFAKVKNTKVFKD
KF963232.1      VYLNTTLFLNGYYPTSGSTYRNMALKGTDKLSTLWFKPPFLSDFINGIFAKVKNTKVFKD
NC_006213.1     VYLNTTLFLNGYYPTSGSTYRNMALKGSVLLSRLWFKPPFLSDFINGIFAKVKNTKVIKD
KF963229.1      VYLNTTLFLNGYYPTSGSTYRNMALKGSVLLSRLWFKPPFLSDFINGIFAKVKNTKVIKD
NC_005147.1     VYLNTTLFLNGYYPTSGSTYRNMALKGSVLLSRLWFKPPFLSDFINGIFAKVKNTKVIKD
KF530065.1      VYLNTTLFLNGYYPTSGSTYRNMALKGSVLLSTLWFKPPFLSDFINGIFAKVKNTKVIKD
KF530073.1      VYLNTTLFLNGYYPTSGSTYRNMALKGSVLLSTLWFKPPFLSDFINGIFAKVKNTKVIKD
KF530062.1      VYLNTTLFLNGYYPTSGSTYRNMALKGSVLLSTLWFKPPFLSDFINGIFAKVKNTKVIKD
KF530083.1      VYLNTTLFLNGYYPTSGSTYRNMALKGSVLLSTLWFKPPFLSDFINGIFAKVKNTKVIKD
MF314143.1      VYLNTTLFLNGYYPTSGSTYRNMALKGTDKLSTLWFKPPFLSDFINGIFAKVKNTKVFKD
KU131570.1      VYLNTTLFLNGYYPTSGSTYRNMALKGTDKLSTLWFKPPFLSDFINGIFAKVKNTKVFKE
KY014282.1      VYLNTTLFLNGYYPTSGSTYRNMALKGTDKLSTLWFKPPFLSDFINGIFAKVKNTKVFKD
KF923886.1      VYLNTTLFLNGYYPTSGSTYRNMALKGTDKLSTLWFKPPFLSDFINGIFAKVKNTKVFKD
KF923889.1      VYLNTTLFLNGYYPTSGSTYRNMALKGTDKLSTLWFKPPFLSDFINGIFAKVKNTKVFKD
MG197709.1      VYLNTTLFLNGYYPTSGSTYRNMALKGTDKLSTLWFKPPFLSDFINGIFAKVKNTKVFKD
KF572808.1      VYLNTTLFLNGYYPTSGSTYRNMALKGTDKLSTLWFKPPFLSDFINGIFAKVKNTKVFKD
KF963234.1      VYLNTTLFLNGYYPTSGSTYRNMALKGTDKLSTLWFKPPFLSDFINGIFAKVKNTKVFKD
                ************************:  ** ************.**********. .

KF923914.1      G-VMYSEFPAITIGSTFVNTSYSVVVQPRTINSTQDGVNKLQGLLEVSVCQYNMCEYPHT
KF923891.1      G-VMYSEFPAITIGSTFVNTSYSVVVQPRTINSTQDGVNKLQGLLEVSVCQYNMCEYPHT
KF923890.1      G-VMYSEFPAITIGSTFVNTSYSVVVQPRTINSTQDGVNKLQGLLEVSVCQYNMCEYPHT
KY554972.1      G-VMYSEFPAITIGSTFVNTSYSVVVQPRTINSTQDGVNKLQGLLEVSVCQYNMCEYPHT
KY674917.1      G-VMYSEFPAITIGSTFVNTSYSVVVQPRTINSTQDGVNKLQGLLEVSVCQYNMCEYPHT
KF923923.1      G-VMYSEFPTITIGSTFVNTSYSVVVQPRTINSTQDGVNKLQGLLEVSVCQYNMCEYPHT
KF572872.1      G-VMYSEFPAITIGSTFVNTSYSVVVQPRTINSTQDGVNKLQGLLEVSVCQYNMCEYPHT
MN306036.1      G-VMYSEFPAITIGSTFVNTSYSVVVQPRTINSTQDGVNKLQGLLEVSVCQYNMCEYPHT
MN306053.1      G-VMYSEFPAITIGSTFVNTSYSVVVQPRTINSTQDGVNKLQGLLEVSVCQYNMCEYPHT
MN306042.1      G-VMYSEFPAITIGSTFVNTSYSVVVQPRTINSTQDGVNKLQGLLEVSVCQYNMCEYPHT
MH121121.1      G-VMYSEFPAITIGSTFVNTSYSVVVQPRTINSTQDGVNKLQGLLEVSVCQYNMCEYPHT
KY983583.1      G-VMYSEFPAITIGSTFVNTSYSVVVQPRTINSTQDGVNKLQGLLEVSVCQYNMCEYPHT
KU745533.1      G-VMYSEFPAITIGSTFVNTSYSVVVQPRTINSTQDGVNKLQGLLEVSVCQYNMCEYPHT
MF374983.2      G-VMYSEFPAITIGSTFVNTSYSVVVQPRTINSTQDGVNKLQGLLEVSVCQYNMCEYPHT
KX538964.1      G-VMYSEFPAITIGSTFVNTSYSVVVQPRTINSTQDGVNKLQGLLEVSVCQYNMCEYPHT
KF572833.1      G-VMYSEFPAITIGSTFVNTSYSVVVQPRTINSTQDGVNKLQGLLEVSVCQYNMCEYPHT
MG977444.1      DGVMYSEFPAITIGSTFVNTSYSVVVQPRTINSTQDGVNKLQGLLEVSVCQYNMCEHPHT
KF923897.1      G-VMYSEFPAITIGSTFVNTSYSVVVQPRTINSTQDGVNKLQGLLEVSVCQYNMCEHPHT
MK303619.1      G-VMYSEFPAITIGSTFVNTSYSVVVQPRTINSTQDGVNKLQGLLEVSVCQYNMCEHPHT
KX344031.1      G-VMYSEFPAITIGSTFVNTSYSVVVQPRTINSTQDGVNKLQGLLEVSVCQYNMCEHPHT
KF963240.1      G-VMYSEFPAITIGSTFVNTSYSVVVQPRTINSTQDGVNKLQGLLEVSVCQYNMCEHPHT
KJ958218.1      G-VMYSEFPAITIGSTFVNTSYSVVVQPRTINSTQDGVNKLQGLLEVSVCQYNMCEYPHT
KF572840.1      G-VMYSEFPAITIGSTFVNTSYSVVVQPRTINSTQDGVNKLQGLLEVSVCQYNMCEYPHT
KF572818.1      G-VMYSEFPAITIGSTFVNTSYSVVVQPRTINSTQDGVNKLQGLLEVSVCQYNMCEYPHT
KF923900.1      G-VMYSEFPAITIGSTFVNTSYSVVVQPRTINSTQDGVNKLQGLLEVSVCQYNMCEYPHT
JN129834.1      G-VMYSEFPAITIGSTFVNTSYSVVVQPRTINSTQDGVNKLQGLLEVSVCQYNMCEYPHT
AY903458.1      G-VMYSEFPAITIGSTFVNTSYSVVVQPRTINSTQDGVNKLQGLLEVSVCQYNMCEYPHT
AY903460.1      G-VMYSEFPAITIGSTFVNTSYSVVVQPRTINSTQDGVNKLQGLLEVSVCQYNMCEYPHT
```

```
KF963231.1      G-VMYSEFPAITIGSTFVNTSYSVVVQPRTINSTQDGVNKLQGLLEVSVCQYNMCEYPHT
KF530068.1      G-VMYSEFPAITIGSTFVNTSYSVVVQPRTINSTQDGVNKLQGLLEVSVCQYNMCEYPHT
KF963232.1      G-VMYSEFPAITIGSTFVNTSYSVVVQPRTINSTQDGVNKLQGLLEVSVCQYNMCEYPHT
NC_006213.1     R-VMYSEFPAITIGSTFVNTSYSVVVQPRTINSTQDGDNKLQGLLEVSVCQYNMCEYPQT
KF963229.1      R-VMYSEFPAITIGSTFVNTSYSVVVQPRTIKSTQDGDNKLQGLLEVSVCQYNMCEYPQT
NC_005147.1     R-VMYSEFPAITIGSTFVNTSYSVVVQPRTINSTQDGYNKLQGLLEVSVCQYNMCEYPQT
KF530065.1      D-VLYSEFPAITIGSTFVNTSYSVVVQPRTIN----LDNKLQGLLEISVCQYNMCEYPHT
KF530073.1      D-VLYSEFPAITIGSTFVNTSYSVVVQPRTIN----LDNKLQGLLEISVCQYNMCEYPHT
KF530062.1      D-VLYSEFPAITIGSTFVNTSYSVVVQPRTIN----LDNKLQGLLEISVCQYNMCEYPHT
KF530083.1      D-VLYSEFPAITIGSTFVNTSYSVVVQPRTIN----LDNKLQGLLEISVCQYNMCEYPHT
MF314143.1      G-VMYSEFPAITIGSTFVNTSYSVVVQPRTINSTQDGVNKLQGLLEISVCQYNMCEYPHT
KU131570.1      G-VMYSEFPAITIGSTFVNTSYSVVVQPRTIN---YGVNKLQGLLEVSVCQYNMCEYPQT
KY014282.1      G-VMYSEFPAITIGSTFVNTSYSVVVQPRTINSTQDGVNKLQGLLEVSVCQYNMCEYPHT
KF923886.1      G-VMYSEFPAITIGSTFVNTSYSVVVQPRTINSTQDGVNKLQGLLEVSVCQYNMCEYPHT
KF923889.1      G-VMYSEFPAITIGSTFVNTSYSVVVQPRTINSTQDGVNKLQGLLEVSVCQYNMCEYPHT
MG197709.1      G-VMYSEFPAITIGSTFVNTSYSVVVQPRTINSTQDGVNKLQGLLEVSVCQYNMCEYPHT
KF572808.1      G-VMYSEFPAITIGSTFVNTSYSVVVQPRTINSTQDGVNKLQGVLEVSVCQYNMCEYPHT
KF963234.1      G-VMYSEFPAITIGSTFVNTSYSVVVQPRTINSTQDGVNKLQGLLEVSVCQYNMCEYPHT
                  *:*****:*********************:     *****:**:*********:*:*

KF923914.1      ICHPKLGNHFKELWHLDTGVVSCLYKRNFTYDVNATYLYFHFYQEGGIFYAYFTDTGFVT
KF923891.1      ICHPKLGNHFKELWHLDTGVVSCLYKRNFTYDVNATYLYFHFYQEGGTFYAYFTDTGFVT
KF923890.1      ICHPKLGNHFKELWHLDTGVVSCLYKRNFTYDVNATYLYFHFYQEGGTFYAYFTDTGFVT
KY554972.1      ICHPKLGNHFKELWHLDTGVVSCLYKRNFTYDVNATYLYFHFYQEGGTFYAYFTDTGFVT
KY674917.1      ICHPKLGNHFKELWHLDTGVVSCLYKRNFTYDVNATYLYFHFYQEGGTFYAYFTDTGFVT
KF923923.1      ICHPKLGNHFKELWHLDTGVVSCLYKRNFTYDVNATYLYFHFYQEGGTFYAYFTDTGFVT
KF572872.1      ICHPKLGNHFKELWHSDTGVVSCLYKRNFTYDVNATYLYFHFYQEGGTFYAYFTDTGFVT
MN306036.1      ICHPNLGNHFKELWHYDTGVVSCLYKRNFTYDVNATYLYFHFYQEGGTFYAYFTDTGFVT
MN306053.1      ICHPNLGNHFKELWHYDTGVVSCLYKRNFTYDVNATYLYFHFYQEGGTFYAYFTDTGFVT
MN306042.1      ICHPNLGNHFKELWHYDTGVVSCLYKRNFTYDVNATYLYFHFYQEGGTFYAYFTDTGFVT
MH121121.1      ICHPNLGNHFKELWHYDTGVVSCLYKRNFTYDVNATYLYFHFYQEGGTFYAYFTDTGFVT
KY983583.1      ICHPNLGNHFKELWHYDTGVVSCLYKRNFTYDVNATYLYFHFYQEGGTFYAYFTDTGFVT
KU745533.1      ICHPNLGNHFKELWHLDTGVVSCLYKRNFTYDVNATYLYFHFYQEGGTFYAYFTDTGFVT
MF374983.2      ICHPNLGNHFKELWHLDTGVVSCLYKRNFTYDVNATYLYFHFYQEGGTFYAYFTDTGFVT
KX538964.1      ICHPNLGNHFKELWHLDTGVVSCLYKRNFTYDVNATYLYFHFYQEGGTFYAYFTDTGFVT
KF572833.1      ICHPNLGNHFKELWHLDTGVVSCLYKRNFTYDVNATYLYFHFYQEGGTFYAYFTDTGFVT
MG977444.1      SCHPNLGNHFKELWHLDTGVVSCLYKRNFTYDVNATYLYFHFYQEGGTFYAYFTDTGFVT
KF923897.1      SCHPNLGNHFKELWHLDTGVVSCLYKRNFTYDVNATYLYFHFYQEGGTFYAYFTDTGFVT
MK303619.1      ICHPNLGNHFKELWHLDTGVVSCLYKRNFTYDVNATYLYFHFYQEGGTFYAYFTDTGFVT
KX344031.1      ICHPNLGNHFKELWHLDTGVVSCLYKRNFTYDVNATYLYFHFYQEGGTFYAYFTDTGFVT
KF963240.1      ICHPNLGNHFKELWHLDTGVVSCLYKRNFTYDVNATYLYFHFYQEGGTFYAYFTDTGFVT
KJ958218.1      ICHPNLGNHFKELWHLDTGVVSCLYKRNFTYDVNATYLYFHFYQEGGTFYAYFTDTGFVT
KF572840.1      ICHPNLGNHFKELWHSDTGVVSCLYKRNFTYDVNATYLYFHFYQEGGTFYAYFTDTGFVT
KF572818.1      ICHPKLGNHFKELWHLDTGVVSCLYKRNFTYDVNATYLYFHFYQEGGTFYAYFTDTGFVT
KF923900.1      ICHPKLGNHFKELWHLDTGVVSCLYKRNFTYDVNATYLYFHFYQEGGTFYAYFTDTGFVT
JN129834.1      ICHPKLGNHFKELWHLDTGVVSCLYKRNFTYDVNATYLYFHFYQEGGTFYAYFTDTGFVT
AY903458.1      ICHPKLGNHFKELWHLDTGVVSCLYKRNFTYDVNATYLYFHFYQEGGTFYAYFTDTGFVT
AY903460.1      ICHPKLGNHFKELWHLDTGVVSCLYKRNFTYDVNATYLYFHFYQEGGTFYAYFTDTGFVT
KF963231.1      ICHPKLGNHFKELWHLDTGVVSCLYKRNFTYDVNATYLYFHFYQEGGTFYAYFTDTGFVT
KF530068.1      ICHPKLGNHFKELWHLDTGVVSCLYKRNFTYDVNATYLYFHFYQEGGTFYAYFTDTGFVT
KF963232.1      ICHPKLGNHFKELWHLDTGVVSCLYKRNFTYDVNATYLYFHFYQEGGTFYAYFTDTGVVT
NC_006213.1     ICHPNLGNHRKELWHLDTGVVSCLYKRNFTYDVNADYLYFHFYQEGGTFYAYFTDTGVVT
KF963229.1      ICHPNLGNHRKELWHLDTGVVSCLYKRNFTYDVNADYLYFHFYQEGGTFYAYFTDTGVVT
NC_005147.1     ICHPNLGNHRKELWHLDTGVVSCLYKRNFTYDVNADYLYFHFYQEGGTFYAYFTDTGVVT
KF530065.1      ICHPNLGNHRTELWHLDTGVVSCLYKRNFTYDVNADYLYFHFYQEGGTFYAYFTDTGVVT
KF530073.1      ICHPNLGNHRTELWHLDTGVVSCLYKRNFTYDVNADYLYFHFYQEGGTFYAYFTDTGVVT
```

```
KF530062.1      ICHPNLGNHRTELWHLDTGVVSCLYKRNFTYDVNADYLYFHFYQEGGTFYAYFTDTGVVT
KF530083.1      ICHPNLGNHRTELWHLDTGVVSCLYKRNFTYDVNADYLYFHFYQEGGTFYAYFTDTGVVT
MF314143.1      ICHPKLGNHFKELWHMDTGVVSCLYKRNFTYDVNATYLYFHFYQEGGTFYAYFTDTGVVT
KU131570.1      ICHPKLGNHFKELWHMDTGVVSCLYKRNFTYDVNATYLYFHFYQEGGTFYAYFTDTGVVT
KY014282.1      ICHPKLGNHFKELWHMDTGVVSCLYKRNFTYDVNATYLYFHFYQEGGTFYAYFTDTGVVT
KF923886.1      ICHPKLGNHFKESWHMDTGVVPCLYKRNFTYDVNATYLYFHFYQEGGTFYAYFTDTGVVT
KF923889.1      ICHPKLGNHFKELWHMDTGVVSCLYKRNFTYDVNATYLYFHFYQEGGTFYAYFTDTGVVT
MG197709.1      ICHPNLGNHFKELWHMDTGVVSCLYKRNFTYDVNATYLYFHFYQEGGTFYAYFTDTGVVT
KF572808.1      ICHPNLGNHFKELWHMDTGVVSCLYKRNFTYDVNATYLYFHFYQEGGTFYAYFTDTGVVT
KF963234.1      ICHPKLGNHFKELWHLDTGVVSCLYKRNFTYDVNATYLYFHFYQEGGTFYAYFTDTGFVT
                 ***:**** .* ** *****.************ ********** *********.**

KF923914.1      KFLFNVYLGMALSHYYVMPLTCISRLDIGFTLEYWVTPLTPRQYLLAFNQDGIIFNAVDC
KF923891.1      KFLFNVYLGMALSHYYVMPLTCISRLDIGFTLEYWVTPLTPRQYLLAFNQDGIIFNAVDC
KF923890.1      KFLFNVYLGMALSHYYVMPLTCISRLDIGFTLEYWVTPLTPRQYLLAFNQDGIIFNAVDC
KY554972.1      KFLFNVYLGMALSHYYVMPLTCISRLDIGFTLEYWVTPLTPRQYLLAFNQDGIIFNAVDC
KY674917.1      KFLFNVYLGMALSHYYVMPLTCISRLDIGFTLEYWVTPLTPRQYLLAFNQDGIIFNAVDC
KF923923.1      KFLFNVYLGMALSHYYVMPLTCISRRDIGFTLEYWVTPLTPRQYLLAFNQDGIIFNAVDC
KF572872.1      KFLFNVYLGMALSHYYVMPLTCISRLDIGFTLEYWVTPLTPRQYLLAFNQDGIIFNAVDC
MN306036.1      KFLFNVYLGMALSHYYVMPLTCIRRSKDGFSPEYWVTPLTPRQYLLAFNQDGIIFNAVDC
MN306053.1      KFLFNVYLGMALSHYYVMPLTCIRRSKDGFSPEYWVTPLTPRQYLLAFNQDGIIFNAVDC
MN306042.1      KFLFNVYLGMALSHYYVMPLTCIRRAKDGFSPEYWVTPLTPRQYLLAFNQDGIIFNAVDC
MH121121.1      KFLFNVYLGMALSHYYVMPLTCIRRPKDGFSLEYWVTPLTPRQYLLAFNQDGIIFNAVDC
KY983583.1      KFLFNVYLGMALSHYYVMPLTCIRRPKDGFSLEYWVTPLTPRQYLLAFNQDGIIFNAVDC
KU745533.1      KFLFNVYLGMALSHYYVMPLTCIRRPKDGFSLEYWVTPLTPRQYLLAFNQDGIIFNAVDC
MF374983.2      KFLFNVYLGMALSHYYVMPLTCISRLKDGFSLEYWVTPLTPRQYLLAFNQDGIIFNAVDC
KX538964.1      KFLFNVYLGMALSHYYVMPLTCISRLKDGFSLEYWVTPLTPRQYLLSFNQDGIIFNAVDC
KF572833.1      KFLFNVYLGMALSHYYVMPLTCISRLKDGFSLEYWVTPLTPRQYLLSFNQDGIIFNAVDC
MG977444.1      KFLFNVYLGMALSHYYVMPLTCISRRDIGFTLEYWVTPLTPRQYLLAFNQDGIIFNAVDC
KF923897.1      KFLFNVYLGMALSHYYVMPLTCISRRDIGFTLEYWVTPLTPRQYLLAFNQDGIIFNAVDC
MK303619.1      KFLFNVYLGMALSHYYVMPLTCISRRDIGFTLEYWVTPLTPRQYLLAFNQDGIIFNAVDC
KX344031.1      KFLFNVYLGMALSHYYVMPLTCISRRDIGFTLEYWVTPLTPRQYLLAFNQDGIIFNAVDC
KF963240.1      KFLFNVYLGMALSHYYVMPLTCISRRDIGFTLEYWVTPLTPRQYLLAFNQDGIIFNAVDC
KJ958218.1      KFLFNVYLGMALSHYYVMPLTCISRLDIGFTLEYWVTPLTPRQYLLAFNQDGIIFNAVDC
KF572840.1      KFLFNVYLGMALSHYYVMPLTCISRRDIGFTLEYWVTPLTPRQYLLAFNQDGIIFNAVDC
KF572818.1      KFLFNVYLGMALSHYYVMPLTCISRLDIGFTLEYWVTPLTSRQYLLAFNQDGIIFNAVDC
KF923900.1      KFLFNVYLGMALSHYYVMPLTCISRLDIGFTLEYWVTPLTSRQYLLAFNQDGIIFNAVDC
JN129834.1      KFLFNVYLGMALSHYYVMPLTCISRLDIGFTLEYWVTPLTSRQYLLAFNQDGIIFNAVDC
AY903458.1      KFLFNVYLGMALSHYYVMPLTCISRLDIGFTLEYWVTPLTSRQYLLAFNQDGIIFNAVDC
AY903460.1      KFLFNVYLGMALSHYYVMPLTCISRLDIGFTLEYWVTPLTSRQYLLAFNQDGIIFNAVDC
KF963231.1      KFLFNVYLGMALSHYYVMPLTCISRRDIGFTLEYWVTPLTSRQYLLAFNQDGIIFNAVDC
KF530068.1      KFLFNVYLGMALSHYYVMPLTCISRRDIGFTLEYWVTPLTSRQYLLAFNQDGIIFNAVDC
KF963232.1      KFLFNVYLGMALSHYYVMPLTCISRRDIGFTLEYWVTPLTSRQYLLAFNQDGIIFNAVDC
NC_006213.1     KFLFNVYLGMALSHYYVMPLTCN----SKLTLEYWVTPLTSRQYLLAFNQDGIIFNAVDC
KF963229.1      KFLFNVYLGMALSHYYVMPLTCN----SKLTLEYWVTPLTSRQYLLAFNQDGIIFNAVDC
NC_005147.1     KFLFNVYLGMALSHYYVMPLTCNSKVKNGFTLEYWVTPLTSRQYLLAFNQDGIIFNAVDC
KF530065.1      KFLFNVYLGMALSHYYVMPLTCNSKRKDGFTLEYWVTPLTSRQYLLAFNQDGIIFNAVDC
KF530073.1      KFLFNVYLGMALSHYYVMPLTCNSKRKDGFTLEYWVTPLTSRQYLLAFNQDGIIFNAVDC
KF530062.1      KFLFNVYLGMALSHYYVMPLTCNSKRKDGFTLEYWVTPLTSRQYLLAFNQDGIIFNAVDC
KF530083.1      KFLFNVYLGMALSHYYVMPLTCNSKRKDGFTLEYWVTPLTSRQYLLAFNQDGIIFNAVDC
MF314143.1      KFLFNVYLGMALSHYYVMPLTCISRRDIGFTLEYWVTPLTSRQYLLAFNQDGIIFNAVDC
KU131570.1      KFLFNVYLGMALSHYYVMPLTCISRRNIGFTLEYWVTPLTSRQYLLAFNQDGIIFNAVDC
KY014282.1      KFLFNVYLGMALSHYYVMPLTCISRRDIGFTLEYWVTPLTSRQYLLAFNQDGIIFNAVDC
KF923886.1      KFLFNVYLGMALSHYYVMPLTCISRRDIGFTLEYWVTPLTSRQYLLAFNQDGIIFNAVDC
KF923889.1      KFLFNVYLGMALSHYYVMPLTCISRRDIGFTLEYWVTPLTSRQYLLAFNQDGIIFNAVDC
MG197709.1      KFLFNVYLGMALSHYYVMPLTCISRRNIGFTLEYWVTPLTSRQYLLAFNQDGIIFNAVDC
```

```
KF572808.1      KFLFNVYLGMALSHYYVMPLTCIARRNIGFTLEYWVTPLTSRQYLLAFNQDGIIFNAVDC
KF963234.1      KFLFNVYLGMALSHYYVMPLTCISRRDIGFTLEYWVTPLTSRQYLLAFNQDGIIFNAVDC
                ********************      :: ********.*****:************

KF923914.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPDLPNCNIEAWLNDKSVPSPL
KF923891.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPDLPNCNIEAWLNDKSVPSPL
KF923890.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPDLPNCNIEAWLNDKSVPSPL
KY554972.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPDLPNCNIEAWLNDKSVPSPL
KY674917.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPDLPNCNIEAWLNDKSVPSPL
KF923923.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPDLPNCNIEAWLNDKSVPSPL
KF572872.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPDLPNCNIEAWLNDKSVPSPL
MN306036.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPDLPNCNIEAWLNDKSVPSPL
MN306053.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPDLPNCNIEAWLNDKSVPSPL
MN306042.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPDLPNCNIEAWLNDKSVPSPL
MH121121.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPVADVYRRKPDLPNCNIEAWLNDKSVPSPL
KY983583.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPVADVYRRKPDLPNCNIEAWLNDKSVPSPL
KU745533.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPDLPNCNIEAWLNDKSVPSPL
MF374983.2      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPDLPNCNIEAWLNDKSVPSPL
KX538964.1      MSDFMSEIKCKTQSIAPPTCVYELNGYTVQPIADVYRRKPDLPNCNIEAWLNDKSVPSPL
KF572833.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPDLPNCNIEAWLNDKSVPSPL
MG977444.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPDLPNCNIEAWLNDKSVPSPL
KF923897.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPDLPNCNIEAWLNDKSVPSPL
MK303619.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPDLPNCNIEAWLNDKSVPSPL
KX344031.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPDLPNCNIEAWLNDKSVPSPL
KF963240.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPDLPNCNIEAWLNDKSVPSPL
KJ958218.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPDLPNCNIEAWLNDKSVPSPL
KF572840.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPDLPNCNIEAWLNDKSVPSPL
KF572818.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPDLPNCNIEAWLNDKSVPSPL
KF923900.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPDLPNCNIEAWLNDKSVPSPL
JN129834.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPDLPNCNIEAWLNDKSVPSPL
AY903458.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPDLPNCNIEAWLNDKSVPSPL
AY903460.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPDLPNCNIEAWLNDKSVPSPL
KF963231.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPDLPNCNIEAWLNDKSVPSPL
KF530068.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPDLPNCNIEAWLNDKSVPSPL
KF963232.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPDLPNCNIEAWLNDKSVPSPL
NC_006213.1     MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPNLPNCNIEAWLNDKSVPSPL
KF963229.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPNLPNCNIEAWLNDKSVPSPL
NC_005147.1     MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKLNLPNCNIEAWLNDKSVPSPL
KF530065.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPNLPNCNIEAWLNDKSVPSPL
KF530073.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPNLPNCNIEAWLNDKSVPSPL
KF530062.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPNLPNCNIEAWLNDKSVPSPL
KF530083.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPNLPNCNIEAWLNDKSVPSPL
MF314143.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPDLPNCNIEAWLNDKSVPSPL
KU131570.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPDLPNCNIEAWLNDKSVPSPL
KY014282.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPDLPNCNIEAWLNDKSVPSPL
KF923886.1      MSDFMSEIKCKTQSIAPPTGVYELHGYTVQPIADVYRRKPDLPNCNIEAWLNDKSVPSPL
KF923889.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPDLPNCNIEAWLNDKSVPSPL
MG197709.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPDLPNCNIEAWLNDKSVPSPL
KF572808.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPDLPNCNIEAWLNDKSVPSPL
KF963234.1      MSDFMSEIKCKTQSIAPPTGVYELNGYTVQPIADVYRRKPDLPNCNIEAWLNDKSVPSPL
                ****************** ****:******:******* :******************

KF923914.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNRRKVDLQ
KF923891.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNRRKVDLQ
KF923890.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNRRKVDLQ
KY554972.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNRRKVDLQ
```

```
KY674917.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNRRKVDLQ
KF923923.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNRRKVDLQ
KF572872.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNRRKVDLQ
MN306036.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNRRKVDLQ
MN306053.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNRRKVDLQ
MN306042.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNRRKVDLQ
MH121121.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNRRKVDLQ
KY983583.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNRRKVDLQ
KU745533.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNRRKVDLQ
MF374983.2      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNRRKVDLQ
KX538964.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNRRKVDLQ
KF572833.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNRRKVDLQ
MG977444.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNRRKVDLQ
KF923897.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNRRKVDLQ
MK303619.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNRRKVDLQ
KX344031.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNRRKVDLQ
KF963240.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNRRKVDLQ
KJ958218.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNRRKVDLQ
KF572840.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNRRKVDLQ
KF572818.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNRRKVDLQ
KF923900.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNRRKVDLQ
JN129834.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNRRKVDLQ
AY903458.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNRRKVDLQ
AY903460.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNRRKVDLQ
KF963231.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNGRKVDLQ
KF530068.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNGRKVDLQ
KF963232.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNSRKVDLQ
NC_006213.1     NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNGRKVDLQ
KF963229.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNGRKVDLQ
NC_005147.1     NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNGRKVDLQ
KF530065.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNGRKVDLQ
KF530073.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNGRKVDLQ
KF530062.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNGRKVDLQ
KF530083.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNGRKVDLQ
MF314143.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNGRKVDLQ
KU131570.1      NWERKTFSNCNFNMSSLMSFIQVDSFTCNNIDAAKIYGMCFSSITIDKFAIPNGRKVDLQ
KY014282.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNGRKVDLQ
KF923886.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNGRKVDLH
KF923889.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMGFSSITIDKFAIPNGRKVDLQ
MG197709.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNGRKVDLQ
KF572808.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNGRKVDLQ
KF963234.1      NWERKTFSNCNFNMSSLMSFIQADSFTCNNIDAAKIYGMCFSSITIDKFAIPNGRKVDLQ
                ********************.*************** ************ *****:

KF923914.1      LGNLGYLQSSNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIEDSVFVPQPTG
KF923891.1      LGNLGYLQSSNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIEDSVFVPQPTG
KF923890.1      LGNLGYLQSSNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIEDSVFVPQPTG
KY554972.1      LGNLGYLQSSNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIEDSVFVPQPTG
KY674917.1      LGNLGYLQSSNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIEDSVFVPQPTG
KF923923.1      LGNLGYLQSSNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIEDSVFVPQPTG
KF572872.1      LGNLGYLQSSNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIEDSVFVPQPTG
MN306036.1      LGNLGYLQSSNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIEDSVFKPQPAG
MN306053.1      LGNLGYLQSSNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIEDAVFKPQPAG
MN306042.1      LGNLGYLQSSNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIEDSVFKPQPAG
MH121121.1      LGNLGYLQSSNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIEDSVFVPQPTG
KY983583.1      LGNLGYLQSSNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIEDSVFVPQPTG
```

```
KU745533.1        LGNLGYLQSSNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIEDSVFVPQPTG
MF374983.2        LGNLGYLQSSNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIEDSVFVPQPTG
KX538964.1        LGNLGYLQSSNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIEDSVFVPQPTG
KF572833.1        LGNLGYLQSSNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIEDSVFVPQPTG
MG977444.1        LGNLGYLQSSNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIEDSVFVPQPTG
KF923897.1        LGNLGYLQSSNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIEDSVFVPQPTG
MK303619.1        LGNLGYLQSSNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIEDSVFVPQPTG
KX344031.1        LGNLGYLQSSNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIEDSVFVPQPTG
KF963240.1        LGNLGYLQSSNYRIDTTATSCQLYYNLPAVNVSVSRFNPSTWNKRFGFIEDSVFVPQPTG
KJ958218.1        LGNLGYLQSSNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIEDSVFVPQPTG
KF572840.1        LGNLGYLQSSNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIEDSVFVPQPTG
KF572818.1        LGNLGYLQSSNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIEDSVFVPQPTG
KF923900.1        LGNLGYLQSSNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIEDSVFVPQPTG
JN129834.1        LGNLGYLQSSNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIEDSVFVPQPTG
AY903458.1        LGNLGYLQSSNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIEDSVFVPQPTG
AY903460.1        LGNLGYLQSSNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIEDSVFVPQPTG
KF963231.1        LGNLGYLQSSNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIEDSVFVPQPTG
KF530068.1        LGNLGYLQSSNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIEDSVFVPQPTG
KF963232.1        LGNLGYLQSSNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIEDSVFVPQPTG
NC_006213.1       LGNLGYLQSFNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIEDSVFKPRPAG
KF963229.1        LGNLGYLQSFNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIEDSVFKPRPAG
NC_005147.1       LGNLGYLQSFNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIEDSVFKPRPAG
KF530065.1        LGNLGYLQSFNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIENSVFKPQPAG
KF530073.1        LGNLGYLQSFNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIENSVFKPQPAG
KF530062.1        LGNLGYLQSFNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIENSVFKPQPAG
KF530083.1        LGNLGYLQSFNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIEDSVFKPQPAG
MF314143.1        LGNLGYLQSFNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIENSVFKPQPAG
KU131570.1        LGNLGYLQSFNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIENSVFKPQPAG
KY014282.1        LGNLGYLQSFNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIENSVFKPQPAG
KF923886.1        LFNLGYLQSFNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIENSVFKPQPAG
KF923889.1        LGNLGYLQSFNYRIDTSATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIENSVFKPQPAG
MG197709.1        LGNLGYLQSFNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIEDSVFKPQPAG
KF572808.1        LGNLGYLQSFNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIENSVFKPQPAG
KF963234.1        LGNLGYLQSFNYRIDTTATSCQLYYNLPAANVSVSRFNPSTWNKRFGFIENSVFKPQPAG
                  * ******* ******:************.*******************::** *:*:*

KF923914.1        VFTNHSVVYAQHCFKAPKNFCPCSS--------CPGKNNGIGTCPAGTNYLTCDNLCTLD
KF923891.1        VFTNHSVVYAQHCFKAPKNFCPCSS--------CPGKNNGIGTCPAGTNYLTCDNLCTLD
KF923890.1        VFTNHSVVYAQHCFKAPKNFCPCSS--------CPGKNNGIGTCPAGTNYLTCDNLCTLD
KY554972.1        VFTNHSVVYAQHCFKAPKNFCPCSS--------CPGKNNGIGTCPAGTNYLTCDNLCTLD
KY674917.1        VFTNHSVVYAQHCFKAPKNFCPCSS--------CPGKNNGIGTCPAGTNYLTCDNLCTLD
KF923923.1        VFTNHSVVYAQHCFKAPKNFCPCSS--------CPGKNNGIGTCPAGTNHLTCDNLCTLD
KF572872.1        VFTNHSVVYAQHCFKAPKNFCPCSS--------CPGKNNGIGTCPAGTNHLTCDNLCTLD
MN306036.1        VLTNHDVVYAQHCFKAPKNFCPCSS--------CSGKNNGIGTCPAGTNSLTCDNLCTLD
MN306053.1        VLTNHDVVYAQHCFKAPKNFCPCSS--------CSGKNNGIGTCPAGTNSLTCDNLCTLD
MN306042.1        VLTNHDVVYAQHCFKAPKNFCPCSS--------CSGKNNGIGTCPAGTNSLTCDNLCTLD
MH121121.1        VFTNHSVVYAQHCFKAPKNFCPCSS--------CPGKNNGIGTCPAGTNSLTCDNLCTLD
KY983583.1        VFTNHSVVYAQHCFKAPKNFCPCSS--------CPGKNNGIGTCPAGTNSLTCDNLCTLD
KU745533.1        VFTNHSVVYAQHCFKAPKNFCPCSS--------CPGKNNGIGTCPAGTNSLTCDNLCTLD
MF374983.2        VFTNHSVVYAQHCFKAPKNFCPCSS--------CPGKNNGIGTCPAGTNSLTCDNLCTFD
KX538964.1        VFTNHSVVYAQHCFKAPKNFCPCSS--------CPGKNNGIGTCPAGTNSLTCDNLCTLD
KF572833.1        VFTNHSVVYAQHCFKAPKNFCPCSS--------CPGKNNGIGTCPAGTNSLTCDNLCTLD
MG977444.1        VFTNHSVVYAQHCFKAPKNFCPCSS--------CPGKNNGIGTCPAGTNSLTCDNLCTLD
KF923897.1        VFTNHSVVYAQHCFKAPKNFCPCSS--------CPGKNNGIGTCPAGTNYLTCDNLCTLD
MK303619.1        VFTNHSVVYAQHCFKAPKNFCPCSS--------CPGKNNGIGTCPAGTNSLTCDNLCTLD
KX344031.1        VFTNHSVVYAQHCFKAPKNFCPCSS--------CPGKNNGIGTCPAGTNYLTCDNLCTLD
```

```
KF963240.1      VFTNHSVVYAQHCFKAPKNFCPCSS--------CPGKNNGIGTCPAGTNYLTCDNLCTLD
KJ958218.1      VFTNHSVVYAQHCFKAPKNFCPCSS--------CPGKNNGIGTCPAGTNHLTCDNLCTLD
KF572840.1      VFTNHSVVYAQHCFKAPKNFCPCKSNG-----SCPGKNNGIGTCPAGTNYLNCDNLCTLD
KF572818.1      VFTNHSVVYAQHCFKAPKNFCPCKSNG-----SCPGKNNGIGTCPAGTNYLTCDNLCTLD
KF923900.1      VFTNHSVVYAQHCFKAPKNFCPCKSNG-----SCPGKNNGIGTCPAGTNYLTCDNLCTLD
JN129834.1      VFTNHSVVYAQHCFKAPKNFCPCKSNG-----SCPGKNNGIGTCPAGTNYLTCDNLCTLD
AY903458.1      VFTNHSVVYAQHCFKAPKNFCPCKLNG-----SCPGKNNGIGTCPAGTNYLTCDNLCTLD
AY903460.1      VFTNHSVVYAQHCFKAPKNFCPCKLNG-----SCPGKNNGIGTCPAGTNYLTCDNLCTLD
KF963231.1      VFTNHSVVYAQHCFKAPKNFCPCKLNG-----SCPDKNNGIGTCPAGTNYLTCDNLCTLD
KF530068.1      VFTNHSVVYAQHCFKAPKNFCPCKLNG-----SCPDKNNGIGTCPAGTNYLTCDNLCTLD
KF963232.1      VFTNHSVVYAQHCFKAPKNFCPCKLNG-----SCPDKNNGIGICPAGTNYLTCDNLCTLD
NC_006213.1     VLTNHDVVYAQHCFKAPKNFCPCKLNG-SCVGSGPGKNNGIGTCPAGTNYLTCDNLCTPD
KF963229.1      VLTNHDVVYAQHCFKAPKHFCPCKLNG-SCVGSGPGKNNGIGTCPAGTNYLTCDNLCTPD
NC_005147.1     VLTNHDVVYAQHCFKAPKNFCPCKLNG-SCVGSGPGKNNGIGTCPAGTNYLTCDNLCTPD
KF530065.1      VFTNHDVVYAQHCFKAPKNFCPCKLNGSLCVGSGPGKNNGIGTCPAGTNYLTCHNLCNPD
KF530073.1      VFTNHDVVYAQHCFKAPKNFCPCKLNGSLCVGSGPGKNNGIGTCPAGTNYLTCHNLCNPD
KF530062.1      VFTNHDVVYAQHCFKAPKNFCPCKLNGSLCVGSGPGKNNGIGTCPAGTNYLTCHNLCNPD
KF530083.1      VFTNHDVVYAQHCFKAPKNFCPCKLNGSLCVGSGPGKNNGIGTCPAGTNYLTCHNLCNPD
MF314143.1      VLTNHDVVYAQHCFKAPKNFCPCKLNSSLCVGSGPGKNNGIGTCPAGTNYLTCHNLCNPD
KU131570.1      VFTNHDVVYAQHCFKAPKNFCPCKLNSSLCVGSGPGKNNGIGTCPAGTNYLTCHNLCNPD
KY014282.1      VLTNHDVVYAQHCFKAPKNFCPCKLNSSLCVGSGPGKNNGIGTCPAGTNYLTCHNLCNPD
KF923886.1      VLTNHDVVYAQHCFKAPKNFCPCKLNSSLCVGSGPGKNNGIGTCPAGTNYLTCHNLCNPD
KF923889.1      VLTNHDVVYAQHCFKAPKNFCPCKLNSSSCVGSGPGKNNGMGTCPAGTNYLTCHNLCNPD
MG197709.1      VLTNHDVVYAQHCFKAPKNFCPCKSNSSLCVGSGPGKNNGIGTCPAGTNYLTCHNLCNPD
KF572808.1      VLTNHDVVYAQHCFKAPKNFCPCKLNSSLCVGSGPGKNNGIGTCPAGTNYLTCHNLCTLD
KF963234.1      VFTNHDVVYAQHCFKAPKNFCPCKLNGSLCVGSGPGKNNGIGTCPAGTNYLTCHNLCNPD
                *:***.***********:****.          ..****:* ****** *.*.***. *

KF923914.1      PITFKAPDTYKCPQTKSLVGIGEHCSGLAVKSDYCGNNSCTCQPQAFLGWSADSCLQGDK
KF923891.1      PITFKAPDTYKCPQTKSLVGIGEHCSGLAVKSDYCGNNSCTCQPQAFLGWSADSCLQGDK
KF923890.1      PITFKAPDTYKCPQTKSLVGIGEHCSGLAVKSDYCGNNSCTCQPQAFLGWSADSCLQGDK
KY554972.1      PITFKAPDTYKCPQTKSLVGIGEHCSGLAVKSDYCGNNSCTCQPQAFLGWSADSCLQGDK
KY674917.1      PITFKAPDTYKCPQTKSLVGIGEHCSGLAVKSDYCGNNSCTCQPQAFLGWSADSCLQGDK
KF923923.1      PITFKAPDTYKCPQTKSLVGIGEHCSGLAVKSDYCGNNSCTCQPQAFLGWSADSCLQGDK
KF572872.1      PITFKAPDTYKCPQTKSLVGIGEHCSGLAVKSDYCGNNSCTCQPQAFLGWSADSCLQGDK
MN306036.1      PITLKAPDTYKCPQSKSLVGIGEHCSGLAVKSDYCGNNSCTCQPQAFLGWSADSCLQGDK
MN306053.1      PITLKAPDTYKCPQSKSLVGIGEHCSGLAVKSDYCGNNSCTCQPQAFLGWSADSCLQGDK
MN306042.1      PITLKAPDTYKCPQSKSLVGIGEHCSGLAVKSDYCGNNSCTCQPQAFLGWSADSCLQGDK
MH121121.1      PITLKAPDTYKCPQSKSLVGIGEHCSGLAVKSDYCGNNSCTCQPQAFLGWSADSCLQGDK
KY983583.1      PITLKAPDTYKCPQSKSLVGIGEHCSGLAVKSDYCGNNSCTCQPQAFLGWSADSCLQGDK
KU745533.1      PITLKAPDTYKCPQSKSLVGIGEHCSGLAVKSDYCGNNSCTCQPQAFLGWSADSCLQGDK
MF374983.2      PITLKAPDTYKCPQSKSLVGIGEHCSGLAVKSDYCGNNSCTCQPQAFLGWSADSCLQGDK
KX538964.1      PITLKAPDTYKCPQSKSLVGIGEHCSGLAVKSDYCGNNSCTCQPQAFLGWSADSCLQGDK
KF572833.1      PITLKAPDTYKCPQSKSLVGIGEHCSGLAVKSDYCGNNSCTCQPQAFLGWSADSCLQGDK
MG977444.1      PITLKAPDTYKCPQSKSLVGIGEHCSGLAVKSDYCGNNSCTCQPQAFLGWSADSCLQGDK
KF923897.1      PITFKAPDTYKCPQTKSLVGIGEHCSGLAVKSDYCGNNSCTCQPQAFLGWSADSCLQGDK
MK303619.1      PITFKAPDTYKCPQTKSLVGIGEHCSGLAVKSDYCGNNSCTCQPQAFLGWSADSCLQGDK
KX344031.1      PITFKAPDTYKCPQTKSLVGIGEHCSGLAVKSDYCGNNSCTCQPQAFLGWSADSCLQGDK
KF963240.1      PITFKAPDTYKCPQTKSLVGIGEHCSGLAVKSDYCGNNSCTCQPQAFLGWSADSCLQGDK
KJ958218.1      PITFKAPDTYKCPQTKSLVGIGEHCSGLAVKSDYCGNNSCTCQPQAFLGWSADSCLQGDK
KF572840.1      PITFKAPGTYKCPQTKSLVGIGEHCSGLAVKSDYCGNNSCTCQPQAFLGWSADSCLQGDK
KF572818.1      PITLKAPDTYKCPQTKSLVGIGEHCSGLAVKSDYCGNNSCTCQPQAFLGWSADSCLQGDK
KF923900.1      PITLKAPDTYKCPQTKSLVGIGEHCSGLAVKSDYCGNNSCTCQPQAFLGWSADSCLQGDK
JN129834.1      PITFKAPGTYKCPQTKSLVGIGEHCSGLAVKSDYCGNNSCTCQPQAFLGWSADSCLQGDK
AY903458.1      PITFKAPGTYKCPQTKSLVGIGEHCSGLAVKSDYCGNNSCTCQPQAFLGWSADSCLQGDK
AY903460.1      PITFKAPGTYKCPQTKSLVGIGEHCSGLAVKSDYCGNNSCTCQPQAFLGWSADSCLQGDK
```

```
KF963231.1      PITFKAPGTYKCPQTKSLVGIGEHCSGLAVKSDYCRGNSCTCQPQAFLGWSADSCLQGDK
KF530068.1      PITFKAPGTYKCPQTKSLVGIGEHCSGLAVKSDYCRGNSCTCQPQAFLGWSADSCLQGDK
KF963232.1      PITFKAPGTYKCPQTKSLVGIGEHCSGLAVKSDYCRGNSCICQPQAFLGWSADSCLQGDK
NC_006213.1     PITFTGT--YKCPQTKSLVGIGEHCSGLAVKSDYCGGNSCTCRPQAFLGWSADSCLQGDK
KF963229.1      PITFTGT--YKCPQTKSLVGIGEHCSGLAVKSDYCGGNSCTCRPQAFLGWSADSCLQGDK
NC_005147.1     PITFKATGTYKCPQTKSLVGIGEHCSGLAVKSDYCGGNSCTCRPQAFLGWSADSCLQGDK
KF530065.1      PITFTGP--YKCPQTKSLVGIGEHCSGLAVKSDYCGGNPCTCQPQAFLGWSADSCLQGDK
KF530073.1      PITFTGP--YKCPQTKSLVGIGEHCSGLAVKSDYCGGNPCTCQPQAFLGWSADSCLQGDK
KF530062.1      PITFTGP--YKCPQSKSLVGIGEHCSGLAVKSDYCGGNPCTCQPQAFLGWSADSCLQGDK
KF530083.1      PITFTGP--YKCPQTKSLVGIGEHCSGLAVKSDYCGGNPCTCQPQAFLGWSADSCLQGDK
MF314143.1      PITFTGS--YKCPQTKSLVGIGEHCSGLAVKSDYCGGNPCTCQPQAFLGWSADSCLQGDK
KU131570.1      PITFTGP--YKCPQTKSLVGIGEHCSGLAVKSDYCGGNPCTCQPQAFLGWSADSCLQGDK
KY014282.1      PITFTGP--YKCPQTKSLVGIGEHCSGLAVKSDYCGGNPCTCQPQAFLGWSADSCLQGDK
KF923886.1      PITFTGP--YKCPQTKSLVGIGEHCSGLAVKSDYCGGNPCTCQPQAFLGWSADSCLQGDK
KF923889.1      PITFTGP--YKCPQTKSLVGIGEHCSGLAVKSDYCGGNPCTCQPQAFLGWSADSCLQGDK
MG197709.1      PITFTGP--YKCPQTKSLVGIGEHCSGLAVKSDYCGGNPCTCQPQAFLGWSADSCLQGDK
KF572808.1      PITFTGP--YKCPQTKSLVGIGEHCSGLAVKSDYCGGNPCTCQPQAFLGWSADSCLQGDK
KF963234.1      PITFTGP--YKCPQTKSLVGIGEHCSGLAVKSDYCGGNPCTCQPQAFLGWSADSCLQGDK
                ***:...  *****:******************** .*.* *:*****************

KF923914.1      CNIFANFILHDVNNGLTCSTDLQKANTEIELGVCVNYDLYGISGQGIFVEVNATYYNSWQ
KF923891.1      CNIFANFILHDVNNGLTCSTDLQKANTEIELGVCVNYDLYGISGQGIFVEVNATYYNSWQ
KF923890.1      CNIFANFILHDVNNGLTCSTDLQKANTEIELGVCVNYDLYGISGQGIFVEVNATYYNSWQ
KY554972.1      CNIFANFILHDVNNGLTCSTDLQKANTEIELGVCVNYDLYGISGQGIFVEVNATYYNSWQ
KY674917.1      CNIFANFILHDVNNGLTCSTDLQKANTEIELGVCVNYDLYGISGQGIFVEVNATYYNSWQ
KF923923.1      CNIFANFILHDVNNGLTCSTDLQKANTEIELGVCVNYDLYGISGQGIFVEVNATYYNSWQ
KF572872.1      CNIFANFILHDVNNGLTCSTDLQKANTEIELGVCVNYDLYGISGQGIFVEVNATYYNSWQ
MN306036.1      CNIFANFILHDVNNGLTCSTDLQKANTEIELGVCVNYXLYGISGQGIFVEVNATYYNSWQ
MN306053.1      CNIFANFILHDVNNGLTCSTDLQKANTEIELGVCVNYDLYGISGQGIFVEVNATYYNSWQ
MN306042.1      CNIFANFILHDVNNGLTCSTDLQKANTEIELGVCVNYDLYGISGQGIFVEVNATYYNSWQ
MH121121.1      CNIFANFILHDVNNGLTCSTDLQKANTEIELGVCVNYDLYGISGQGIFVEVNATYYNSWQ
KY983583.1      CNIFANFILHDVNNGLTCSTDLQKANTEIELGVCVNYDLYGISGQGIFVEVNATYYNSWQ
KU745533.1      CNIFANFILHDVNNGLTCSTDLQKANTEIELGVCVNYDLYGISGQGIFVEVNATYYNSWQ
MF374983.2      CNIFANFILHDVNNGLTCSTDLQKANTEIELGVCVNYDLYGISGQGIFVEVNATYYNSWQ
KX538964.1      CNIFANFILHDVNNGLTCSTDLQKANTEIELGVCVNYDLYGISGQGIFVEVNATYYNSWQ
KF572833.1      CNIFANFILHDVNNGLTCSTDLQKANTEIELGVCVNYDLYGISGQGIFVEVNATYYNSWQ
MG977444.1      CNIFANFILHDVNNGLTCSTDLQKANTEIELGVCVNYDLYGISGQGIFVEVNATYYNXWQ
KF923897.1      CNIFANFILHDVNNGLTCSTDLQKANTEIELGVCVNYDLYGISGQGIFVEVNATYYNSWQ
MK303619.1      CNIFANFILHDVNNGLTCSTDLQKANTEIELGVCVNYDLYGISGQGIFVEVNATYYNSWQ
KX344031.1      CNIFANFILHDVNNGLTCSTDLQKANTEIELGVCVNYDLYGISGQGIFVEVNATYYNSWQ
KF963240.1      CNIFANFILHDVNNGLTCSTDLQKANTEIELGVCVNYDLYGISGQGIFVEVNATYYNSWQ
KJ958218.1      CNIFANFILHDVNNGLTCSTDLQKANTEIELGVCVNYDLYGISGQGIFVEVNATYYNSWQ
KF572840.1      CNIFANFILHDVNNGLTCSTDLQKANTEIELGVCVNYDLYGISGQGIFVEVNATYYNSWQ
KF572818.1      CNIFANFILHDVNNGLTCSTDLQKANTEIELGVCVNYDLYGISGQGIFVEVNATYYNSWQ
KF923900.1      CNIFANFILHDVNNGLTCSTDLQKANTEIELGVCVNYDLYGISGQGIFVEVNATYYNSWQ
JN129834.1      CNIFANFILHDVNNGLTCSTDLQKANTEIELGVCVNYDLYGISGQGIFVEVNATYYNSWQ
AY903458.1      CNIFANFILHDVNNGLTCSTDLQKANTEIELGVCVNYDLYGISGQGIFFEVNATYYNSWQ
AY903460.1      CNIFANFILHDVNNGLTCSTDLQKANTEIELGVCVNYDLYGISGQGIFVEVNATYYNSWQ
KF963231.1      CNIFANLILHDVNSGLTCSTDLQKANTDIILGVCVNYDLYGISGQGIFVEVNATYYNSWQ
KF530068.1      CNIFANLILHDVNSGLTCSTDLQKANTDIILGVCVNYDLYGISGQGIFVEVNATYYNSWQ
KF963232.1      CNIFANLILHDVNSGLTCSTDLQKANTEIELGVCVNYDLYGISGQGIFVEVNATYYNSWQ
NC_006213.1     CNIFANFILHDVNSGLTCSTDLQKANTDIILGVCVNYDLYGILGQGIFVEVNATYYNSWQ
KF963229.1      CNIFANFILHDVNSGLTCSTDLQKANTDIILGVCVNYDLYGILGQGIFVEVNATYYNSWQ
NC_005147.1     CNIFANFILHDVNSGLTCSTDLQKANTDIILGVCVNYDLYGILGQGIFVEVNATYYNSWQ
KF530065.1      CNIFANLILHDVNSGLTCSTDLQKANTDIILGVCVNYDLYGISGQGIFVEVNATYYNSWQ
KF530073.1      CNIFANLILHDVNSGLTCSTDLQKANTDIILGVCVNYDLYGISGQGIFVEVNATYYNSWQ
```

```
KF530062.1      CNIFANLILHDVNSGLTCSTDLQKANTDIILGVCVNYDLYGISGQGIFVEVNATYYNSWQ
KF530083.1      CNIFANLILHDVNSGLTCSTDLQKANTDIILGVCVNYDLYGISGQGIFVEVNATYYNSWQ
MF314143.1      CNIFANLILHDVNSGLTCSTDLQKANTDIKLGVCVNYDLYGISGQGIFVEVNATYYNSWQ
KU131570.1      CNIFANLILHDVNSGLTCSTDLQKANTDIKLGVCVNYDLYGISGQGIFVEVNATYYNSWQ
KY014282.1      CNIFANLILHDVNSGLTCSTDLQKANTDIKLGVCVNYDLYGISGQGIFVEVNATYYNSWQ
KF923886.1      CNIFANLILHDVNSGLTCSTDLQKANTDIKLGVCVNYDLYGISGQGIFVEVNATYYNSWQ
KF923889.1      CNIFANLILHDVNSGLTCSTDLQKANTDIKLGVCVNYDLYGISGQGIFVEVNATYYNSWQ
MG197709.1      CNIFANLILHDVNSGLTCSTDLQKANTDIKLGVCVNYDLYGISGQGIFVEVNATYYNSWQ
KF572808.1      CNIFANLILHDVNSGLTCSTDLQKANTDIKLGVCVNYDLYGISGQGIFVEVNATYYNSWQ
KF963234.1      CNIFANLILHDVNSGLTCSTDLQKANTDIILGVCVNYDLYGISGQGIFVEVNATYYNSWQ
                ******:******.*************:* ******* **** *****.******** **

KF923914.1      NLLYDSNGNLYGFRDYITNRTFMIHSCYSGRVSAAYHANSSEPALLFRNIKCNYVFNNSL
KF923891.1      NLLYDSNGNLYGFRDYITNRTFMIHSCYSGRVSAAYHANSSEPALLFRNIKCNYVFNNSL
KF923890.1      NLLYDSNGNLYGFRDYITNRTFMIHSCYSGRVSAAYHANSSEPALLFRNIKCNYVFNNSL
KY554972.1      NLLYDSNGNLYGFRDYITNRTFMIHSCYSGRVSAAYHANSSEPALLFRNIKCNYVFNNSL
KY674917.1      NLLYDSNGNLYGFRDYITNRTFMIHSCYSGRVSAAYHANSSEPALLFRNIKCNYVFNNSL
KF923923.1      NLLYDSNGNLYGFRDYITNRTFMIHSCYSGRVSAAYHANSSEPALLFRNIKCNYVFNNSL
KF572872.1      NLLYDSNGNLYGFRDYITNRTFMIHSCYSGRVSAAYHANSSEPALLFRNIKCNYVFNNSL
MN306036.1      NLLYDSNGNLYGFRDYITNRTFMIHSCYSGRVSAAYHANSSEPALLFRNIKCNYVFNNSL
MN306053.1      NLLYDSNGNLYGFRDYITNRTFMIHSCYSGRVSAAYHANSSEPALLFRNIKCNYVFNNSL
MN306042.1      NLLYDSNGNLYGFRDYITNRTFMIHSCYSGRVSAAYHANSSEPALLFRNIKCNYVFNNSL
MH121121.1      NLLYDSNGNLYGFRDYITNRTFMIHSCYSGRVSAAYHANSSEPALLFRNIKCNYVFNNSL
KY983583.1      NLLYDSNGNLYGFRDYITNRTFMIHSCYSGRVSAAYHANSSEPALLFRNIKCNYVFNNSL
KU745533.1      NLLYDSNGNLYGFRDYITNRTFMIHSCYSGRVSAAYHANSSEPALLFRNIKCNYVFNNSL
MF374983.2      NLLYDSNGNLYGFRDYITNRTFMIHSCYSGRVSAAYHANSSEPALLFRNIKCNYVFNNSL
KX538964.1      NLLYDSNGNLYGFRDYITNRTFMIHSCYSGRVSAAYHANSSEPALLFRNIKCNYVFNNSL
KF572833.1      NLLYDSNGNLYGFRDYITNRTFMIHSCYSGRVSAAYHANSSEPALLFRNIKCNYVFNNSL
MG977444.1      NLLYDSNGNLYGFRDYITNRTFMIHSCYSGRVSAAYHANSSEPALLFRNIKCNYVFNNSL
KF923897.1      NLLYDSNGNLYGFRDYITNRTFMIHSCYSGRVSAAYHANSSEPALLFRNIKCNYVFNNSL
MK303619.1      NLLYDSNGNLYGFRDYITNRTFMIHSCYSGRVSAAYHANSSEPALLFRNIKCNYVFNNSL
KX344031.1      NLLYDSNGNLYGFRDYITNRTFMIHSCYSGRVSAAYHANSSEPALLFRNIKCNYVFNNSL
KF963240.1      NLLYDSNGNLYGFRDYITNRTFMIHSCYSGRVSAAYHANSSEPALLFRNIKCNYVFNNSL
KJ958218.1      NLLYDSNGNLYGFRDYITNRTFMIHSCYSGRVSAAYHANSSEPALLFRNIKCNYVFNNSL
KF572840.1      NLLYDSNGNLYGFRDYITNRTFMIRSCYSGRVSAAYHANSSEPALLFRNIKCNYVFNNSL
KF572818.1      NLLYDSNGNLYGFRDYITNRTFMIRSCYSGRVSAAYHANSSEPALLFRNIKCNYVFNNSL
KF923900.1      NLLYDSNGNLYGFRDYITNRTFMIRSCYSGRVSAAYHANSSEPALLFRNIKCNYVFNNSL
JN129834.1      NLLYDSNGNLYGFRDYITNRTFMIRSCYSGRVSAAYHANSSEPALLFRNIKCNYVFNNSL
AY903458.1      NLLYDSNGNLYGFRDYITNRTFMIRSCYSGRVSAAYHANSSEPALLFRNIKCNYVFNNSL
AY903460.1      NLLYDSNGNLYGFRDYITNRTFMIRSCYSGRVSAAYHANSSEPALLFRNIKCNYVFNNSL
KF963231.1      NLLYDSNGNLYGFRDYITNRTFMIRSCYSGRVSAAFHANSSEPALLFRNIKCNYVFNNSL
KF530068.1      NLLYDSNGNLYGFRDYITNRTFMIRSCYSGRVSAAFHANSSEPALLFRNIKCNYVFNNSL
KF963232.1      NLLYDSNGNLYGFRDYITNRTFMIRSCYSGRVSAAYHANSSEPALLFRNIKCNYVFNNSL
NC_006213.1     NLLYDSNGNLYGFRDYITNRTFMIRSCYSGRVSAAFHANSSEPALLFRNIKCNYVFNNSL
KF963229.1      NLLYDSNGNLYGFRDYITNRTFMIRSCYSGRVSAAFHANSSEPALLFRNIKCNYVFNNSL
NC_005147.1     NLLYDSNGNLYGFRDYITNRTFMIRSCYSGRVSAAFHANSSEPALLFRNIKCNYVFNNSL
KF530065.1      NLLYDSNGNLYGFRDYITNRTFMIRSCYSGRVSAAFHANSSEPALLFRNIKCNYVFNNSL
KF530073.1      NLLYDSNGNLYGFRDYITNRTFMIRSCYSGRVSAAFHANSSEPALLFRNIKCNYVFNNSL
KF530062.1      NLLYDSNGNLYGFRDYITNRTFMIRSCYSGRVSAAFHANSSEPALLFRNIKCNYVFNNSL
KF530083.1      NLLYDSNGNLYGFRDYITNRTFMIRSCYSGRVSAAFHANSSEPALLFRNIKCNYVFNNSL
MF314143.1      NLLYDSNGNLYGFRDYITNRTFMIRSCYSGRVSAAFHANSSEPALLFRNIKCNYVFNNSL
KU131570.1      NLLYDSNGNLYGFRDYITNRTFMIRSCYSGRVSAAFHANSSEPALLFRNIKCNYVFNNSL
KY014282.1      NLLYDSNGNLYGFRDYITNRTFMIRSCYSGRVSAAFHANSSEPALLFRNIKCNYVFNNSL
KF923886.1      NLLYDSNGNLYGFRDYITNRTFMIRSCYSGRVSAAFHANSSEPALLFRNIKCNYVFNNSL
KF923889.1      NLLYDSNGNLYGFRDYITNRTFMIRSCYSGRVSAAFHANSSEPALLFRNIKCNYVFNNSL
MG197709.1      NLLYDSNGNLYGFRDYITNRTFMIRSCYSGRVSAAFHANSSEPALLFRNIKCNYVFNNSL
```

```
KF572808.1      NLLYDSNGNLYGFRDYITNRTFMIRSCYSGRVSAAYHANSSEPALLSRNIKCNYVFNNSL
KF963234.1      NLLYDSNGNLYGFRDYITNRTFMIRSCYSGRVSAAFHANSSEPALLFRNIKCNYVFNNSL
                ***********************:*********:********* ************

KF923914.1      TRQLQPINYSFDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYSKNRRSRRAITTGYRF
KF923891.1      TRQLQPINYSFDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYSKNRRSRRAITTGYRF
KF923890.1      TRQLQPINYSFDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYSKNRRSRRAITTGYRF
KY554972.1      TRQLQPINYSFDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYFKNRRSRRAITTGYRF
KY674917.1      TRQLQPINYSFDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYFKNRRSRRAITTGYRF
KF923923.1      TRQLQPINYSFDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYSKNRRSRRAITTGYRF
KF572872.1      TRQLQPINYSFDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYSKNRRSRRAITTGYRF
MN306036.1      TRQLQPINYSFDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYFKNRRSRRAITTGYRF
MN306053.1      TRQLQPINYSFDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYFKNRRSRRAITTGYRF
MN306042.1      TRQLQPINYSFDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYFKNRRSRRAITTGYRF
MH121121.1      TRQLQPINYSFDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYSKNRRSRRAITTGYRF
KY983583.1      TRQLQPINYSFDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYSKNRRSRRAITTGYRF
KU745533.1      TRQLQPINYSFDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYSKNRRSRRAITTGYRF
MF374983.2      TRQLQPINYSFDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYSKNRRSRRAITTGYRF
KX538964.1      TRQLQPINYSFDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYSKNRRSRRAITTGYRF
KF572833.1      TRQLQPINYSFDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYSKNRRSRRAITTGYRF
MG977444.1      TRQLQPINYSFDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYSKNRRSRRAITTGYRF
KF923897.1      TRQLQPINYSFDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYSKNRRSRRAITTGYRF
MK303619.1      TRQLQPINYSFDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYSKNRRSRRAITTGYRF
KX344031.1      TRQLQPINYSFDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYSKNRRSRRAITTGYRF
KF963240.1      TRQLQPINYSFDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYSKNRRSRRAITTGYRF
KJ958218.1      TRQLQPINYSFDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYSKNRRSRRAITTGYRF
KF572840.1      TRQLQPINYSFDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYSKNRRSRRAITTGYRF
KF572818.1      TRQLQPINYSFDSYLGCVVNAYNSTAISVQKCDLTVGSGYCVDYSKNRRSRRAITTGYRF
KF923900.1      TRQLQPINYSFDSYLGCVVNAYNSTAISVQKCDLTVGSGYCVDYSKNRRSRRAITTGYRF
JN129834.1      TRQLQPINYSFDSYLGCVVNAYNSTAISVQKCDLTVGSGYCVDYSKNRRSRRAITTGYRF
AY903458.1      TRQLQPINYSFDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYSKNRRSRRAITTGYRF
AY903460.1      TRQLQPINYSFDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYSKNRRSRRAITTGYRF
KF963231.1      TRQLQPINYSFDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVEYSKNRRSRRAITTGYRF
KF530068.1      TRQLQPINYSFDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVEYSKNRRSRRAITTGYRF
KF963232.1      TRQLQPINYSFDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYSKNRRSRRAITTGYRF
NC_006213.1     TRQLQPINY-FDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYSKNRRSRGAITTGYRF
KF963229.1      TRQLQPINY-FDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYSKNRRSRGAITTGYRF
NC_005147.1     TRQLQPINY-FDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYSKNRRSRGAITTGYRF
KF530065.1      TRQLQPINY-FDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYSKNRRSRRAITTGYRF
KF530073.1      TRQLQPINY-FDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYSKNRRSRRAITTGYLF
KF530062.1      TRQLQPINY-FDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYSKNRRSRRAITTGYRF
KF530083.1      TRQLQPINY-FDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYSKNRRSRRAITTGYRF
MF314143.1      IRQLQPINY-FDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYSKTRRSRRAITTGYRF
KU131570.1      IRQLQPINY-FDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYSKTRRSRRAITTGYRF
KY014282.1      IRQLQPINY-FDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYSKNRRSRRAITTGYRF
KF923886.1      TRQLQPINY-FDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYSKNRRSRRAITTGYRF
KF923889.1      TRQLQPINY-FDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYSKNRRSRRAITTGYRF
MG197709.1      TRQLQPINY-FDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYSKNRRSRRAITTGYRF
KF572808.1      TRQLQPINY-FDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYSKNRRSRRAITTGYRF
KF963234.1      TRQLQPINY-FDSYLGCVVNAYNSTAISVQTCDLTVGSGYCVDYSKNRRSRRAITTGYRF
                 ******** ******************.**********:* *.**** ****** *

KF923914.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
KF923891.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
KF923890.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
KY554972.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
```

```
KY674917.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
KF923923.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
KF572872.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
MN306036.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
MN306053.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
MN306042.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
MH121121.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
KY983583.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
KU745533.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
MF374983.2      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
KX538964.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
KF572833.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
MG977444.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
KF923897.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
MK303619.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
KX344031.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
KF963240.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
KJ958218.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
KF572840.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
KF572818.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDRAAFVCGDYAA
KF923900.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDRAAFVCGDYAA
JN129834.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
AY903458.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
AY903460.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
KF963231.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
KF530068.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
KF963232.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
NC_006213.1     TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMVEFIQTSSPKVTIDCAAFVCGDYAA
KF963229.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMVEFIQTSSPKVTIDCAAFVCGDYAA
NC_005147.1     TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
KF530065.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
KF530073.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
KF530062.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
KF530083.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
MF314143.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
KU131570.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
KY014282.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
KF923886.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
KF923889.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
MG197709.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSDFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
KF572808.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSDFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
KF963234.1      TNFEPFTVNSVNDSLEPVGGLYEIQIPSEFTIGNMEEFIQTSSPKVTIDCAAFVCGDYAA
                ***************************:****** ************ **********

KF923914.1      CKLQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
KF923891.1      CKLQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
KF923890.1      CKLQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
KY554972.1      CKLQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
KY674917.1      CKLQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
KF923923.1      CKLQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
KF572872.1      CKLQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
MN306036.1      CKLQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
MN306053.1      CKLQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
MN306042.1      CKLQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
MH121121.1      CKLQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
KY983583.1      CKLQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
```

```
KU745533.1        CKLQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
MF374983.2        CKLQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
KX538964.1        CKLQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
KF572833.1        CKLQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
MG977444.1        CKLQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
KF923897.1        CKLQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
MK303619.1        CKLQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
KX344031.1        CKLQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
KF963240.1        CKLQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
KJ958218.1        CKLQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
KF572840.1        CKLQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
KF572818.1        CKLQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
KF923900.1        CKLQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
JN129834.1        CKLQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
AY903458.1        CKLQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
AY903460.1        CKLQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
KF963231.1        CKLQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
KF530068.1        CKLQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
KF963232.1        CKLQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
NC_006213.1       CKSQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
KF963229.1        CKSQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
NC_005147.1       CKSQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
KF530065.1        CKSQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
KF530073.1        CKSQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
KF530062.1        CKSQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
KF530083.1        CKSQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
MF314143.1        CKSQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
KU131570.1        CKSQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
KY014282.1        CKSQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
KF923886.1        CKSQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
KF923889.1        CKSQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
MG197709.1        CKSQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
KF572808.1        CKSQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
KF963234.1        CKSQLVEYGSFCDNINAILTEVNELLDTTQLQVANSLMNGVTLSTKLKDGVNFNVDDINF
                  ** **************************************************

KF923914.1        SPVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVEAYNNCTGGAEIRDLICVQSYKGI
KF923891.1        SPVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVEAYNNCTGGAEIRDLICVQSYKGI
KF923890.1        SPVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVEAYNNCTGGAEIRDLICVQSYKGI
KY554972.1        SPVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVEAYNNCTGGAEIRDLICVQSYKGI
KY674917.1        SPVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVEAYNNCTGGAEIRDLICVQSYKGI
KF923923.1        SPVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVEAYNNCTGGAEIRDLICVQSYKGI
KF572872.1        SPVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVEAYNNCTGGAEIRDLICVQSYKGI
MN306036.1        APVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVEAYNNCTGGAEIRDLICVQSYKGI
MN306053.1        APVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVEAYNNCTGGAEIRDLICVQSYKGI
MN306042.1        APVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVEAYNNCTGGAEIRDLICVQSYKGI
MH121121.1        SPVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVEAYNNCTGGAEIRDLICVQSYKGI
KY983583.1        SPVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVEAYNNCTGGAEIRDLICVQSYKGI
KU745533.1        SPVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVEAYNNCTGGAEIRDLICVQSYKGI
MF374983.2        SPVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVEAYNNCTGGAEIRDLICVQSYKGI
KX538964.1        SPVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVEAYNNCTGGAEIRDLICVQSYKGI
KF572833.1        SPVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVEAYNNCTGGAEIRDLICVQSYKGI
MG977444.1        SPVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVEAYNNCTGGAEIRDLICVQSYKGI
KF923897.1        SPVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVEAYNNCTGGAEIRDLICVQSYKGI
MK303619.1        SPVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVEAYNNCTGGAEIRDLICVQSYKGI
KX344031.1        SPVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVEAYNNCTGGAEIRDLICVQSYKGI
```

```
KF963240.1      SPVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVEAYNNCTGGAEIRDLICVQSYKGI
KJ958218.1      SPVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVEAYNNCTGGAEIRDLICVQSYKGI
KF572840.1      SPVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVEAYNNCTGGAEIRDLICVQSYKGI
KF572818.1      SPVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVEAYNNCTGGAEIRDLICVQSYKGI
KF923900.1      SPVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVEAYNNCTGGAEIRDLICVQSYKGI
JN129834.1      SPVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVEAYNNCTGGAEIRDLICVQSYKGI
AY903458.1      SPVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVEAYNNCTGGAEIRDLICVQSYKGI
AY903460.1      SPVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVEAYNNCTGGAEIRDLICVQSYKGI
KF963231.1      SPVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVEAYNNCTGGAEIRDLICVQSYKGI
KF530068.1      SPVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVEAYNNCTGGAEIRDLICVQSYKGI
KF963232.1      SPVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVEAYNNCTGGAEIRDLICVQSYKGI
NC_006213.1     SPVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVEAYNNCTGGAEIRDLICVQSYKGI
KF963229.1      SPVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVEAYNNCTGGAEIRDLICVQSYKGI
NC_005147.1     SPVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVEAYNNCTGGAEIRDLICVQSYKGI
KF530065.1      SPVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVEAYNNCTGGAEIRDLICVQSYKGI
KF530073.1      SPVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVEAYNNCTGGAEIRDLICVQSYKGI
KF530062.1      SSVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVEAYNNCTGGAEIRDLICVQSYKGI
KF530083.1      SPVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVEAYNNCTGGAEIRDLICVQSYKGI
MF314143.1      SSVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVAAYNNCTGGAEIRDLICVQSYKGI
KU131570.1      SSVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVAAYNNCTGGAEIRDLICVQSYKGI
KY014282.1      SSVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVAAYNNCTGGAEIRDLICVQSYKGI
KF923886.1      SSVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVAAYNNCTGGAEIRDLICVQSYKGI
KF923889.1      SSVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVAAYNNCTGGAEIRDLICVQSYKGI
MG197709.1      SSVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVAAYNNCTGGAEIRDLICVQSYKGI
KF572808.1      SSVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVSAYNNCTGGAEIRDLICVQSYKGI
KF963234.1      SSVLGCLGSECSKASSRSAIEDLLFDKVKLSDVGFVAAYNNCTGGAEIRDLICVQSYKGI
                :.******************************** **********************

KF923914.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
KF923891.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
KF923890.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
KY554972.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
KY674917.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
KF923923.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
KF572872.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
MN306036.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
MN306053.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
MN306042.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
MH121121.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
KY983583.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
KU745533.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
MF374983.2      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
KX538964.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
KF572833.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
MG977444.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
KF923897.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
MK303619.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
KX344031.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
KF963240.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
KJ958218.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
KF572840.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
KF572818.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
KF923900.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
JN129834.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
AY903458.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
AY903460.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
```

```
KF963231.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
KF530068.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
KF963232.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
NC_006213.1     KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
KF963229.1      KVLPPLLSENQFSGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
NC_005147.1     KVLPPLLSENQISGYTLAATSASLFPLWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
KF530065.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
KF530073.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
KF530062.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
KF530083.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
MF314143.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
KU131570.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
KY014282.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
KF923886.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
KF923889.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
MG197709.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
KF572808.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
KF963234.1      KVLPPLLSENQISGYTLAATSASLFPPWTAAAGVPFYLNVQYRINGLGVTMDVLSQNQKL
                ***********:************** ******************************

KF923914.1      IANAFNNALHAIQQGFDATNSALVKIQAVVNANAEALNNLLQQLSNRFGAISASLQEILS
KF923891.1      IANAFNNALHAIQQGFDATNSALVKIQAVVNANAEALNNLLQQLSNRFGAISASLQEILS
KF923890.1      IANAFNNALHAIQQGFDATNSALVKIQAVVNANAEALNNLLQQLSNRFGAISASLQEILS
KY554972.1      IANAFNNALHAIQQGFDATNSALVKIQAVVNANAEALNNLLQQLSNRFGAISASLQEILS
KY674917.1      IANAFNNALHAIQQGFDATNSALVKIQAVVNANAEALNNLLQQLSNRFGAISASLQEILS
KF923923.1      IANAFNNALHAIQQGFDATNSALVKIQAVVNANAEALNNLLQQLSNRFGAISASLQEILS
KF572872.1      IANAFNNALHAIQQGFDATNSALVKIQAVVNANAEALNNLLQQLSNRFGAISASLQEILS
MN306036.1      IANAFNNALHAIQQGFDATNSALVKIQAVVNANSEALNNLLQQLSNRFGAISASLQEILS
MN306053.1      IANAFNNALHAIQQGFDATNSALVKIQAVVNANSEALNNLLQQLSNRFGAISASLQEILS
MN306042.1      IANAFNNALHAIQQGFDATNSALVKIQAVVNANSEALNNLLQQLSNRFGAISASLQEILS
MH121121.1      IANAFNNALHAIQQGFDATNSALVKIQAVVNANAEALNNLLQQLSNRFGAISASLQEILS
KY983583.1      IANAFNNALHAIQQGFDATNSALVKIQAVVNANAEALNNLLQQLSNRFGAISASLQEILS
KU745533.1      IANAFNNALHAIQQGFDATNSALVKIQAVVNANAEALNNLLQQLSNRFGAISASLQEILS
MF374983.2      IANAFNNALHAIQQGFDATNSALVKIQAVVNANSEALNNLLQQLSNRFGAISASLQEILS
KX538964.1      IANAFNNALHAIQQGFDATNSALVKIQAVVNANAEALNNLLQQLSNRFGAISASLQEILS
KF572833.1      IANAFNNALHAIQQGFDATNSALVKIQAVVNANAEALNNLLQQLSNRFGAISASLQEILS
MG977444.1      IANAFNNALHAIQQGFDATNSALVKIQAVVNANSEALNNLLQQLSNRFGAISASLQEILS
KF923897.1      IANAFNNALHAIQQGFDATNSALVKIQAVVNANAEALNNLLQQLSNRFGAISASLQEILS
MK303619.1      IANAFNNALHAIQQGFDATNSALVKIQAVVNANSEALNNLLQQLSNRFGAISASLQEILS
KX344031.1      IANAFNNALHAIQQGFDATNSALVKIQAVVNANAEALNNLLQQLSNRFGAISASLQEILS
KF963240.1      IANAFNNALHSIQQGFDATNSALVKIQAVVNANAEALNNLLQQLSNRFGAISASLQEILS
KJ958218.1      IANAFNNALHAIQQGFDATNSALVKIQAVVNANAEALNNLLQQLSNRFGAISASLQEILS
KF572840.1      IANAFNNALHAIQQGFDATNSALVKIQAVVNANAEALNNLLQQLSNRFGAISASLQEILS
KF572818.1      IANAFNNALHAIQQGFDATNSALVKIQAVVNANAEALNNLLQQLSNRFGAISASLQEILS
KF923900.1      IANAFNNALHAIQQGFDATNSALVKIQAVVNANAEALNNLLQQLSNRFGAISASLQEILS
JN129834.1      IANAFNNALHAIQQGFDATNSALVKIQAVVNANAEALNNLLQQLSNRFGAISASLQEILS
AY903458.1      IANAFNNALHAIQQGFDATNSALVKIQAVVNANAEALNNLLQQLSNRFGAISASLQEILS
AY903460.1      IANAFNNALHAIQQGFDATNSALVKIQAVVNANAEALNNLLQQLSNRFGAISASLQEILS
KF963231.1      IANAFNNALYAIQQGFDATNSALVKIQAVVNANAEALNNLLQQLSNRFGAISASLQEILS
KF530068.1      IANAFNNALNAIQQGFDATNSALVKIQAVVNANAEALNNLLQQLSNRFGAISASLQEILS
KF963232.1      IANAFNNALHAIQQGFDATNSALVKIQAVVNANAEALNNLLQQLSNRFGAISASLQEILS
NC_006213.1     IANAFNNALYAIQEGFDATNSALVKIQAVVNANAEALNNLLQQLSNRFGAISASLQEILS
KF963229.1      IANAFNNALYAIQEGFDATNSALVKIQAVVNANAEALNNLLQQLSNRFGAISASLQEILS
NC_005147.1     IANAFNNALYAIQEGFDATNSALVKIQAVVNANAEALNNLLQQLSNRFGAISASLQEILS
KF530065.1      IANAFNNALDAIQEGFDATNSALVKIQAVVNANAEALNNLLQQLSNRFGAISSSLQEILS
KF530073.1      IANAFNNALDAIQEGFDATNSALVKIQAVVNANAEALNNLLQQLSNRFGAISSSLQEILS
```

```
KF530062.1      IANAFNNALDAIQEGFDATNSALVKIQAVVNANAEALNNLLQQLSNRFGAISSSLQEILS
KF530083.1      IANAFNNALDAIQEGFDATNSALVKIQAVVNANAEALNNLLQQLSNRFGAISSSLQEILS
MF314143.1      IANAFNNALDAIQEGFDATNSALVKIQAVVNANAEALNNLLQQLSNRFGAISSSLQEILS
KU131570.1      IANAFNNALDAIQEGFDATNSALVKIQAVVNANAEALNNLLQQLSNRFGAISSSLQEILS
KY014282.1      IANAFNNALDAIQEGFDATNSALVKIQAVVNANAEALNNLLQQLSNRFGAISSSLQEILS
KF923886.1      IANAFNNALDAIQEGFDATNSALVKIQAVVNANAEALNNLLQQLSNRFGAISSSLQEILS
KF923889.1      IANAFNNALDAIQEGFDATNSALVKIQAVVNANAEALNNLLQQLSNRFGAISSSLQEILS
MG197709.1      IANAFNNALDAIQEGFDATNSALVKIQAVVNANAEALNNLLQQLSNRFGAISSSLQEILS
KF572808.1      IANAFNNALDAIQEGFDATNSALVKIQAVVNANAEALNNLLQQLSNRFGAISSSLQEILS
KF963234.1      IANAFNNALDAIQEGFDATNSALVKIQAVVNANAEALNNLLQQLSNRFGAISSSLQEILS
                ******** :**:******************:*****************:*******

KF923914.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
KF923891.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
KF923890.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
KY554972.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
KY674917.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
KF923923.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
KF572872.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
MN306036.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
MN306053.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
MN306042.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
MH121121.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
KY983583.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
KU745533.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
MF374983.2      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
KX538964.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
KF572833.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
MG977444.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
KF923897.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
MK303619.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
KX344031.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
KF963240.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
KJ958218.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
KF572840.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
KF572818.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
KF923900.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
JN129834.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
AY903458.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
AY903460.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
KF963231.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
KF530068.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
KF963232.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
NC_006213.1     RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
KF963229.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
NC_005147.1     RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
KF530065.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
KF530073.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
KF530062.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
KF530083.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
MF314143.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
KU131570.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
KY014282.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
KF923886.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
KF923889.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
MG197709.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
```

```
KF572808.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
KF963234.1      RLDALEAEAQIDRLINGRLTALNAYVSQQLSDSTLVKFSAAQAMEKVNECVKSQSSRINF
                ************************************************************

KF923914.1      CGNGNHIISLVQNAPYGLYFIHFNYVPTKYVTAKVSPGLCIAGNRGIAPKSGYFVNVNNT
KF923891.1      CGNGNHIISLVQNAPYGLYFIHFNYVPTKYVTAKVSPGLCIAGNRGIAPKSGYFVNVNNT
KF923890.1      CGNGNHIISLVQNAPYGLYFIHFNYVPTKYVTAKVSPGLCIAGNRGIAPKSGYFVNVNNT
KY554972.1      CGNGNHIISLVQNAPYGLYFIHFNYVPTKYVTAKVSPGLCIAGNRGIAPKSGYFVNVNNT
KY674917.1      CGNGNHIISLVQNAPYGLYFIHFNYVPTKYVTAKVSPGLCIAGNRGIAPKSGYFVNVNNT
KF923923.1      CGNGNHIISLVQNAPYGLYFIHFNYVPTKYVTAKVSPGLCIAGNRGIAPKSGYFVNVNNT
KF572872.1      CGNGNHIISLVQNAPYGLYFIHFNYVPTKYVTAKVSPGLCIAGNRGIAPKSGYFVNVNNT
MN306036.1      CGNGNHIISLVQNAPYGLYFIHFNYVPTKYVTAKVSPGLCIAGNRGIAPKSGYFVNVNNT
MN306053.1      CGNGNHIISLVQNAPYGLYFIHFNYVPTKYVTAKVSPGLCIAGNRGIAPKSGYFVNVNNT
MN306042.1      CGNGNHIISLVQNAPYGLYFIHFNYVPTKYVTAKVSPGLCIAGNRGIAPKSGYFVNVNNT
MH121121.1      CGNGNHIISLVQNAPYGLYFIHFNYVPTKYVTAKVSPGLCIAGNRGIAPKSGYFVNVNNT
KY983583.1      CGNGNHIISLVQNAPYGLYFIHFNYVPTKYVTAKVSPGLCIAGNRGIAPKSGYFVNVNNT
KU745533.1      CGNGNHIISLVQNAPYGLYFIHFNYVPTKYVTAKVSPGLCIAGNRGIAPKSGYFVNVNNT
MF374983.2      CGNGNHIISLVQNAPYGLYFIHFNYVPTKYVTAKVSPGLCIAGNRGIAPKSGYFVNVNNT
KX538964.1      CGNGNHIISLVQNAPYGLYFIHFNYVPTKYVTAKVSPGLCIAGNRGIAPKSGYFVNVNNT
KF572833.1      CGNGNHIISLVQNAPYGLYFIHFNYVPTKYVTAKVSPGLCIAGNRGIAPKSGYFVNVNNT
MG977444.1      CGNGNHIISLVQNAPYGLYFIHFNYVPTKYVTAKVSPGLCIAGNRGIAPKSGYFVNVNNT
KF923897.1      CGNGNHIISLVQNAPYGLYFIHFNYVPTKYVTAKVSPGLCIAGNRGIAPKSGYFVNVNNT
MK303619.1      CGNGNHIISLVQNAPYGLYFIHFNYVPTKYVTAKVSPGLCIAGNRGIAPKSGYFVNVNNT
KX344031.1      CGNGNHIISLVQNAPYGLYFIHFNYVPTKYVTAKVSPGLCIAGNRGIAPKSGYFVNVNNT
KF963240.1      CGNGNHIISLVQNAPYGLYFIHFNYVPTKYVTAKVSPGLCIAGNRGIAPKSGYFVNVNNT
KJ958218.1      CGNGNHIISLVQNAPYGLYFIHFNYVPTKYVTAKVSPGLCIAGNRGIAPKSGYFVNVNNT
KF572840.1      CGNGNHIISLVQNAPYGLYFIHFNYVPTKYVTAKVSPGLCIAGNRGISPKSGYFVNVNNT
KF572818.1      CGNGNHIISLVQNAPYGLYFIHFNYVPTKYVTAKVSPGLCIAGNRGIAPKSGYFVNVNNT
KF923900.1      CGNGNHIISLVQNAPYGLYFIHFNYVPTKYVTAKVSPGLCIAGNRGIAPKSGYFVNVNNT
JN129834.1      CGNGNHIISLVQNAPYGLYFIHFNYVPTKYVTAKVSPGLCIAGNRGIAPKSGYFVNVNNT
AY903458.1      CGNGNHIISLVQNAPYGLYFIHFNYVPTKYVTAKVSPGLCIAGNRGIAPKSGYFVNVNNT
AY903460.1      CGNGNHIISLVQNAPYGLYFIHFNYVPTKYVTAKVSPGLCIAGNRGIAPKSGYFVNVNNT
KF963231.1      CGNGNHIISLVQNAPYGLYFIHFNYVPTKYVTAKVSPGLCIAGNRGIAPKSGYFVNVNNT
KF530068.1      CGNGNHIISLVQNAPYGLYFIHFNYVPTKYVTAKVSPGLCIAGNRGIAPKSGYFVNVNNT
KF963232.1      CGNGNHIISLVQNAPYGLYFIHFNYVPTKYVTAKVSPGLCIAGNRGIAPKSGYFVNVNNT
NC_006213.1     CGNGNHIISLVQNAPYGLYFIHFSYVPTKYVTARVSPGLCIAGDRGIAPKSGYFVNVNNT
KF963229.1      CGNGNHIISLVQNAPYGLYFIHFSYVPTKYVTARVSPGLCIAGDRGIAPKSGYFVNVNNT
NC_005147.1     CGNGNHIISLVQNAPYGLYFIHFSYVPTKYVTARVSPGLCIAGDRGIAPKSGYFVNVNNT
KF530065.1      CGNGNHIISLVQNAPYGLYFIHFSYVPTKYVTAKVSPGLCIAGDRGIAPKSGYFVNVNNT
KF530073.1      CGNGNHIISLVQNAPYGLYFIHFSYVPTKYVTAKVSPGLCIAGDRGIAPKSGYFVNVNNT
KF530062.1      CGNGNHIISLVQNAPYGLYFIHFSYVPTKYVTAKVSPGLCIAGDRGIAPKSGYFVNVNNT
KF530083.1      CGNGNHIISLVQNAPYGLYFIHFSYVPTKYVTAKVSPGLCIAGDRGIAPKSGYFVNVNNT
MF314143.1      CGNGNHIISLVQNAPYGLYFIHFSYVPTKYVTAKVSPGLCIAGDRGIAPKSGYFVNVNNT
KU131570.1      CGNGNHIISLVQNAPYGLYFIHFSYVPTKYVTAKVSTGLCIAGDRGIAPKSGYFVNVNNT
KY014282.1      CGNGNHIISLVQNAPYGLYFIHFSYVPTKYVTAKVSPGLCIAGDRGIAPKSGYFVNVNNT
KF923886.1      CGNGNHIISLVQNAPYGLYFIHFSYVPTKYVTAKVSPGLCIAGDRGIAPKSGYFVNVNNT
KF923889.1      CGNGNHIISLVQNAPYGLYFIHFSYVPTKYVTAKVSPGLCIAGDRGIAPKSGYFVNVNNT
MG197709.1      CGNGNHIISLVQNAPYGLYFIHFSYVPTKYVTAKVSPGLCIAGDRGIAPKSGYFVNVNNT
KF572808.1      CGNGNHIISLVQNAPYGLYFIHFSYVPTKYVTAKVSPGLCIAGDRGIAPKSGYFVNVNNT
KF963234.1      CGNGNHIISLVQNAPYGLYFIHFSYVPTKYVTAKVSPGLCIAGDRGIAPKSGYFVNVNNT
                **********************.*********:**.******:***:************

KF923914.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSIPNLPDFKEELDQWFKNQTS
KF923891.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSIPNLPDFKEELDQWFKNQTS
KF923890.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSIPNLPDFKEELDQWFKNQTS
KY554972.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSIPNLPDFKEELDQWLKNQTS
```

```
KY674917.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSIPNLPDFKEELDQWLKNQTS
KF923923.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSIPNLPDFKEELDQWFKNQTS
KF572872.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSIPNLPDFKEELDQWFKNQTS
MN306036.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSIPNLPDFKEELDQWFKNQTS
MN306053.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSIPNLPDFKEELDQWFKNQTS
MN306042.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSIPNLPDFKEELDQWFKNQTS
MH121121.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSIPNLPDFKEELDQWFKNQTS
KY983583.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSIPNLPDFKEELDQWFKNQTS
KU745533.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSIPNLPDFKEELDQWFKNQTS
MF374983.2      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSIPNLPDFKEELDQWFKNQTS
KX538964.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSIPNLPDFKEELDQWFKNQTS
KF572833.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSIPNLPDFKEELDQWFKNQTS
MG977444.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSIPNLPDFKEELDQWFKNQTS
KF923897.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSIPNLPDFKEELDQWFKNQTS
MK303619.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSIPNLPDFKEELGQWFKNQTS
KX344031.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSIPNLPDFKEELDQWFKNQTS
KF963240.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSIPNLPDFKEELDQWFKNQTS
KJ958218.1      WMYTGSGYYYPEPIIENNVVVMSTCAVNYTKAPYVMLNTSIPNLPDFKEELDQWFKNQTS
KF572840.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSIPNLPDFKEELDQWFKNQTS
KF572818.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSIPNLPDFKEELDQWFKNQTS
KF923900.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSIPNLPDFKEELDQWFKNQTS
JN129834.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSIPNLPDFKEELDQWFKNQTS
AY903458.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSIPNLPDFKEELDQWFKNQTS
AY903460.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSIPNLPDFKEELDQWFKNQTS
KF963231.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSIPNLPDFKEELDQWFKNQTS
KF530068.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSIPNLPDFKEELDQWFKNQTS
KF963232.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVILNTSIPNLPDFKEELDQWFKNQTS
NC_006213.1     WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSIPNLPDFKEELDQWFKNQTS
KF963229.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSIPNLPDFKEELDQWFKNQTS
NC_005147.1     WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSIPNLPDFKEELDQWFKNQTS
KF530065.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSTPNLPDFREELDQWFKNQTS
KF530073.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSTPNLPDFREELDQWFKNQTS
KF530062.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSTPNLPDFREELDQWFKNQTS
KF530083.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSTPNLPDFREELDQWFKNQTS
MF314143.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSTPNLPDFREELDQWFKNQTS
KU131570.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSTSNLPDFREELDQWFKNQTS
KY014282.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSTPNLPDFREELDQWFKNQTS
KF923886.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSIPNLPDFREELDQWFKNQTS
KF923889.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTPIPNLPDFREELDQWFKNQTS
MG197709.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSIPNLPDFREELDQWFKNQTS
KF572808.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSIPNLPDFREELDQWFKNQTS
KF963234.1      WMYTGSGYYYPEPITENNVVVMSTCAVNYTKAPYVMLNTSIPNLPDFREELDQWFKNQTS
                ************** ********************:***. .*****:***.**:*****

KF923914.1      VAPDLSLDYINVTFLDLQVEMNRLQEAIKVLNHSYINLKDIGTYEYYVKWPWYVWLLICL
KF923891.1      VAPDLSLDYINVTFLDLQVEMNRLQEAIKVLNHSYINLKDIGTYEYYVKWPWYVWLLICL
KF923890.1      VAPDLSLDYINVTFLDLQVEMNRLQEAIKVLNHSYINLKDIGTYEYYVKWPWYVWLLICL
KY554972.1      VAPDLSLDYINVTFLDLQVEMNRLQEAIKVLNHSYINLKDIGTYEYYVKWPWYVWLLICL
KY674917.1      VAPDLSLDYINVTFLDLQVEMNRLQEAIKVLNHSYINLKDIGTYEYYVKWPWYVWLLICL
KF923923.1      VAPDLSLDYINVTFLDLQVEMNRLQEAIKVLNHSYINLKDIGTYEYYVKWPWYVWLLICL
KF572872.1      VAPDLSLDYINVTFLDLQVEMNRLQEAIKVLNHSYINLKDIGTYEYYVKWPWYVWLLICL
MN306036.1      VAPDLSLDYINVTFLDLQVEMNRLQEAIKVLNHSYINLKDIGTYEYYVKWPWYVWLLICL
MN306053.1      VAPDLSLDYINVTFLDLQVEMNRLQEAIKVLNHSYINLKDIGTYEYYVKWPWYVWLLICL
MN306042.1      VAPDLSLDYINVTFLDLQVEMNRLQEAIKVLNHSYINLKDIGTYEYYVKWPWYVWLLICL
MH121121.1      VAPDLSLDYINVTFLDLQVEMNRLQEAIKVLNHSYINLKDIGTYEYYVKWPWYVWLLICL
KY983583.1      VAPDLSLDYINVTFLDLQVEMNRLQEAIKVLNHSYINLKDIGTYEYYVKWPWYVWLLICL
```

```
KU745533.1        VAPDLSLDYINVTFLDLQVEMNRLQEAIKVLNHSYINLKDIGTYEYYVKWPWYVWLLICL
MF374983.2        VAPDLSLDYINVTFLDLQVEMNRLQEAIKVLNHSYINLKDIGTYEYYVKWPWYVWLLICL
KX538964.1        VAPDLSLDYINVTFLDLQVEMNRLQEAIKVLNHSYINLKDIGTYEYYVKWPWYVWLLICL
KF572833.1        VAPDLSLDYINVTFLDLQVEMNRLQEAIKVLNHSYINLKDIGTYEYYVKWPWYVWLLICL
MG977444.1        VAPDLSLDYINVTFLDLQVEMNRLQEAIKVLNHSYINLKDIGTYEYYVKWPWYVWLLICL
KF923897.1        VAPHLSLDYINVTFLDLQVEMNRLQEAIKVLNHSYINLKDIGTYEYYVKWPWYVWLLISL
MK303619.1        VAPDLSLDYINVTFLDLQVEMNRLQEAIKVLNHSYINLKDIGTYEYYVKWPWYVWLLICL
KX344031.1        VAPHLSLDYINVTFLDLQVEMNRLQEAIKVLNHSYINLKDIGTYEYYVKWPWYVWLLICL
KF963240.1        VAPHLSLDYINVTFLDLQVEMNRLQEAIKVLNHSYINLKDIGTYEYYVKWPWYVWLLICL
KJ958218.1        VAPDLSLDYINVTFLDLQVEMNRLQEAIKVLNHSYINLKDIGTYEYYVKWPWYVWLLICL
KF572840.1        VAPDLSLDYINVTFLDLQVEMNRLQEAIKVLNHSYINLKDIGTYEYYVKWPWYVWLLICL
KF572818.1        VAPDLSLDYINVTFLDLQVEMNRLQEAIKVLNHSYINLKDIGTYEYYVKWPWYVWLLICL
KF923900.1        VAPDLSLDYINVTFLDLQVEMNRLQEAIKVLNHSYINLKDIGTYEYYVKWPWYVWLLICL
JN129834.1        VAPDLSLDYINVTFLDLQVEMNRLQEAIKVLNHSYINLKDIGTYEYYVKWPWYVWLLICL
AY903458.1        VAPDLSLDYINVTFLDLQVEMNRLQEAIKVLNHSYINLKDIGTYEYYVKWPWYVWLLICL
AY903460.1        VAPDLSLDYINVTFLDLQVEMNRLQEAIKVLNHSYINLKDIGTYEYYVKWPWYVWLLICL
KF963231.1        VARDLSLDYINVTFLDLQVEMNRLQEAIKVLNHSYINLKDIGTYEYYVKWPWYVWLLICL
KF530068.1        VAPDLSLDYINVTFLDLQVEMNRLQEAIKVLNHSYINLKDIGTYEYYVKWPWYVWLLICL
KF963232.1        VAPDLSLDYINVTFLDLQVEMNRLQEAIKVLNHSYINLKDIGTYEYYVKWPWYVWLLICL
NC_006213.1       VAPDLSLDYINVTFLDLQVEMNRLQEAIKVLNQSYINLKDIGTYEYYVKWPWYVWLLICL
KF963229.1        VAPDLSLDYINVTFLDLQVEMNRLQEAIKVLNQSYINLKDIGTYEYYVKWPWYVWLLICL
NC_005147.1       VAPDLSLDYINVTFLDLQVEMNRLQEAIKVLNQSYINLKDIGTYEYYVKWPWYVWLLICL
KF530065.1        VAPDLSLDYINVTFLDLQVEMNRLQEAIKVLNQSYINLKDIGTYEYYVKWPWYVWLLIGL
KF530073.1        VAPDLSLDYINVTFLDLQVEMNRLQEAIKVLNQSYINLKDIGTYEYYVKWPWYVWLLIGL
KF530062.1        VAPDLSLDYINVTFLDLQVEMNRLQEAIKVLNQSYINLKDIGTYEYYVKWPWYVWLLIGL
KF530083.1        VAPDLSLDYINVTFLDLQVEMNRLQEAIKVLNQSYINLKYIGTYEYYVKWPWYVWLLIGL
MF314143.1        VAPDLSLDYINVTLLDLQVEMNRLQEAIKVLNQSYINLKDIGTYEYYVKWPWYVWLLIGL
KU131570.1        VAPDLSLDYINVTLLDLQVEMNRLQEAIKVLNQSYINLKDIGTYEYYVKWPWYVWLLIGL
KY014282.1        VAPDLSLDYINVTLLDLQVEMNRLQEAIKVLNQSYINLKDIGTYEYYVKWPWYVWLLIGL
KF923886.1        VAPDLSLDYINVTFLDLQVEMNRLQEAIKVLNQSYINLKDIGTYEYYVKWPWYVWLLICL
KF923889.1        VAPDLSLDYINVTFLDLQVEINRLQEAIKVLNQSYINLKDIGTYEYYVKWPWYVWLLICL
MG197709.1        VAPDLSLDYINVTFLDLQVEMNRLQEAIKVLNQSYINLKDIGTYEYYVKWPWYVWLLICL
KF572808.1        VAPDLSLGYINVTFLDLQVEMNRLQEAIKVLNQSYINLKDIGTYEYYVKWPWYVWLLICL
KF963234.1        VAPDLSFDYINVTFLDLQVEMNRLQEAIKVLNQSYINLKDIGTYEYYVKWPWYVWLLICL
                  ** .**:.*****:******:**********:****** ***************** *

KF923914.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
KF923891.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
KF923890.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
KY554972.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
KY674917.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
KF923923.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
KF572872.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
MN306036.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
MN306053.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
MN306042.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
MH121121.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
KY983583.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
KU745533.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
MF374983.2        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
KX538964.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
KF572833.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
MG977444.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
KF923897.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
MK303619.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
KX344031.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
```

```
KF963240.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
KJ958218.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
KF572840.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
KF572818.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
KF923900.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
JN129834.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
AY903458.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
AY903460.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
KF963231.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
KF530068.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
KF963232.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
NC_006213.1       AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
KF963229.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
NC_005147.1       AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
KF530065.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
KF530073.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
KF530062.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQEFVIKTSHDD
KF530083.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
MF314143.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
KU131570.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
KY014282.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
KF923886.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
KF923889.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQESVIKTSHDD
MG197709.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
KF572808.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
KF963234.1        AGVAMLVLLFFICCCTGCGTSCFKKCGGCCDDYTGYQELVIKTSHDD
                  ************************************ ********
```

---

clustalw.dnd

```
(
(
(
(
(
(
(
(
(
(
(
NC_005147.1:0.00488,
(
NC_006213.1:0.00000,
KF963229.1:0.00222)
:0.00620)
:0.00705,
(
(
KF530062.1:0.00190,
(
KF530065.1:0.00000,
KF530073.1:0.00074)
:0.00032)
:0.00045,
```

KF530083.1:0.00102)
:0.01916)
:0.00991,
(
(
(
MG197709.1:0.00279,
(
(
(
(
MF314143.1:0.00177,
KU131570.1:0.00853)
:0.00048,
KY014282.1:0.00025)
:0.00346,
KF923886.1:0.00389)
:0.00022,
KF923889.1:0.00492)
:0.00116)
:0.00115,
KF572808.1:0.00491)
:0.00689,
KF963234.1:0.00448)
:0.00260)
:0.01952,
(
(
KF963231.1:0.00110,
KF530068.1:0.00037)
:0.00423,
KF963232.1:0.00496)
:0.00158)
:0.00538,
(
(
(
KF572818.1:0.00000,
KF923900.1:0.00000)
:0.00136,
JN129834.1:0.00085)
:0.00066,
(
AY903458.1:0.00074,
AY903460.1:0.00000)
:0.00081)
:0.00094)
:0.00145,
KF572840.1:0.00488)
:0.00315,
(
(
(
(
(
(

```
(
(
MN306036.1:0.00074,
MN306053.1:0.00074)
:0.00038,
MN306042.1:0.00109)
:0.00642,
(
MH121121.1:0.00000,
KY983583.1:0.00000)
:0.00131)
:0.00125,
KU745533.1:0.00096)
:0.00063,
MF374983.2:0.00250)
:0.00026,
(
KX538964.1:0.00074,
KF572833.1:0.00000)
:0.00103)
:0.00441,
(
(
MK303619.1:0.00334,
(
MG977444.1:0.00711,
KF923897.1:0.00173)
:0.00108)
:0.00129,
(
KX344031.1:0.00010,
KF963240.1:0.00285)
:0.00055)
:0.00103)
:0.00059,
KJ958218.1:0.00253)
:0.00019)
:0.00048,
KF572872.1:0.00117)
:0.00034,
KF923923.1:0.00153)
:0.00068,
(
KY554972.1:0.00000,
KY674917.1:0.00000)
:0.00147)
:0.00000,
KF923890.1:0.00000,
(
KF923914.1:0.00074,
KF923891.1:0.00000)
:0.00000);
```

Select tree menu ▼ Exec

CLUSTALW Result

Supplementary Material 3
Sequence Alignment of
SARS-CoV Isolates

[clustalw.aln][clustalw.dnd][readme]

Select tree menu ▼ Exec

```
 CLUSTAL 2.1 Multiple Sequence Alignments


Sequence type explicitly set to Protein
Sequence format is Pearson
Sequence 1: AY274119.3  1255 aa
Sequence 2: AY278554.2  1255 aa
Sequence 3: AY282752.2  1255 aa
Sequence 4: AY291315.1  1255 aa
Sequence 5: AH012999.2  1255 aa
Sequence 6: AY338174.1  1255 aa
Sequence 7: AP006561.1  1255 aa
Sequence 8: AY310120.1  1255 aa
Sequence 9: AY427439.1  1255 aa
Sequence 10: AY345988.1  1255 aa
Sequence 11: AY463060.1  1255 aa
Sequence 12: AY502924.1  1255 aa
Sequence 13: AY508724.1  1255 aa
Sequence 14: AY648300.1  1255 aa
Sequence 15: AY654624.1  1255 aa
Sequence 16: AY714217.1  1255 aa
Sequence 17: AY613952.1  1255 aa
Start of Pairwise alignments
Aligning...



Sequences (1:2) Aligned. Score: 99.761
Sequences (1:3) Aligned. Score: 99.9203
Sequences (1:4) Aligned. Score: 99.8406
Sequences (1:5) Aligned. Score: 99.4422
Sequences (1:6) Aligned. Score: 99.9203
Sequences (1:7) Aligned. Score: 99.9203
Sequences (1:8) Aligned. Score: 99.8406
Sequences (1:9) Aligned. Score: 99.9203
Sequences (1:10) Aligned. Score: 99.9203
Sequences (1:11) Aligned. Score: 99.761
Sequences (1:12) Aligned. Score: 99.9203
Sequences (1:13) Aligned. Score: 99.761
Sequences (1:14) Aligned. Score: 99.5219
Sequences (1:15) Aligned. Score: 99.6813
Sequences (1:16) Aligned. Score: 99.8406
Sequences (1:17) Aligned. Score: 98.4861
Sequences (2:3) Aligned. Score: 99.8406
Sequences (2:4) Aligned. Score: 99.761
```

Sequences (2:5) Aligned. Score: 99.3625
Sequences (2:6) Aligned. Score: 99.8406
Sequences (2:7) Aligned. Score: 99.8406
Sequences (2:8) Aligned. Score: 99.761
Sequences (2:9) Aligned. Score: 99.8406
Sequences (2:10) Aligned. Score: 99.8406
Sequences (2:11) Aligned. Score: 99.5219
Sequences (2:12) Aligned. Score: 99.8406
Sequences (2:13) Aligned. Score: 99.8406
Sequences (2:14) Aligned. Score: 99.761
Sequences (2:15) Aligned. Score: 99.761
Sequences (2:16) Aligned. Score: 99.761
Sequences (2:17) Aligned. Score: 98.7251
Sequences (3:4) Aligned. Score: 99.9203
Sequences (3:5) Aligned. Score: 99.5219
Sequences (3:6) Aligned. Score: 100
Sequences (3:7) Aligned. Score: 100
Sequences (3:8) Aligned. Score: 99.9203
Sequences (3:9) Aligned. Score: 100
Sequences (3:10) Aligned. Score: 100
Sequences (3:11) Aligned. Score: 99.6813
Sequences (3:12) Aligned. Score: 100
Sequences (3:13) Aligned. Score: 99.8406
Sequences (3:14) Aligned. Score: 99.6016
Sequences (3:15) Aligned. Score: 99.761
Sequences (3:16) Aligned. Score: 99.9203
Sequences (3:17) Aligned. Score: 98.5657
Sequences (4:5) Aligned. Score: 99.4422
Sequences (4:6) Aligned. Score: 99.9203
Sequences (4:7) Aligned. Score: 99.9203
Sequences (4:8) Aligned. Score: 100
Sequences (4:9) Aligned. Score: 99.9203
Sequences (4:10) Aligned. Score: 99.9203
Sequences (4:11) Aligned. Score: 99.6016
Sequences (4:12) Aligned. Score: 99.9203
Sequences (4:13) Aligned. Score: 99.761
Sequences (4:14) Aligned. Score: 99.5219
Sequences (4:15) Aligned. Score: 99.6813
Sequences (4:16) Aligned. Score: 99.8406
Sequences (4:17) Aligned. Score: 98.4861
Sequences (5:6) Aligned. Score: 99.5219
Sequences (5:7) Aligned. Score: 99.5219
Sequences (5:8) Aligned. Score: 99.4422
Sequences (5:9) Aligned. Score: 99.5219
Sequences (5:10) Aligned. Score: 99.5219
Sequences (5:11) Aligned. Score: 99.2032
Sequences (5:12) Aligned. Score: 99.5219
Sequences (5:13) Aligned. Score: 99.3625
Sequences (5:14) Aligned. Score: 99.1235
Sequences (5:15) Aligned. Score: 99.2829
Sequences (5:16) Aligned. Score: 99.4422
Sequences (5:17) Aligned. Score: 98.0876
Sequences (6:7) Aligned. Score: 100
Sequences (6:8) Aligned. Score: 99.9203
Sequences (6:9) Aligned. Score: 100
Sequences (6:10) Aligned. Score: 100

Sequences (6:11) Aligned. Score: 99.6813
Sequences (6:12) Aligned. Score: 100
Sequences (6:13) Aligned. Score: 99.8406
Sequences (6:14) Aligned. Score: 99.6016
Sequences (6:15) Aligned. Score: 99.761
Sequences (6:16) Aligned. Score: 99.9203
Sequences (6:17) Aligned. Score: 98.5657
Sequences (7:8) Aligned. Score: 99.9203
Sequences (7:9) Aligned. Score: 100
Sequences (7:10) Aligned. Score: 100
Sequences (7:11) Aligned. Score: 99.6813
Sequences (7:12) Aligned. Score: 100
Sequences (7:13) Aligned. Score: 99.8406
Sequences (7:14) Aligned. Score: 99.6016
Sequences (7:15) Aligned. Score: 99.761
Sequences (7:16) Aligned. Score: 99.9203
Sequences (7:17) Aligned. Score: 98.5657
Sequences (8:9) Aligned. Score: 99.9203
Sequences (8:10) Aligned. Score: 99.9203
Sequences (8:11) Aligned. Score: 99.6016
Sequences (8:12) Aligned. Score: 99.9203
Sequences (8:13) Aligned. Score: 99.761
Sequences (8:14) Aligned. Score: 99.5219
Sequences (8:15) Aligned. Score: 99.6813
Sequences (8:16) Aligned. Score: 99.8406
Sequences (8:17) Aligned. Score: 98.4861
Sequences (9:10) Aligned. Score: 100
Sequences (9:11) Aligned. Score: 99.6813
Sequences (9:12) Aligned. Score: 100
Sequences (9:13) Aligned. Score: 99.8406
Sequences (9:14) Aligned. Score: 99.6016
Sequences (9:15) Aligned. Score: 99.761
Sequences (9:16) Aligned. Score: 99.9203
Sequences (9:17) Aligned. Score: 98.5657
Sequences (10:11) Aligned. Score: 99.6813
Sequences (10:12) Aligned. Score: 100
Sequences (10:13) Aligned. Score: 99.8406
Sequences (10:14) Aligned. Score: 99.6016
Sequences (10:15) Aligned. Score: 99.761
Sequences (10:16) Aligned. Score: 99.9203
Sequences (10:17) Aligned. Score: 98.5657
Sequences (11:12) Aligned. Score: 99.6813
Sequences (11:13) Aligned. Score: 99.5219
Sequences (11:14) Aligned. Score: 99.2829
Sequences (11:15) Aligned. Score: 99.4422
Sequences (11:16) Aligned. Score: 99.6016
Sequences (11:17) Aligned. Score: 98.247
Sequences (12:13) Aligned. Score: 99.8406
Sequences (12:14) Aligned. Score: 99.6016
Sequences (12:15) Aligned. Score: 99.761
Sequences (12:16) Aligned. Score: 99.9203
Sequences (12:17) Aligned. Score: 98.5657
Sequences (13:14) Aligned. Score: 99.6016
Sequences (13:15) Aligned. Score: 99.761
Sequences (13:16) Aligned. Score: 99.761
Sequences (13:17) Aligned. Score: 98.5657

```
Sequences (14:15) Aligned. Score: 99.5219
Sequences (14:16) Aligned. Score: 99.5219
Sequences (14:17) Aligned. Score: 98.4861
Sequences (15:16) Aligned. Score: 99.6813
Sequences (15:17) Aligned. Score: 98.4861
Sequences (16:17) Aligned. Score: 98.4861
Guide tree file created:   [clustalw.dnd]

There are 16 groups
Start of Multiple Alignment

Aligning...
Group 1: Sequences:   2      Score:20831
Group 2: Sequences:   2      Score:20824
Group 3: Sequences:   2      Score:20849
Group 4: Sequences:   3      Score:20850
Group 5: Sequences:   4      Score:20851
Group 6: Sequences:   2      Score:20856
Group 7: Sequences:   3      Score:20846
Group 8: Sequences:   4      Score:20848
Group 9: Sequences:   8      Score:20848
Group 10: Sequences:   9      Score:20850
Group 11: Sequences:  11      Score:20831
Group 12: Sequences:  12      Score:20782
Group 13: Sequences:   2      Score:20826
Group 14: Sequences:  14      Score:20819
Group 15: Sequences:  16      Score:20810
Group 16: Sequences:  17      Score:20674
Alignment Score 1063793

CLUSTAL-Alignment file created  [clustalw.aln]
```

---

clustalw.aln

```
CLUSTAL 2.1 multiple sequence alignment


AY278554.2      MFIFLLFLTLTSGSDLDRCTTFDDVQAPNYTQHTSSMRGVYYPDEIFRSDTLYLTQDLFL
AY648300.1      MAIFLLFLTLTSGSDLDRCTTFDDVQAPNYTQHTSSMRGVYYPDEIFRSDTLYLTQDLFL
AY274119.3      MFIFLLFLTLTSGSDLDRCTTFDDVQAPNYTQHTSSMRGVYYPDEIFRSDTLYLTQDLFL
AY463060.1      MFIFLLFLTLTSGSDLDRCTTFDDVQAPNYTQHTSSMRGVYYPDEIFRSDTLYLTQDLFL
AY338174.1      MFIFLLFLTLTSGSDLDRCTTFDDVQAPNYTQHTSSMRGVYYPDEIFRSDTLYLTQDLFL
AY714217.1      MFIFLLFLTLTSGSDLDRCTTFDDVQAPNYTQHTSSMRGVYYPDEIFRSDTLYLTQDLFL
AY345988.1      MFIFLLFLTLTSGSDLDRCTTFDDVQAPNYTQHTSSMRGVYYPDEIFRSDTLYLTQDLFL
AP006561.1      MFIFLLFLTLTSGSDLDRCTTFDDVQAPNYTQHTSSMRGVYYPDEIFRSDTLYLTQDLFL
AY291315.1      MFIFLLFLTLTSGSDLDRCTTFDDVQAPNYTQHTSSMRGVYYPDEIFRSDTLYLTQDLFL
AY310120.1      MFIFLLFLTLTSGSDLDRCTTFDDVQAPNYTQHTSSMRGVYYPDEIFRSDTLYLTQDLFL
AY282752.2      MFIFLLFLTLTSGSDLDRCTTFDDVQAPNYTQHTSSMRGVYYPDEIFRSDTLYLTQDLFL
AY427439.1      MFIFLLFLTLTSGSDLDRCTTFDDVQAPNYTQHTSSMRGVYYPDEIFRSDTLYLTQDLFL
AY502924.1      MFIFLLFLTLTSGSDLDRCTTFDDVQAPNYTQHTSSMRGVYYPDEIFRSDTLYLTQDLFL
AH012999.2      MFIFLLFLTLTSGSDLDRCTTFDDVQAPNYTQHTSSMRGVYYPDEIFRSDTLYLTQDLFL
AY508724.1      MFIFLLFLTLTSGSDLDRCTTFDDVQAPNYTQHTSSMRGVYYPDEIFRSDTLYLTQDLFL
AY654624.1      MFIFLLFLTLTSGSDLDRCTTFDDVQAPNYTQHTSSMRGVYYPDEIFRSDTLYLTQDLFL
AY613952.1      MFIFLLFLTLTSGSDLDRCTTFDDVQAPNYTQHTSSMRGVYYPDEIFRSDTLYLTQDLFL
```

```
                * ********************************************************

AY278554.2      PFYSNVTGFHTINHTFDNPVIPFKDGIYFAATEKSNVVRGWVFGSTMNNKSQSVIIINNS
AY648300.1      PFYSNVTGFHTINHTFDNPVIPFKDGIYFAATEKSNVVRGWVFGSTMNNKSQSVIIINNS
AY274119.3      PFYSNVTGFHTINHTFGNPVIPFKDGIYFAATEKSNVVRGWVFGSTMNNKSQSVIIINNS
AY463060.1      PFYSNVTGFHTINHTFGNPVIPFKDGIYFAATEKSNVVRGWVFGSTMNNKSQSVIIINNS
AY338174.1      PFYSNVTGFHTINHTFGNPVIPFKDGIYFAATEKSNVVRGWVFGSTMNNKSQSVIIINNS
AY714217.1      PFYSNVTGFHTINHTFGNPVIPFKDGIYFAATEKSNVVRGWVFGSTMNNKSQSVIIINNS
AY345988.1      PFYSNVTGFHTINHTFGNPVIPFKDGIYFAATEKSNVVRGWVFGSTMNNKSQSVIIINNS
AP006561.1      PFYSNVTGFHTINHTFGNPVIPFKDGIYFAATEKSNVVRGWVFGSTMNNKSQSVIIINNS
AY291315.1      PFYSNVTGFHTINHTFGNPVIPFKDGIYFAATEKSNVVRGWVFGSTMNNKSQSVIIINNS
AY310120.1      PFYSNVTGFHTINHTFGNPVIPFKDGIYFAATEKSNVVRGWVFGSTMNNKSQSVIIINNS
AY282752.2      PFYSNVTGFHTINHTFGNPVIPFKDGIYFAATEKSNVVRGWVFGSTMNNKSQSVIIINNS
AY427439.1      PFYSNVTGFHTINHTFGNPVIPFKDGIYFAATEKSNVVRGWVFGSTMNNKSQSVIIINNS
AY502924.1      PFYSNVTGFHTINHTFGNPVIPFKDGIYFAATEKSNVVRGWVFGSTMNNKSQSVIIINNS
AH012999.2      PFYSNVTGFHTINHTFGNPVIPFKDGIYFAATEKSNVVRGWVFGSTMNNKSQSVIIISNS
AY508724.1      PFYSNVTGFHTINHTFGNPVIPFKDGIYFAATEKSNVVRGWVFGSTMNNKSQSVIIINNS
AY654624.1      PFYSNVTGFHTINHTFGNPVIPFKDGIYFAATEKSNVVRGWVFGSTMNNKSQSVIIINNS
AY613952.1      PFYSNVTGFHTINHTFDNPVIPFKDGIYFAATEKSNVVRGWVFGSTMNNKSQTVIIINNS
                ***************.**********************************:****.**

AY278554.2      TNVVIRACNFELCDNPFFAVSKPMGTQTHTMIFDNAFNCTFEYISDAFSLDVSEKSGNFK
AY648300.1      TNVVIRACNFELCDNPFFAVSKPMGTQTHTMIFDNAFNCTFEYISDAFSLDVSEKSGNFK
AY274119.3      TNVVIRACNFELCDNPFFAVSKPMGTQTHTMIFDNAFNCTFEYISDAFSLDVSEKSGNFK
AY463060.1      TNVVIRACNFELCDNPFFAVSKPMGTQTHTMIFDNAFNCTFEYISDAFSLDVSEKSGNFK
AY338174.1      TNVVIRACNFELCDNPFFAVSKPMGTQTHTMIFDNAFNCTFEYISDAFSLDVSEKSGNFK
AY714217.1      TNVVIRACNFELCDNPFFAVSKPMGTQTHTMIFDNAFNCTFEYISDAFSLDVSEKSGNFK
AY345988.1      TNVVIRACNFELCDNPFFAVSKPMGTQTHTMIFDNAFNCTFEYISDAFSLDVSEKSGNFK
AP006561.1      TNVVIRACNFELCDNPFFAVSKPMGTQTHTMIFDNAFNCTFEYISDAFSLDVSEKSGNFK
AY291315.1      TNVVIRACNFELCDNPFFAVSKPMGTQTHTMIFDNAFNCTFEYISDAFSLDVSEKSGNFK
AY310120.1      TNVVIRACNFELCDNPFFAVSKPMGTQTHTMIFDNAFNCTFEYISDAFSLDVSEKSGNFK
AY282752.2      TNVVIRACNFELCDNPFFAVSKPMGTQTHTMIFDNAFNCTFEYISDAFSLDVSEKSGNFK
AY427439.1      TNVVIRACNFELCDNPFFAVSKPMGTQTHTMIFDNAFNCTFEYISDAFSLDVSEKSGNFK
AY502924.1      TNVVIRACNFELCDNPFFAVSKPMGTQTHTMIFDNAFNCTFEYISDAFSLDVSEKSGNFK
AH012999.2      TNVVIRACNFELCDNPFFAVSKPMGTQTHTMIFDNAFNCTFEYISDAFSLDVSEKSGNFK
AY508724.1      TNVVIRACNFELCDNPFFAVSKPMGTQTHTMIFDNAFNCTFEYISDAFSLDVSEKSGNFK
AY654624.1      TNVVIRACNFELCDNPFFAVSKPMGTQTHTMIFDNAFNCTFEYISDAFSLDVSEKSGNFK
AY613952.1      TNVVIRACNFELCDNPFFVVSKPMGTRTHTMIFDNAFNCTFEYISDAFSLDVSEKSGNFK
                *****************.*******:******************************

AY278554.2      HLREFVFKNKDGFLYVYKGYQPIDVVRDLPSGFNTLKPIFKLPLGINITNFRAILTAFSP
AY648300.1      HLREFVFKNKDGFLYVYKGYQPIDVVRDLPSGFNTLKPIFKLPLGINITNFRAILTAFSP
AY274119.3      HLREFVFKNKDGFLYVYKGYQPIDVVRDLPSGFNTLKPIFKLPLGINITNFRAILTAFSP
AY463060.1      HLREFVFKNKDGFLYVYKGYQPIDVVRDLPSGFNTLKPIFKLPLGINITNFRAILTAFSP
AY338174.1      HLREFVFKNKDGFLYVYKGYQPIDVVRDLPSGFNTLKPIFKLPLGINITNFRAILTAFSP
AY714217.1      HLREFVFKNKDGFLYVYKGYQPIDVVRDLPSGFNTLKPIFKLPLGINITNFRAILTAFSP
AY345988.1      HLREFVFKNKDGFLYVYKGYQPIDVVRDLPSGFNTLKPIFKLPLGINITNFRAILTAFSP
AP006561.1      HLREFVFKNKDGFLYVYKGYQPIDVVRDLPSGFNTLKPIFKLPLGINITNFRAILTAFSP
AY291315.1      HLREFVFKNKDGFLYVYKGYQPIDVVRDLPSGFNTLKPIFKLPLGINITNFRAILTAFSP
AY310120.1      HLREFVFKNKDGFLYVYKGYQPIDVVRDLPSGFNTLKPIFKLPLGINITNFRAILTAFSP
AY282752.2      HLREFVFKNKDGFLYVYKGYQPIDVVRDLPSGFNTLKPIFKLPLGINITNFRAILTAFSP
AY427439.1      HLREFVFKNKDGFLYVYKGYQPIDVVRDLPSGFNTLKPIFKLPLGINITNFRAILTAFSP
AY502924.1      HLREFVFKNKDGFLYVYKGYQPIDVVRDLPSGFNTLKPIFKLPLGINITNFRAILTAFSP
AH012999.2      HLREFVFKNKDGSLYVYKGYQPIDVVRDLPSGFNTLKPIFKLPLGINITNFRAILTAFSP
AY508724.1      HLREFVFKNKDGFLYVYKGYQPIDVVRDLPSGFNTLKPIFKLPLGINITNFRAILTAFSP
AY654624.1      HLREFVFKNKDGFLYVYKGYQPIDVVRDLPSGFNTLKPIFKLPLGINITNFRAILTAFSP
```

```
AY613952.1      HLREFVFKNKDGFLYVYKGYQPIDVVRDLPSGFNTLKPIFKLPLGINITNFRAILTAFSP
                ************ ****************************************

AY278554.2      AQDTWGTSAAAYFVGYLKPTTFMLKYDENGTITDAVDCSQNPLAELKCSVKSFEIDKGIY
AY648300.1      AQDTWGTSAAAYFVGYLKPTTFMLKYDENGTITDAVDCSQNPLAELKCSVKSFEIDKGIY
AY274119.3      AQDIWGTSAAAYFVGYLKPTTFMLKYDENGTITDAVDCSQNPLAELKCSVKSFEIDKGIY
AY463060.1      AQDIWGTSAAAYFVGYLKPTTFMLKYDENGTITDAVDCSQNPLAELKCSVKSFEIDKGIY
AY338174.1      AQDIWGTSAAAYFVGYLKPTTFMLKYDENGTITDAVDCSQNPLAELKCSVKSFEIDKGIY
AY714217.1      AQDIWGTSAAAYFVGYLKPTTFMLKYDENGTITDAVDCSQNPLAELKCSVKSFEIDKGIY
AY345988.1      AQDIWGTSAAAYFVGYLKPTTFMLKYDENGTITDAVDCSQNPLAELKCSVKSFEIDKGIY
AP006561.1      AQDIWGTSAAAYFVGYLKPTTFMLKYDENGTITDAVDCSQNPLAELKCSVKSFEIDKGIY
AY291315.1      AQDIWGTSAAAYFVGYLKPTTFMLKYDENGTITDAVDCSQNPLAELKCSVKSFEIDKGIY
AY310120.1      AQDIWGTSAAAYFVGYLKPTTFMLKYDENGTITDAVDCSQNPLAELKCSVKSFEIDKGIY
AY282752.2      AQDIWGTSAAAYFVGYLKPTTFMLKYDENGTITDAVDCSQNPLAELKCSVKSFEIDKGIY
AY427439.1      AQDIWGTSAAAYFVGYLKPTTFMLKYDENGTITDAVDCSQNPLAELKCSVKSFEIDKGIY
AY502924.1      AQDIWGTSAAAYFVGYLKPTTFMLKYDENGTITDAVDCSQNPLAELKCSVKSFEIDKGIY
AH012999.2      AQDIWGTSAAAYFVGYLKPTTFMLKYDENGTITDAVDCSQNPLAELKCSVKSFEIDKGIY
AY508724.1      AQDTWGTSAAAYFVGYLKPTTFMLKYDENGTITDAVDCSQNPLAELKCSVKSFEIDKGIY
AY654624.1      AQDTWGTSAAAYFVGYLKPTTFMLKYDENGTITDAVDCSQNPLAELKCSVKSFEIDKGIY
AY613952.1      AQDTWGTSAAAYFVGYLKPTTFMLKYDENGTITDAVDCSQNPLAELKCSVKSFEIDKGIY
                *** ************************************************

AY278554.2      QTSNFRVVPSGDVVRFPNITNLCPFGEVFNATKFPSVYAWERKKISNCVADYSVLYNSTF
AY648300.1      QTSNFRVVPSGDVVRFPNITNLCPFGEVFNATKFPSVYAWERKKISNCVADYSVLYNSTF
AY274119.3      QTSNFRVVPSGDVVRFPNITNLCPFGEVFNATKFPSVYAWERKKISNCVADYSVLYNSTF
AY463060.1      QTSNFRVVPSGDVVRFPNITNLCPFGEVFNATKFPSVYAWERKKISNCVADYSVLYNSTF
AY338174.1      QTSNFRVVPSGDVVRFPNITNLCPFGEVFNATKFPSVYAWERKKISNCVADYSVLYNSTF
AY714217.1      QTSNFRVVPSGDVVRFPNITNLCPFGEVFNATKFPSVYAWERKKISNCVADYSVLYNSTF
AY345988.1      QTSNFRVVPSGDVVRFPNITNLCPFGEVFNATKFPSVYAWERKKISNCVADYSVLYNSTF
AP006561.1      QTSNFRVVPSGDVVRFPNITNLCPFGEVFNATKFPSVYAWERKKISNCVADYSVLYNSTF
AY291315.1      QTSNFRVVPSGDVVRFPNITNLCPFGEVFNATKFPSVYAWERKKISNCVADYSVLYNSTF
AY310120.1      QTSNFRVVPSGDVVRFPNITNLCPFGEVFNATKFPSVYAWERKKISNCVADYSVLYNSTF
AY282752.2      QTSNFRVVPSGDVVRFPNITNLCPFGEVFNATKFPSVYAWERKKISNCVADYSVLYNSTF
AY427439.1      QTSNFRVVPSGDVVRFPNITNLCPFGEVFNATKFPSVYAWERKKISNCVADYSVLYNSTF
AY502924.1      QTSNFRVVPSGDVVRFPNITNLCPFGEVFNATKFPSVYAWERKKISNCVADYSVLYNSTF
AH012999.2      QTSNFRVVPSGDVVRFPNITNLCPFGEVFNATKFPSVYAWERKKISNCVADYSVLYNSTF
AY508724.1      QTSNFRVVPSGDVVRFPNITNLCPFGEVFNATKFPSVYAWERKKISNCVADYSVLYNSTF
AY654624.1      QTSNFRVVPSGDVVRFPNITNLCPFGEVFNATKFPSVYAWERKKISNCVADYSVLYNSTF
AY613952.1      QTSNFRVVPSGDVVRFPNITNLCPFGEVFNATKFPSVYAWERKRISNCVADYSVLYNSTS
                ****************************************:***************

AY278554.2      FSTFKCYGVSATKLNDLCFSNVYADSFVVKGDDVRQIAPGQTGVIADYNYKLPDDFMGCV
AY648300.1      FSTFKCYGVSATKLNDLCFSNVYADSFVVKGDDVRQIAPGQTGVIADYNYKLPDDFMGCV
AY274119.3      FSTFKCYGVSATKLNDLCFSNVYADSFVVKGDDVRQIAPGQTGVIADYNYKLPDDFMGCV
AY463060.1      FSTFKCYGVSATKLNDLCFSNVYADSFVVKGDDVRQIAPGQTGVIADYNYKLPDDFMGCV
AY338174.1      FSTFKCYGVSATKLNDLCFSNVYADSFVVKGDDVRQIAPGQTGVIADYNYKLPDDFMGCV
AY714217.1      FSTFKCYGVSATKLNDLCFSNVYADSFVVKGDDVRQIAPGQTGVIADYNYKLPDDFMGCV
AY345988.1      FSTFKCYGVSATKLNDLCFSNVYADSFVVKGDDVRQIAPGQTGVIADYNYKLPDDFMGCV
AP006561.1      FSTFKCYGVSATKLNDLCFSNVYADSFVVKGDDVRQIAPGQTGVIADYNYKLPDDFMGCV
AY291315.1      FSTFKCYGVSATKLNDLCFSNVYADSFVVKGDDVRQIAPGQTGVIADYNYKLPDDFMGCV
AY310120.1      FSTFKCYGVSATKLNDLCFSNVYADSFVVKGDDVRQIAPGQTGVIADYNYKLPDDFMGCV
AY282752.2      FSTFKCYGVSATKLNDLCFSNVYADSFVVKGDDVRQIAPGQTGVIADYNYKLPDDFMGCV
AY427439.1      FSTFKCYGVSATKLNDLCFSNVYADSFVVKGDDVRQIAPGQTGVIADYNYKLPDDFMGCV
AY502924.1      FSTFKCYGVSATKLNDLCFSNVYADSFVVKGDDVRQIAPGQTGVIADYNYKLPDDFMGCV
AH012999.2      FSTFKCYGVSATKLNDLCFSNVYADSFVVKGDDVRQIAPGQTGVIADYNYKLPDDFMGCV
AY508724.1      FSTFKCYGVSATKLNDLCFSNVYADSFVVKGDDVRQIAPGQTGVIADYNYKLPDDFMGCV
```

```
AY654624.1      FSTFKCYGVSATKLNDLCFSNVYADSFVVKGDDVRQIAPGQTGVIADYNYKLPDDFMGCV
AY613952.1      FSTFKCYGVSATKLNDLCFSNVYADSFVVKGDDVRQIAPGQTGVIADYNYKLPDDFMGCV
                ************************************************************

AY278554.2      LAWNTRNIDATSTGNYNYKYRYLRHGKLRPFERDISNVPFSPDGKPCTPPALNCYWPLND
AY648300.1      LAWNTRNIDATSTGNYNYKYRYLKHGKLRPFERDISNVPFSPDGKPCTPPALNCYWPLND
AY274119.3      LAWNTRNIDATSTGNYNYKYRYLRHGKLRPFERDISNVPFSPDGKPCTPPALNCYWPLND
AY463060.1      LAWNTRNIDATSTGNYNYKYRYLRHGKLRPFERDISNVPFSPDGKPCTPPALNCYWPLND
AY338174.1      LAWNTRNIDATSTGNYNYKYRYLRHGKLRPFERDISNVPFSPDGKPCTPPALNCYWPLND
AY714217.1      LAWNTRNIDATSTGNYNYKYRYLRHGKLRPFERDISNVPFSPDGKPCTPPALNCYWPLND
AY345988.1      LAWNTRNIDATSTGNYNYKYRYLRHGKLRPFERDISNVPFSPDGKPCTPPALNCYWPLND
AP006561.1      LAWNTRNIDATSTGNYNYKYRYLRHGKLRPFERDISNVPFSPDGKPCTPPALNCYWPLND
AY291315.1      LAWNTRNIDATSTGNYNYKYRYLRHGKLRPFERDISNVPFSPDGKPCTPPALNCYWPLND
AY310120.1      LAWNTRNIDATSTGNYNYKYRYLRHGKLRPFERDISNVPFSPDGKPCTPPALNCYWPLND
AY282752.2      LAWNTRNIDATSTGNYNYKYRYLRHGKLRPFERDISNVPFSPDGKPCTPPALNCYWPLND
AY427439.1      LAWNTRNIDATSTGNYNYKYRYLRHGKLRPFERDISNVPFSPDGKPCTPPALNCYWPLND
AY502924.1      LAWNTRNIDATSTGNYNYKYRYLRHGKLRPFERDISNVPFSPDGKPCTPPALNCYWPLND
AH012999.2      LAWNTGNIDATSTGNYDYKYRYLRHGKLRPFERDISNVPFSPDGKPCTPPALNCYWPLND
AY508724.1      LAWNTRNIDATSTGNYNYKYRYLRHGKLRPFERDISNVPFSPDGKPCTPPALNCYWPLND
AY654624.1      LAWNTRNIDATSTGNYNYKYRYLRHGKLRPFERDISNVPFSPDGKPCTPPALNCYWPLND
AY613952.1      LAWNTRNIDATSTGNYNYKYRYLRHGKLRPFERDISNVPFSPDGKPCTPPAPNCYWPLRG
                ***** **********:******:************************* ******..

AY278554.2      YGFYTTTGIGYQPYRVVVLSFELLNAPATVCGPKLSTDLIKNQCVNFNFNGLTGTGVLTP
AY648300.1      YGFYTTTGIGYQPYRVVVLSFELLNAPATVCGPKLSTDLIKNQCVNFNFNGLTGTGVLTP
AY274119.3      YGFYTTTGIGYQPYRVVVLSFELLNAPATVCGPKLSTDLIKNQCVNFNFNGLTGTGVLTP
AY463060.1      YGFYTTTGIGYQPYRVVVLSFELLNAPATVCGPKLSTDLIKNQCVNFNFNGLTGTGVLTP
AY338174.1      YGFYTTTGIGYQPYRVVVLSFELLNAPATVCGPKLSTDLIKNQCVNFNFNGLTGTGVLTP
AY714217.1      YGFYTTTGIGYQPYRVVVLSFELLNAPATVCGPKLSTDLIKNQCVNFNFNGLTGTGVLTP
AY345988.1      YGFYTTTGIGYQPYRVVVLSFELLNAPATVCGPKLSTDLIKNQCVNFNFNGLTGTGVLTP
AP006561.1      YGFYTTTGIGYQPYRVVVLSFELLNAPATVCGPKLSTDLIKNQCVNFNFNGLTGTGVLTP
AY291315.1      YGFYTTTGIGYQPYRVVVLSFELLNAPATVCGPKLSTDLIKNQCVNFNFNGLTGTGVLTP
AY310120.1      YGFYTTTGIGYQPYRVVVLSFELLNAPATVCGPKLSTDLIKNQCVNFNFNGLTGTGVLTP
AY282752.2      YGFYTTTGIGYQPYRVVVLSFELLNAPATVCGPKLSTDLIKNQCVNFNFNGLTGTGVLTP
AY427439.1      YGFYTTTGIGYQPYRVVVLSFELLNAPATVCGPKLSTDLIKNQCVNFNFNGLTGTGVLTP
AY502924.1      YGFYTTTGIGYQPYRVVVLSFELLNAPATVCGPKLSTDLIKNQCVNFNFNGLTGTGVLTP
AH012999.2      YGFYTTTGIGYQPYRVVVLSFELLNAPATVCGPKLSTDLIKNQCVNFNFNGLTGTGVLTP
AY508724.1      YGFYTTTGIGYQPYRVVVLSFELLNAPATVCGPKLSTDLIKNQCVNFNFNGLTGTGVLTP
AY654624.1      YGFYTTTGIGYQPYRVVVLSFELLNAPATVCGPKLSTDLIKNQCVNFNFNGLTGTGVLTP
AY613952.1      YGFYTTSGIGYQPYRVVVLSFELLNAPATVCGPKLSTDLIKNQCVNFNFNGLTGTGVLTP
                ******:************************************************

AY278554.2      SSKRFQPFQQFGRDVSDFTDSVRDPKTSEILDISPCSFGGVSVITPGTNASSEVAVLYQD
AY648300.1      SSKRFQPFQQFGRDVSDFTDSVRDPKTSEILDISPCSFGGVSVITPGTNASSEVAVLYQD
AY274119.3      SSKRFQPFQQFGRDVSDFTDSVRDPKTSEILDISPCAFGGVSVITPGTNASSEVAVLYQD
AY463060.1      SSKRFQPFQQFGRDVSDFTDSVRDPKTSEILDISPCAFGGVSVITPGTNASSEVAVLYQD
AY338174.1      SSKRFQPFQQFGRDVSDFTDSVRDPKTSEILDISPCSFGGVSVITPGTNASSEVAVLYQD
AY714217.1      SSKRFQPFQQFGRDVSDFTDSVRDPKTSEILDISPCSFGGVSVITPGTNASSEVAVLYQD
AY345988.1      SSKRFQPFQQFGRDVSDFTDSVRDPKTSEILDISPCSFGGVSVITPGTNASSEVAVLYQD
AP006561.1      SSKRFQPFQQFGRDVSDFTDSVRDPKTSEILDISPCSFGGVSVITPGTNASSEVAVLYQD
AY291315.1      SSKRFQPFQQFGRDVSDFTDSVRDPKTSEILDISPCSFGGVSVITPGTNASSEVAVLYQD
AY310120.1      SSKRFQPFQQFGRDVSDFTDSVRDPKTSEILDISPCSFGGVSVITPGTNASSEVAVLYQD
AY282752.2      SSKRFQPFQQFGRDVSDFTDSVRDPKTSEILDISPCSFGGVSVITPGTNASSEVAVLYQD
AY427439.1      SSKRFQPFQQFGRDVSDFTDSVRDPKTSEILDISPCSFGGVSVITPGTNASSEVAVLYQD
AY502924.1      SSKRFQPFQQFGRDVSDFTDSVRDPKTSEILDISPCSFGGVSVITPGTNASSEVAVLYQD
AH012999.2      SSKRFQPFQQFGRDVSDFTDSVRDPKTSEILDISPCSFGGVSVITPGTNASSEVAVLYQD
```

```
AY508724.1      SSKRFQPFQQFGRDVSDFTDSVRDPKTSEILDISPCSFGGVSVITPGTNASSEVAVLYQD
AY654624.1      SSKRFQPFQQFGRDVSDFTDSVRDPKTSEILDISPCSFGGVSVITPGTNASSEVAVLYQD
AY613952.1      SSKRFQPFQQFGRDVSDFTDSVRDPKTSEILDISPCSFGGVSVITPGTNASSEVAVLYQD
                **********************************:**********************

AY278554.2      VNCTDVSTAIHADQLTPAWRIYSTGNNVFQTQAGCLIGAEHVDTSYECDIPIGAGICASY
AY648300.1      VNCTDVSTAIHADQLTPAWRIYSTGNNVFQTQAGCLIGAEHVDTSYECDIPIGAGICASY
AY274119.3      VNCTDVSTAIHADQLTPAWRIYSTGNNVFQTQAGCLIGAEHVDTSYECDIPIGAGICASY
AY463060.1      VNCTNVSAAIHADQLTPAWRIYSTGNNVFQTQAGCLIGAEHVDTSYECDIPIGAGICASY
AY338174.1      VNCTDVSTAIHADQLTPAWRIYSTGNNVFQTQAGCLIGAEHVDTSYECDIPIGAGICASY
AY714217.1      VNCTDVSTAIHADQLTPAWRIYSTGNNVFQTQAGCLIGAEHVDTSYECDIPVGAGICASY
AY345988.1      VNCTDVSTAIHADQLTPAWRIYSTGNNVFQTQAGCLIGAEHVDTSYECDIPIGAGICASY
AP006561.1      VNCTDVSTAIHADQLTPAWRIYSTGNNVFQTQAGCLIGAEHVDTSYECDIPIGAGICASY
AY291315.1      VNCTDVSTAIHADQLTPAWRIYSTGNNVFQTQAGCLIGAEHVDTSYECDIPIGAGICASY
AY310120.1      VNCTDVSTAIHADQLTPAWRIYSTGNNVFQTQAGCLIGAEHVDTSYECDIPIGAGICASY
AY282752.2      VNCTDVSTAIHADQLTPAWRIYSTGNNVFQTQAGCLIGAEHVDTSYECDIPIGAGICASY
AY427439.1      VNCTDVSTAIHADQLTPAWRIYSTGNNVFQTQAGCLIGAEHVDTSYECDIPIGAGICASY
AY502924.1      VNCTDVSTAIHADQLTPAWRIYSTGNNVFQTQAGCLIGAEHVDTSYECDIPIGAGICASY
AH012999.2      VNCTDVSTAIHADQLTPAWRIYSTGNNVFQTQAGCLIGAEHVDTSYECDIPIGAGICASY
AY508724.1      VNCTDVSTAIHADQLTPAWRIYSTGNNVFQTQAGCLIGAEHVDTSYECDIPIGAGICASY
AY654624.1      VNCTDVSTAIHADQLTPAWRIYSTGNNVFQTQAGCLIGAEHVDTSYECDIPIGAGICASY
AY613952.1      VNCTDVSTLIHAEQLTPAWRIYSTGNNVFQTQAGCLIGAEHVDTSYECDIPIGAGICASY
                ****:**: ***:************************************:********

AY278554.2      HTVSLLRSTSQKSIVAYTMSLGADSSIAYSNNTIAIPTNFSISITTEVMPVSMAKTSVDC
AY648300.1      HTVSLLRSTSQKSIVAYTMSLGADSSIAYSNNTIAIPTNFSISITTEVMPVSMAKTSVDC
AY274119.3      HTVSLLRSTSQKSIVAYTMSLGADSSIAYSNNTIAIPTNFSISITTEVMPVSMAKTSVDC
AY463060.1      HTVSLLRSTSQKSIVAYTMSLGADSSIAYSNNTIAIPTNFSISITTEVMPVSMAKTSVDC
AY338174.1      HTVSLLRSTSQKSIVAYTMSLGADSSIAYSNNTIAIPTNFSISITTEVMPVSMAKTSVDC
AY714217.1      HTVSLLRSTSQKSIVAYTMSLGADSSIAYSNNTIAIPTNFSISITTEVMPVSMAKTSVDC
AY345988.1      HTVSLLRSTSQKSIVAYTMSLGADSSIAYSNNTIAIPTNFSISITTEVMPVSMAKTSVDC
AP006561.1      HTVSLLRSTSQKSIVAYTMSLGADSSIAYSNNTIAIPTNFSISITTEVMPVSMAKTSVDC
AY291315.1      HTVSLLRSTSQKSIVAYTMSLGADSSIAYSNNTIAIPTNFSISITTEVMPVSMAKTSVDC
AY310120.1      HTVSLLRSTSQKSIVAYTMSLGADSSIAYSNNTIAIPTNFSISITTEVMPVSMAKTSVDC
AY282752.2      HTVSLLRSTSQKSIVAYTMSLGADSSIAYSNNTIAIPTNFSISITTEVMPVSMAKTSVDC
AY427439.1      HTVSLLRSTSQKSIVAYTMSLGADSSIAYSNNTIAIPTNFSISITTEVMPVSMAKTSVDC
AY502924.1      HTVSLLRSTSQKSIVAYTMSLGADSSIAYSNNTIAIPTNFSISITTEVMPVSMAKTSVDC
AH012999.2      HTVSLLRSTSQKSIVAYTMSLGADSSIAYSNNTIAIPTNFSISITTEVMPVSMAKTSVDC
AY508724.1      HTVSLLRSTSQKSIVAYTMSLGADSSIAYSNNTIAIPTNFSISITTEVMPVSMAKTSVDC
AY654624.1      HTVSLLRNTSQKSIVAYTMSLGADSSIAYSNNTIAIPTNFSISITTEVMPVSMAKTSVDC
AY613952.1      HTVSSLRSTSQKSIVAYTMSLGADSSIAYSNNTIAIPTNFSISITTEVMPVSMAKTSVDC
                **** **.************************************************

AY278554.2      NMYICGDSTECANLLLQYGSFCTQLNRALSGIAAEQDRNTREVFAQVKQMYKTPTLKYFG
AY648300.1      NMYICGDSTECANLLLQYGSFCTQLNRALSGIAAEQDRNTREVFAQVKQMYKTPTLKYFG
AY274119.3      NMYICGDSTECANLLLQYGSFCTQLNRALSGIAAEQDRNTREVFAQVKQMYKTPTLKYFG
AY463060.1      NMYICGDSTECANLLLQYGSFCTQLNRALSGIAAEQDRNTREVFAQVKQMYKTPTLKYFG
AY338174.1      NMYICGDSTECANLLLQYGSFCTQLNRALSGIAAEQDRNTREVFAQVKQMYKTPTLKYFG
AY714217.1      NMYICGDSTECANLLLQYGSFCTQLNRALSGIAAEQDRNTREVFAQVKQMYKTPTLKYFG
AY345988.1      NMYICGDSTECANLLLQYGSFCTQLNRALSGIAAEQDRNTREVFAQVKQMYKTPTLKYFG
AP006561.1      NMYICGDSTECANLLLQYGSFCTQLNRALSGIAAEQDRNTREVFAQVKQMYKTPTLKYFG
AY291315.1      NMYICGDSTECANLLLQYGSFCTQLNRALSGIAAEQDRNTREVFAQVKQMYKTPTLKYFG
AY310120.1      NMYICGDSTECANLLLQYGSFCTQLNRALSGIAAEQDRNTREVFAQVKQMYKTPTLKYFG
AY282752.2      NMYICGDSTECANLLLQYGSFCTQLNRALSGIAAEQDRNTREVFAQVKQMYKTPTLKYFG
AY427439.1      NMYICGDSTECANLLLQYGSFCTQLNRALSGIAAEQDRNTREVFAQVKQMYKTPTLKYFG
AY502924.1      NMYICGDSTECANLLLQYGSFCTQLNRALSGIAAEQDRNTREVFAQVKQMYKTPTLKYFG
```

```
AH012999.2      NMYICGDSTECANLLLQYGSFCTQLNRALSGIAAEQDRNTREVFAQVKQMYKTPTLKYFG
AY508724.1      NMYICGDSTECANLLLQYGSFCTQLNRALSGIAAEQDRNTREVFAQVKQMYKTPTLKYFG
AY654624.1      NMYICGDSTECANLLLQYGSFCTQLNRALSGIAAEQDRNTREVFAQVKQMYKTPTLKYFG
AY613952.1      NMYICGDSTECANLLLQYGSFCRQLNRALSGIAAEQDRNTREVFVQVKQMYKTPTLKDFG
                ********************* ********************.************ **

AY278554.2      GFNFSQILPDPLKPTKRSFIEDLLFNKVTLADAGFMKQYGECLGDINARDLICAQKFNGL
AY648300.1      GFNFSQILPDPLKPTKRSFIEDLLFNKVTLADAGFMKQYGECLGDINARDLICAQKFNGL
AY274119.3      GFNFSQILPDPLKPTKRSFIEDLLFNKVTLADAGFMKQYGECLGDINARDLICAQKFNGL
AY463060.1      GFNFSQILPDPLKPTKRSFIEDLLFNKVTLADAGFMKQYGECLGDINARDLICAQKFNGL
AY338174.1      GFNFSQILPDPLKPTKRSFIEDLLFNKVTLADAGFMKQYGECLGDINARDLICAQKFNGL
AY714217.1      GFNFSQILPDPLKPTKRSFIEDLLFNKVTLADAGFMKQYGECLGDINARDLICAQKFNGL
AY345988.1      GFNFSQILPDPLKPTKRSFIEDLLFNKVTLADAGFMKQYGECLGDINARDLICAQKFNGL
AP006561.1      GFNFSQILPDPLKPTKRSFIEDLLFNKVTLADAGFMKQYGECLGDINARDLICAQKFNGL
AY291315.1      GFNFSQILPDPLKPTKRSFIEDLLFNKVTLADAGFMKQYGECLGDINARDLICAQKFNGL
AY310120.1      GFNFSQILPDPLKPTKRSFIEDLLFNKVTLADAGFMKQYGECLGDINARDLICAQKFNGL
AY282752.2      GFNFSQILPDPLKPTKRSFIEDLLFNKVTLADAGFMKQYGECLGDINARDLICAQKFNGL
AY427439.1      GFNFSQILPDPLKPTKRSFIEDLLFNKVTLADAGFMKQYGECLGDINARDLICAQKFNGL
AY502924.1      GFNFSQILPDPLKPTKRSFIEDLLFNKVTLADAGFMKQYGECLGDINARDLICAQKFNGL
AH012999.2      GFNFSQILPDPLKPTKRSFIEDLPFNKVTLADAGFMKQYGECLGDINARDLICAQKFNGL
AY508724.1      GFNFSQILPDPLKPTKRSFIEDLLFNKVTLADAGFMKQYGECLGDINARDLICAQKFNGL
AY654624.1      GFNFSQILPDPLKPTKRSFIEDLLFNKVTLADAGFMKQYGECLGDINARDLICAQKFNGL
AY613952.1      GFNFSQILPDPLKPTKRSFIEDLLFNKVTLADAGFMKQYGECLGDINARDLICAQKFNGL
                ********************** ********************************

AY278554.2      TVLPPLLTDDMIAAYTAALVSGTATAGWTFGAGAALQIPFAMQMAYRFNGIGVTQNVLYE
AY648300.1      TVLPPLLTDDMIAAYTAALVSGTATAGWTFGAGAALQIPFAMQMAYRFNGIGVTQNVLYE
AY274119.3      TVLPPLLTDDMIAAYTAALVSGTATAGWTFGAGAALQIPFAMQMAYRFNGIGVTQNVLYE
AY463060.1      TVLPPLLTDDMIAAYTAALVSGTATAGWTFGAGAALQIPFAMQMAYRFNGIGVTQNVLYE
AY338174.1      TVLPPLLTDDMIAAYTAALVSGTATAGWTFGAGAALQIPFAMQMAYRFNGIGVTQNVLYE
AY714217.1      TVLPPLLTDDMIAAYTAALVSGTATAGWTFGAGAALQIPFAMQMAYRFNGIGVTQNVLYE
AY345988.1      TVLPPLLTDDMIAAYTAALVSGTATAGWTFGAGAALQIPFAMQMAYRFNGIGVTQNVLYE
AP006561.1      TVLPPLLTDDMIAAYTAALVSGTATAGWTFGAGAALQIPFAMQMAYRFNGIGVTQNVLYE
AY291315.1      TVLPPLLTDDMIAAYTAALVSGTATAGWTFGAGAALQIPFAMQMAYRFNGIGVTQNVLYE
AY310120.1      TVLPPLLTDDMIAAYTAALVSGTATAGWTFGAGAALQIPFAMQMAYRFNGIGVTQNVLYE
AY282752.2      TVLPPLLTDDMIAAYTAALVSGTATAGWTFGAGAALQIPFAMQMAYRFNGIGVTQNVLYE
AY427439.1      TVLPPLLTDDMIAAYTAALVSGTATAGWTFGAGAALQIPFAMQMAYRFNGIGVTQNVLYE
AY502924.1      TVLPPLLTDDMIAAYTAALVSGTATAGWTFGAGAALQIPFAMQMAYRFNGIGVTQNVLYE
AH012999.2      TVLPPLLTDDMIAAYTAALVSGTATAGWTFGAGAALQIPFAMQMAYRFNGIGVTQNVLYE
AY508724.1      TVLPPLLTDDMIAAYTAALVSGTATAGWTFGAGAALQIPFAMQMAYRFNGIGVTQNVLYE
AY654624.1      TVLPPLLTDDMIAAYTAALVSGTATAGWTFGAGAALQIPFAMQMAYRFNGIGVTQNVLYE
AY613952.1      TVLPPLLTDDMIAAYTAALVSGTATAGWTFGAGAALQIPFAMQMAYRFNGIGVTQNVLYE
                ************************************************************

AY278554.2      NQKQIANQFNKAISQIQESLTTTSTALGKLQDVVNQNAQALNTLVKQLSSNFGAISSVLN
AY648300.1      NQKQIANQFNKAISQIQESLTTTSTALGKLQDVVNQNAQALNTLVKQLSSNFGAISSVLN
AY274119.3      NQKQIANQFNKAISQIQESLTTTSTALGKLQDVVNQNAQALNTLVKQLSSNFGAISSVLN
AY463060.1      NQKQIANQFNKAISQIQESLTTTSTALGKLQDVVNQNAQALNTLVKQLSSNFGAISSVLN
AY338174.1      NQKQIANQFNKAISQIQESLTTTSTALGKLQDVVNQNAQALNTLVKQLSSNFGAISSVLN
AY714217.1      NQKQIANQFNKAISQIQESLTTTSTALGKLQDVVNQNAQALNTLVKQLSSNFGAISSVLN
AY345988.1      NQKQIANQFNKAISQIQESLTTTSTALGKLQDVVNQNAQALNTLVKQLSSNFGAISSVLN
AP006561.1      NQKQIANQFNKAISQIQESLTTTSTALGKLQDVVNQNAQALNTLVKQLSSNFGAISSVLN
AY291315.1      NQKQIANQFNKAISQIQESLTTTSTALGKLQDVVNQNAQALNTLVKQLSSNFGAISSVLN
AY310120.1      NQKQIANQFNKAISQIQESLTTTSTALGKLQDVVNQNAQALNTLVKQLSSNFGAISSVLN
AY282752.2      NQKQIANQFNKAISQIQESLTTTSTALGKLQDVVNQNAQALNTLVKQLSSNFGAISSVLN
AY427439.1      NQKQIANQFNKAISQIQESLTTTSTALGKLQDVVNQNAQALNTLVKQLSSNFGAISSVLN
```

```
AY502924.1      NQKQIANQFNKAISQIQESLTTTSTALGKLQDVVNQNAQALNTLVKQLSSNFGAISSVLN
AH012999.2      NQKQIANQFNKAISQIQESLTTTSTALGKLQDVVNQNAQALNTLVKQLSSNFGAISSVLN
AY508724.1      NQKQIANQFNKAISQIQESLTTTSTALGKLQDVVNQNAQALNTLVKQLSSNFGAISSVLN
AY654624.1      NQKQIANQFNKAISQIQESLTTTSTALGKLQDVVNQNAQALNTLVKQLSSNFGAISSVLN
AY613952.1      NQKQIANQFNKAISQIQESLTTTSTALGKLQDVVNQNAQALNTLVKQLSSNFGAISSVLN
                ************************************************************

AY278554.2      DILSRLDKVEAEVQIDRLITGRLQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSK
AY648300.1      DVLSRLDKVEAEVQIDRLITGRLQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSK
AY274119.3      DILSRLDKVEAEVQIDRLITGRLQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSK
AY463060.1      DILSRLDKVEAEVQIDRLITGRLQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSK
AY338174.1      DILSRLDKVEAEVQIDRLITGRLQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSK
AY714217.1      DILSRLDKVEAEVQIDRLITGRLQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSK
AY345988.1      DILSRLDKVEAEVQIDRLITGRLQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSK
AP006561.1      DILSRLDKVEAEVQIDRLITGRLQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSK
AY291315.1      DILSRLDKVEAEVQIDRLITGRLQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSK
AY310120.1      DILSRLDKVEAEVQIDRLITGRLQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSK
AY282752.2      DILSRLDKVEAEVQIDRLITGRLQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSK
AY427439.1      DILSRLDKVEAEVQIDRLITGRLQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSK
AY502924.1      DILSRLDKVEAEVQIDRLITGRLQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSK
AH012999.2      DILSRLDKVEAEVQIDRLITGRLQSLQTYVTQQLIRAAGIRASANLAATKMSECVLGQSK
AY508724.1      DILSRLDKVEAEVQIDRLITGRLQSLQTYVTQQLIRAAEIMASANLAATKMSECVLGQSK
AY654624.1      DILSRLDKVEAEVQIDRLITGRLQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSK
AY613952.1      DILSRLDKVEAEVQIDRLITGRLQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSK
                *:*********************************** * ******************

AY278554.2      RVDFCGKGYHLMSFPQAAPHGVVFLHVTYVPSQERNFTTAPAICHEGKAYFPREGVFVFN
AY648300.1      RVDFCGKGYHLMSFPQAAPHGVVFLHVTYVPSQERNFTTAPAICHEGKAYFPREGVFVFN
AY274119.3      RVDFCGKGYHLMSFPQAAPHGVVFLHVTYVPSQERNFTTAPAICHEGKAYFPREGVFVFN
AY463060.1      RVDFCGKGYHLMSFPQAAPHGVVFLHVTYVPSQERNFTTAPAICHEGKAYFPREGVFVFN
AY338174.1      RVDFCGKGYHLMSFPQAAPHGVVFLHVTYVPSQERNFTTAPAICHEGKAYFPREGVFVFN
AY714217.1      RVDFCGKGYHLMSFPQAAPHGVVFLHVTYVPSQERNFTTAPAICHEGKAYFPREGVFVFN
AY345988.1      RVDFCGKGYHLMSFPQAAPHGVVFLHVTYVPSQERNFTTAPAICHEGKAYFPREGVFVFN
AP006561.1      RVDFCGKGYHLMSFPQAAPHGVVFLHVTYVPSQERNFTTAPAICHEGKAYFPREGVFVFN
AY291315.1      RVDFCGKGYHLMSFPQAAPHGVVFLHVTYVPSQERNFTTAPAICHEGKAYFPREGVFVFN
AY310120.1      RVDFCGKGYHLMSFPQAAPHGVVFLHVTYVPSQERNFTTAPAICHEGKAYFPREGVFVFN
AY282752.2      RVDFCGKGYHLMSFPQAAPHGVVFLHVTYVPSQERNFTTAPAICHEGKAYFPREGVFVFN
AY427439.1      RVDFCGKGYHLMSFPQAAPHGVVFLHVTYVPSQERNFTTAPAICHEGKAYFPREGVFVFN
AY502924.1      RVDFCGKGYHLMSFPQAAPHGVVFLHVTYVPSQERNFTTAPAICHEGKAYFPREGVFVFN
AH012999.2      RVDFCGKGYHLMSFPQAAPHGVVFLHVTYVPSQERNFTTAPAICHEGKAYFPREGVFVFN
AY508724.1      RVDFCGKGYHLMSFPQAAPHGVVFLHVTYVPSQERNFTTAPAICHEGKAYFPREGVFVFN
AY654624.1      RVDFCGKGYHLMSFPQAAPHGVVFLHVTYVPSQERNFTTAPAICHEGKAYFPREGVFVFN
AY613952.1      RVDFCGKGYHLMSFPQAAPHGVVFLHVTYVPSQERNFTTAPAICHEGKAYFPREGVFVFN
                ************************************************************

AY278554.2      GTSWFITQRNFFSPQIITTDNTFVSGNCDVVIGIINNTVYDPLQPELDSFKEELDKYFKN
AY648300.1      GTSWFITQRNFFSPQIITTDNTFVSGNCDVVIGIINNTVYDPLQPELDSFKEELDKYFKN
AY274119.3      GTSWFITQRNFFSPQIITTDNTFVSGNCDVVIGIINNTVYDPLQPELDSFKEELDKYFKN
AY463060.1      GTSWFITQRNFFSPQIITTDNTFVSGNCDVVIGIINNTVYDPLQPELDSFKGELDKYFKN
AY338174.1      GTSWFITQRNFFSPQIITTDNTFVSGNCDVVIGIINNTVYDPLQPELDSFKEELDKYFKN
AY714217.1      GTSWFITQRNFFSPQIITTDNTFVSGNCDVVIGIINNTVYDPLQPELDSFKEELDKYFKN
AY345988.1      GTSWFITQRNFFSPQIITTDNTFVSGNCDVVIGIINNTVYDPLQPELDSFKEELDKYFKN
AP006561.1      GTSWFITQRNFFSPQIITTDNTFVSGNCDVVIGIINNTVYDPLQPELDSFKEELDKYFKN
AY291315.1      GTSWFITQRNFFSPQIITTDNTFVSGNCDVVIGIINNTVYDPLQPELDSFKEELDKYFKN
AY310120.1      GTSWFITQRNFFSPQIITTDNTFVSGNCDVVIGIINNTVYDPLQPELDSFKEELDKYFKN
AY282752.2      GTSWFITQRNFFSPQIITTDNTFVSGNCDVVIGIINNTVYDPLQPELDSFKEELDKYFKN
```

```
AY427439.1      GTSWFITQRNFFSPQIITTDNTFVSGNCDVVIGIINNTVYDPLQPELDSFKEELDKYFKN
AY502924.1      GTSWFITQRNFFSPQIITTDNTFVSGNCDVVIGIINNTVYDPLQPELDSFKEELDKYFKN
AH012999.2      GTSWFITQRNFFSPQIITTDNTFVSGNCDVVIGIINNTVYDPLQPELDSFKEELDKYFKN
AY508724.1      GTSWFITQRNFFSPQIITTDNTFVSGNCDVVIGIINNTVYDPLQPELDSFKEELDKYFKN
AY654624.1      GTSWFITQRNFFSPQIITTDNTFVSGKCDVVIGIINNTVYDPLQPELDSFKEELDKYFKN
AY613952.1      GTSWFITQRNFFSPQIITTDNTFVSGNCDVVIGIINNTVYDPLQPELDSFKEELDKYFKN
                **************************:********************** ********

AY278554.2      HTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDLQELGKYEQYIKWPWYVWL
AY648300.1      HTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDLQELGKYEQYIKWPWYVWL
AY274119.3      HTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDLQELGKYEQYIKWPWYVWL
AY463060.1      HTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDLQELGKYEQYIKWPWYVWL
AY338174.1      HTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDLQELGKYEQYIKWPWYVWL
AY714217.1      HTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDLQELGKYEQYIKWPWYVWL
AY345988.1      HTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDLQELGKYEQYIKWPWYVWL
AP006561.1      HTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDLQELGKYEQYIKWPWYVWL
AY291315.1      HTSPDVDFGDISGINASVVNIQKEIDRLNEVAKNLNESLIDLQELGKYEQYIKWPWYVWL
AY310120.1      HTSPDVDFGDISGINASVVNIQKEIDRLNEVAKNLNESLIDLQELGKYEQYIKWPWYVWL
AY282752.2      HTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDLQELGKYEQYIKWPWYVWL
AY427439.1      HTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDLQELGKYEQYIKWPWYVWL
AY502924.1      HTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDLQELGKYEQYIKWPWYVWL
AH012999.2      HTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDLQELGKYEQYIKWPWYVWL
AY508724.1      HTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDLQELGKYEQYIKWPWYVWL
AY654624.1      HTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDLQELGKYEQYIKWPWYVWL
AY613952.1      HTSPDVDLGDISGINASVVNIQEEIDRLNEVAKNLNESLIDLQELGKYEQYIKWPWYVWL
                *******:**************:***********************************

AY278554.2      GFIAGLIAIVMVTILLCCMTSCCSCLKGACSCGSCCKFDEDDSEPVLKGVKLHYT
AY648300.1      GFIAGLIAIVMVTILLCCMTSCCSCLKGACSCGSCCKFDEDDSEPVLKGVKLHYT
AY274119.3      GFIAGLIAIVMVTILLCCMTSCCSCLKGACSCGSCCKFDEDDSEPVLKGVKLHYT
AY463060.1      GFIAGLIAIVMVTILLCCMTSCCSCLKGACSCGSCCKFDEDDSEPVLKGVKLHYT
AY338174.1      GFIAGLIAIVMVTILLCCMTSCCSCLKGACSCGSCCKFDEDDSEPVLKGVKLHYT
AY714217.1      GFIAGLIAIVMVTILLCCMTSCCSCLKGACSCGSCCKFDEDDSEPVLKGVKLHYT
AY345988.1      GFIAGLIAIVMVTILLCCMTSCCSCLKGACSCGSCCKFDEDDSEPVLKGVKLHYT
AP006561.1      GFIAGLIAIVMVTILLCCMTSCCSCLKGACSCGSCCKFDEDDSEPVLKGVKLHYT
AY291315.1      GFIAGLIAIVMVTILLCCMTSCCSCLKGACSCGSCCKFDEDDSEPVLKGVKLHYT
AY310120.1      GFIAGLIAIVMVTILLCCMTSCCSCLKGACSCGSCCKFDEDDSEPVLKGVKLHYT
AY282752.2      GFIAGLIAIVMVTILLCCMTSCCSCLKGACSCGSCCKFDEDDSEPVLKGVKLHYT
AY427439.1      GFIAGLIAIVMVTILLCCMTSCCSCLKGACSCGSCCKFDEDDSEPVLKGVKLHYT
AY502924.1      GFIAGLIAIVMVTILLCCMTSCCSCLKGACSCGSCCKFDEDDSEPVLKGVKLHYT
AH012999.2      GFIAGLIAIVMVTILLCCMTSCCSCLKGACSCGSCCKFDEDDSEPVLKGVKLHYT
AY508724.1      GFIAGLIAIVMVTILLCCMTSCCSCLKGACSCGSCCKFDEDDSEPVLKGVKLHYT
AY654624.1      GFIAGLIAIVMVTILLCCMTSCCSCLKGACSCGSCCKFDEDDSEPVLKGVKLHYT
AY613952.1      GFIAGLIAIVMVTILLCCMTSCCSCLKGACSCGSCCKFDEDDSEPVLKGVKLHYT
                **************************************************
```

---

clustalw.dnd

```
(
(
(
(
(
AY274119.3:0.00000,
AY463060.1:0.00239)
```

```
:0.00080,
(
(
(
(
AY278554.2:0.00000,
AY648300.1:0.00239)
:0.00000,
AY613952.1:0.01275)
:0.00080,
(
AY508724.1:0.00080,
AY654624.1:0.00159)
:0.00000)
:0.00080,
AH012999.2:0.00478)
:0.00000)
:0.00000,
AY502924.1:0.00000)
:0.00000,
(
(
AY282752.2:0.00000,
(
AY291315.1:0.00000,
AY310120.1:0.00000)
:0.00080)
:0.00000,
AY427439.1:0.00000)
:0.00000)
:0.00000,
(
(
AY338174.1:0.00000,
AY714217.1:0.00080)
:0.00000,
AY345988.1:0.00000)
:0.00000,
AP006561.1:0.00000);
```

Select tree menu ▼ Exec

CLUSTALW Result

Supplementary Material 4
Sequence Alignment of
HuCoVHKU1 Isolates

[clustalw.aln][clustalw.dnd][readme]

Select tree menu ▼ Exec

```
 CLUSTAL 2.1 Multiple Sequence Alignments


Sequence type explicitly set to Protein
Sequence format is Pearson
Sequence 1: NC_006577.2  1356 aa
Sequence 2: AY884001     1351 aa
Sequence 3: DQ339101.1   1351 aa
Sequence 4: DQ415896     1356 aa
Sequence 5: DQ415897     1351 aa
Sequence 6: DQ415898     1351 aa
Sequence 7: DQ415899     1351 aa
Sequence 8: DQ415900     1356 aa
Sequence 9: DQ415901     1356 aa
Sequence 10: DQ415902     1351 aa
Sequence 11: DQ415903     1356 aa
Sequence 12: DQ415904     1356 aa
Sequence 13: DQ415905     1356 aa
Sequence 14: DQ415906     1356 aa
Sequence 15: DQ415907     1356 aa
Sequence 16: DQ415908     1356 aa
Sequence 17: DQ415909     1356 aa
Sequence 18: DQ415910     1356 aa
Sequence 19: DQ415911     1351 aa
Sequence 20: DQ415912     1351 aa
Sequence 21: DQ415913     1351 aa
Sequence 22: DQ415914     1356 aa
Sequence 23: MK167038.1   1351 aa
Sequence 24: MH940245.1   1351 aa
Sequence 25: LC315650.1   1356 aa
Sequence 26: LC315651.1   1352 aa
Sequence 27: KY983584.1   1356 aa
Sequence 28: KY674921.1   1352 aa
Sequence 29: KY674941.1   1356 aa
Sequence 30: KY674942.1   1356 aa
Sequence 31: KY674943.1   1356 aa
Sequence 32: KT779555.1   1356 aa
Sequence 33: KT779556.1   1356 aa
Sequence 34: KF686341.1   1356 aa
Sequence 35: KF686340.1   1356 aa
Sequence 36: KF686343.1   1356 aa
Sequence 37: KF686344.1   1356 aa
Sequence 38: KF686346.1   1356 aa
Sequence 39: KF430201.1   1355 aa
Start of Pairwise alignments
```

```
Aligning...


Sequences (1:2) Aligned. Score: 83.7898
Sequences (1:3) Aligned. Score: 84.0118
Sequences (1:4) Aligned. Score: 99.9263
Sequences (1:5) Aligned. Score: 83.8638
Sequences (1:6) Aligned. Score: 84.0118
Sequences (1:7) Aligned. Score: 83.8638
Sequences (1:8) Aligned. Score: 99.8525
Sequences (1:9) Aligned. Score: 99.8525
Sequences (1:10) Aligned. Score: 83.8638
Sequences (1:11) Aligned. Score: 99.8525
Sequences (1:12) Aligned. Score: 99.9263
Sequences (1:13) Aligned. Score: 99.9263
Sequences (1:14) Aligned. Score: 99.9263
Sequences (1:15) Aligned. Score: 99.9263
Sequences (1:16) Aligned. Score: 99.8525
Sequences (1:17) Aligned. Score: 99.8525
Sequences (1:18) Aligned. Score: 99.7788
Sequences (1:19) Aligned. Score: 83.7898
Sequences (1:20) Aligned. Score: 83.7898
Sequences (1:21) Aligned. Score: 83.8638
Sequences (1:22) Aligned. Score: 99.9263
Sequences (1:23) Aligned. Score: 85.1221
Sequences (1:24) Aligned. Score: 83.7898
Sequences (1:25) Aligned. Score: 99.5575
Sequences (1:26) Aligned. Score: 83.5059
Sequences (1:27) Aligned. Score: 99.2625
Sequences (1:28) Aligned. Score: 83.1361
Sequences (1:29) Aligned. Score: 99.6313
Sequences (1:30) Aligned. Score: 99.6313
Sequences (1:31) Aligned. Score: 99.6313
Sequences (1:32) Aligned. Score: 99.6313
Sequences (1:33) Aligned. Score: 99.5575
Sequences (1:34) Aligned. Score: 99.6313
Sequences (1:35) Aligned. Score: 99.6313
Sequences (1:36) Aligned. Score: 99.5575
Sequences (1:37) Aligned. Score: 99.4838
Sequences (1:38) Aligned. Score: 99.6313
Sequences (1:39) Aligned. Score: 99.262
Sequences (2:3) Aligned. Score: 99.3338
Sequences (2:4) Aligned. Score: 83.7898
Sequences (2:5) Aligned. Score: 99.2598
Sequences (2:6) Aligned. Score: 99.4078
Sequences (2:7) Aligned. Score: 99.2598
Sequences (2:8) Aligned. Score: 83.7898
Sequences (2:9) Aligned. Score: 83.7898
Sequences (2:10) Aligned. Score: 99.6299
Sequences (2:11) Aligned. Score: 83.7898
Sequences (2:12) Aligned. Score: 83.7898
Sequences (2:13) Aligned. Score: 83.7898
Sequences (2:14) Aligned. Score: 83.7898
Sequences (2:15) Aligned. Score: 83.7898
Sequences (2:16) Aligned. Score: 83.8638
```

Sequences (2:17) Aligned. Score: 83.7158
Sequences (2:18) Aligned. Score: 83.5677
Sequences (2:19) Aligned. Score: 99.6299
Sequences (2:20) Aligned. Score: 99.3338
Sequences (2:21) Aligned. Score: 99.2598
Sequences (2:22) Aligned. Score: 83.7898
Sequences (2:23) Aligned. Score: 96.9652
Sequences (2:24) Aligned. Score: 100
Sequences (2:25) Aligned. Score: 83.7158
Sequences (2:26) Aligned. Score: 99.1858
Sequences (2:27) Aligned. Score: 83.5677
Sequences (2:28) Aligned. Score: 99.1118
Sequences (2:29) Aligned. Score: 83.7158
Sequences (2:30) Aligned. Score: 83.7158
Sequences (2:31) Aligned. Score: 83.7158
Sequences (2:32) Aligned. Score: 83.7158
Sequences (2:33) Aligned. Score: 83.7158
Sequences (2:34) Aligned. Score: 83.7158
Sequences (2:35) Aligned. Score: 83.7158
Sequences (2:36) Aligned. Score: 83.7158
Sequences (2:37) Aligned. Score: 83.6417
Sequences (2:38) Aligned. Score: 83.7158
Sequences (2:39) Aligned. Score: 83.5677
Sequences (3:4) Aligned. Score: 84.0118
Sequences (3:5) Aligned. Score: 99.7779
Sequences (3:6) Aligned. Score: 99.926
Sequences (3:7) Aligned. Score: 99.7779
Sequences (3:8) Aligned. Score: 84.0118
Sequences (3:9) Aligned. Score: 84.0118
Sequences (3:10) Aligned. Score: 99.5559
Sequences (3:11) Aligned. Score: 84.0118
Sequences (3:12) Aligned. Score: 84.0118
Sequences (3:13) Aligned. Score: 84.0118
Sequences (3:14) Aligned. Score: 84.0118
Sequences (3:15) Aligned. Score: 84.0118
Sequences (3:16) Aligned. Score: 84.0859
Sequences (3:17) Aligned. Score: 83.9378
Sequences (3:18) Aligned. Score: 83.7898
Sequences (3:19) Aligned. Score: 99.4078
Sequences (3:20) Aligned. Score: 99.7039
Sequences (3:21) Aligned. Score: 99.7779
Sequences (3:22) Aligned. Score: 84.0118
Sequences (3:23) Aligned. Score: 97.0392
Sequences (3:24) Aligned. Score: 99.3338
Sequences (3:25) Aligned. Score: 83.9378
Sequences (3:26) Aligned. Score: 98.8897
Sequences (3:27) Aligned. Score: 83.7898
Sequences (3:28) Aligned. Score: 98.7417
Sequences (3:29) Aligned. Score: 83.9378
Sequences (3:30) Aligned. Score: 83.9378
Sequences (3:31) Aligned. Score: 83.9378
Sequences (3:32) Aligned. Score: 83.9378
Sequences (3:33) Aligned. Score: 83.9378
Sequences (3:34) Aligned. Score: 83.9378
Sequences (3:35) Aligned. Score: 83.9378
Sequences (3:36) Aligned. Score: 83.9378

Sequences (3:37) Aligned. Score: 83.8638
Sequences (3:38) Aligned. Score: 83.9378
Sequences (3:39) Aligned. Score: 83.7898
Sequences (4:5) Aligned. Score: 83.8638
Sequences (4:6) Aligned. Score: 84.0118
Sequences (4:7) Aligned. Score: 83.8638
Sequences (4:8) Aligned. Score: 99.9263
Sequences (4:9) Aligned. Score: 99.9263
Sequences (4:10) Aligned. Score: 83.8638
Sequences (4:11) Aligned. Score: 99.9263
Sequences (4:12) Aligned. Score: 100
Sequences (4:13) Aligned. Score: 100
Sequences (4:14) Aligned. Score: 100
Sequences (4:15) Aligned. Score: 100
Sequences (4:16) Aligned. Score: 99.9263
Sequences (4:17) Aligned. Score: 99.9263
Sequences (4:18) Aligned. Score: 99.705
Sequences (4:19) Aligned. Score: 83.7898
Sequences (4:20) Aligned. Score: 83.7898
Sequences (4:21) Aligned. Score: 83.8638
Sequences (4:22) Aligned. Score: 100
Sequences (4:23) Aligned. Score: 85.1221
Sequences (4:24) Aligned. Score: 83.7898
Sequences (4:25) Aligned. Score: 99.6313
Sequences (4:26) Aligned. Score: 83.5059
Sequences (4:27) Aligned. Score: 99.3363
Sequences (4:28) Aligned. Score: 83.1361
Sequences (4:29) Aligned. Score: 99.705
Sequences (4:30) Aligned. Score: 99.705
Sequences (4:31) Aligned. Score: 99.705
Sequences (4:32) Aligned. Score: 99.705
Sequences (4:33) Aligned. Score: 99.6313
Sequences (4:34) Aligned. Score: 99.705
Sequences (4:35) Aligned. Score: 99.705
Sequences (4:36) Aligned. Score: 99.6313
Sequences (4:37) Aligned. Score: 99.5575
Sequences (4:38) Aligned. Score: 99.705
Sequences (4:39) Aligned. Score: 99.3358
Sequences (5:6) Aligned. Score: 99.852
Sequences (5:7) Aligned. Score: 100
Sequences (5:8) Aligned. Score: 83.8638
Sequences (5:9) Aligned. Score: 83.8638
Sequences (5:10) Aligned. Score: 99.4819
Sequences (5:11) Aligned. Score: 83.8638
Sequences (5:12) Aligned. Score: 83.8638
Sequences (5:13) Aligned. Score: 83.8638
Sequences (5:14) Aligned. Score: 83.8638
Sequences (5:15) Aligned. Score: 83.8638
Sequences (5:16) Aligned. Score: 83.9378
Sequences (5:17) Aligned. Score: 83.7898
Sequences (5:18) Aligned. Score: 83.6417
Sequences (5:19) Aligned. Score: 99.3338
Sequences (5:20) Aligned. Score: 99.926
Sequences (5:21) Aligned. Score: 100
Sequences (5:22) Aligned. Score: 83.8638
Sequences (5:23) Aligned. Score: 97.0392

Sequences (5:24) Aligned. Score: 99.2598
Sequences (5:25) Aligned. Score: 83.7898
Sequences (5:26) Aligned. Score: 98.9637
Sequences (5:27) Aligned. Score: 83.6417
Sequences (5:28) Aligned. Score: 98.5196
Sequences (5:29) Aligned. Score: 83.7898
Sequences (5:30) Aligned. Score: 83.7898
Sequences (5:31) Aligned. Score: 83.7898
Sequences (5:32) Aligned. Score: 83.7898
Sequences (5:33) Aligned. Score: 83.7898
Sequences (5:34) Aligned. Score: 83.7898
Sequences (5:35) Aligned. Score: 83.7898
Sequences (5:36) Aligned. Score: 83.7898
Sequences (5:37) Aligned. Score: 83.7158
Sequences (5:38) Aligned. Score: 83.7898
Sequences (5:39) Aligned. Score: 83.6417
Sequences (6:7) Aligned. Score: 99.852
Sequences (6:8) Aligned. Score: 84.0118
Sequences (6:9) Aligned. Score: 84.0118
Sequences (6:10) Aligned. Score: 99.6299
Sequences (6:11) Aligned. Score: 84.0118
Sequences (6:12) Aligned. Score: 84.0118
Sequences (6:13) Aligned. Score: 84.0118
Sequences (6:14) Aligned. Score: 84.0118
Sequences (6:15) Aligned. Score: 84.0118
Sequences (6:16) Aligned. Score: 84.0859
Sequences (6:17) Aligned. Score: 83.9378
Sequences (6:18) Aligned. Score: 83.7898
Sequences (6:19) Aligned. Score: 99.4819
Sequences (6:20) Aligned. Score: 99.7779
Sequences (6:21) Aligned. Score: 99.852
Sequences (6:22) Aligned. Score: 84.0118
Sequences (6:23) Aligned. Score: 97.0392
Sequences (6:24) Aligned. Score: 99.4078
Sequences (6:25) Aligned. Score: 83.9378
Sequences (6:26) Aligned. Score: 98.9637
Sequences (6:27) Aligned. Score: 83.7898
Sequences (6:28) Aligned. Score: 98.6677
Sequences (6:29) Aligned. Score: 83.9378
Sequences (6:30) Aligned. Score: 83.9378
Sequences (6:31) Aligned. Score: 83.9378
Sequences (6:32) Aligned. Score: 83.9378
Sequences (6:33) Aligned. Score: 83.9378
Sequences (6:34) Aligned. Score: 83.9378
Sequences (6:35) Aligned. Score: 83.9378
Sequences (6:36) Aligned. Score: 83.9378
Sequences (6:37) Aligned. Score: 83.8638
Sequences (6:38) Aligned. Score: 83.9378
Sequences (6:39) Aligned. Score: 83.7898
Sequences (7:8) Aligned. Score: 83.8638
Sequences (7:9) Aligned. Score: 83.8638
Sequences (7:10) Aligned. Score: 99.4819
Sequences (7:11) Aligned. Score: 83.8638
Sequences (7:12) Aligned. Score: 83.8638
Sequences (7:13) Aligned. Score: 83.8638
Sequences (7:14) Aligned. Score: 83.8638

Sequences (7:15) Aligned. Score: 83.8638
Sequences (7:16) Aligned. Score: 83.9378
Sequences (7:17) Aligned. Score: 83.7898
Sequences (7:18) Aligned. Score: 83.6417
Sequences (7:19) Aligned. Score: 99.3338
Sequences (7:20) Aligned. Score: 99.926
Sequences (7:21) Aligned. Score: 100
Sequences (7:22) Aligned. Score: 83.8638
Sequences (7:23) Aligned. Score: 97.0392
Sequences (7:24) Aligned. Score: 99.2598
Sequences (7:25) Aligned. Score: 83.7898
Sequences (7:26) Aligned. Score: 98.9637
Sequences (7:27) Aligned. Score: 83.6417
Sequences (7:28) Aligned. Score: 98.5196
Sequences (7:29) Aligned. Score: 83.7898
Sequences (7:30) Aligned. Score: 83.7898
Sequences (7:31) Aligned. Score: 83.7898
Sequences (7:32) Aligned. Score: 83.7898
Sequences (7:33) Aligned. Score: 83.7898
Sequences (7:34) Aligned. Score: 83.7898
Sequences (7:35) Aligned. Score: 83.7898
Sequences (7:36) Aligned. Score: 83.7898
Sequences (7:37) Aligned. Score: 83.7158
Sequences (7:38) Aligned. Score: 83.7898
Sequences (7:39) Aligned. Score: 83.6417
Sequences (8:9) Aligned. Score: 100
Sequences (8:10) Aligned. Score: 83.8638
Sequences (8:11) Aligned. Score: 99.8525
Sequences (8:12) Aligned. Score: 99.9263
Sequences (8:13) Aligned. Score: 99.9263
Sequences (8:14) Aligned. Score: 99.9263
Sequences (8:15) Aligned. Score: 99.9263
Sequences (8:16) Aligned. Score: 99.8525
Sequences (8:17) Aligned. Score: 99.8525
Sequences (8:18) Aligned. Score: 99.6313
Sequences (8:19) Aligned. Score: 83.7898
Sequences (8:20) Aligned. Score: 83.7898
Sequences (8:21) Aligned. Score: 83.8638
Sequences (8:22) Aligned. Score: 99.9263
Sequences (8:23) Aligned. Score: 85.1221
Sequences (8:24) Aligned. Score: 83.7898
Sequences (8:25) Aligned. Score: 99.705
Sequences (8:26) Aligned. Score: 83.5059
Sequences (8:27) Aligned. Score: 99.41
Sequences (8:28) Aligned. Score: 83.1361
Sequences (8:29) Aligned. Score: 99.7788
Sequences (8:30) Aligned. Score: 99.7788
Sequences (8:31) Aligned. Score: 99.7788
Sequences (8:32) Aligned. Score: 99.7788
Sequences (8:33) Aligned. Score: 99.705
Sequences (8:34) Aligned. Score: 99.7788
Sequences (8:35) Aligned. Score: 99.7788
Sequences (8:36) Aligned. Score: 99.705
Sequences (8:37) Aligned. Score: 99.6313
Sequences (8:38) Aligned. Score: 99.7788
Sequences (8:39) Aligned. Score: 99.4096

Sequences (9:10) Aligned. Score: 83.8638
Sequences (9:11) Aligned. Score: 99.8525
Sequences (9:12) Aligned. Score: 99.9263
Sequences (9:13) Aligned. Score: 99.9263
Sequences (9:14) Aligned. Score: 99.9263
Sequences (9:15) Aligned. Score: 99.9263
Sequences (9:16) Aligned. Score: 99.8525
Sequences (9:17) Aligned. Score: 99.8525
Sequences (9:18) Aligned. Score: 99.6313
Sequences (9:19) Aligned. Score: 83.7898
Sequences (9:20) Aligned. Score: 83.7898
Sequences (9:21) Aligned. Score: 83.8638
Sequences (9:22) Aligned. Score: 99.9263
Sequences (9:23) Aligned. Score: 85.1221
Sequences (9:24) Aligned. Score: 83.7898
Sequences (9:25) Aligned. Score: 99.705
Sequences (9:26) Aligned. Score: 83.5059
Sequences (9:27) Aligned. Score: 99.41
Sequences (9:28) Aligned. Score: 83.1361
Sequences (9:29) Aligned. Score: 99.7788
Sequences (9:30) Aligned. Score: 99.7788
Sequences (9:31) Aligned. Score: 99.7788
Sequences (9:32) Aligned. Score: 99.7788
Sequences (9:33) Aligned. Score: 99.705
Sequences (9:34) Aligned. Score: 99.7788
Sequences (9:35) Aligned. Score: 99.7788
Sequences (9:36) Aligned. Score: 99.705
Sequences (9:37) Aligned. Score: 99.6313
Sequences (9:38) Aligned. Score: 99.7788
Sequences (9:39) Aligned. Score: 99.4096
Sequences (10:11) Aligned. Score: 83.8638
Sequences (10:12) Aligned. Score: 83.8638
Sequences (10:13) Aligned. Score: 83.8638
Sequences (10:14) Aligned. Score: 83.8638
Sequences (10:15) Aligned. Score: 83.8638
Sequences (10:16) Aligned. Score: 83.9378
Sequences (10:17) Aligned. Score: 83.7898
Sequences (10:18) Aligned. Score: 83.6417
Sequences (10:19) Aligned. Score: 99.7039
Sequences (10:20) Aligned. Score: 99.5559
Sequences (10:21) Aligned. Score: 99.4819
Sequences (10:22) Aligned. Score: 83.8638
Sequences (10:23) Aligned. Score: 97.1132
Sequences (10:24) Aligned. Score: 99.6299
Sequences (10:25) Aligned. Score: 83.7898
Sequences (10:26) Aligned. Score: 99.1858
Sequences (10:27) Aligned. Score: 83.6417
Sequences (10:28) Aligned. Score: 98.8897
Sequences (10:29) Aligned. Score: 83.7898
Sequences (10:30) Aligned. Score: 83.7898
Sequences (10:31) Aligned. Score: 83.7898
Sequences (10:32) Aligned. Score: 83.7898
Sequences (10:33) Aligned. Score: 83.7898
Sequences (10:34) Aligned. Score: 83.7898
Sequences (10:35) Aligned. Score: 83.7898
Sequences (10:36) Aligned. Score: 83.7898

Sequences (10:37) Aligned. Score: 83.7158
Sequences (10:38) Aligned. Score: 83.7898
Sequences (10:39) Aligned. Score: 83.7158
Sequences (11:12) Aligned. Score: 99.9263
Sequences (11:13) Aligned. Score: 99.9263
Sequences (11:14) Aligned. Score: 99.9263
Sequences (11:15) Aligned. Score: 99.9263
Sequences (11:16) Aligned. Score: 99.8525
Sequences (11:17) Aligned. Score: 99.8525
Sequences (11:18) Aligned. Score: 99.6313
Sequences (11:19) Aligned. Score: 83.7898
Sequences (11:20) Aligned. Score: 83.7898
Sequences (11:21) Aligned. Score: 83.8638
Sequences (11:22) Aligned. Score: 99.9263
Sequences (11:23) Aligned. Score: 85.1221
Sequences (11:24) Aligned. Score: 83.7898
Sequences (11:25) Aligned. Score: 99.5575
Sequences (11:26) Aligned. Score: 83.5059
Sequences (11:27) Aligned. Score: 99.2625
Sequences (11:28) Aligned. Score: 83.1361
Sequences (11:29) Aligned. Score: 99.6313
Sequences (11:30) Aligned. Score: 99.6313
Sequences (11:31) Aligned. Score: 99.6313
Sequences (11:32) Aligned. Score: 99.6313
Sequences (11:33) Aligned. Score: 99.5575
Sequences (11:34) Aligned. Score: 99.6313
Sequences (11:35) Aligned. Score: 99.6313
Sequences (11:36) Aligned. Score: 99.5575
Sequences (11:37) Aligned. Score: 99.4838
Sequences (11:38) Aligned. Score: 99.6313
Sequences (11:39) Aligned. Score: 99.262
Sequences (12:13) Aligned. Score: 100
Sequences (12:14) Aligned. Score: 100
Sequences (12:15) Aligned. Score: 100
Sequences (12:16) Aligned. Score: 99.9263
Sequences (12:17) Aligned. Score: 99.9263
Sequences (12:18) Aligned. Score: 99.705
Sequences (12:19) Aligned. Score: 83.7898
Sequences (12:20) Aligned. Score: 83.7898
Sequences (12:21) Aligned. Score: 83.8638
Sequences (12:22) Aligned. Score: 100
Sequences (12:23) Aligned. Score: 85.1221
Sequences (12:24) Aligned. Score: 83.7898
Sequences (12:25) Aligned. Score: 99.6313
Sequences (12:26) Aligned. Score: 83.5059
Sequences (12:27) Aligned. Score: 99.3363
Sequences (12:28) Aligned. Score: 83.1361
Sequences (12:29) Aligned. Score: 99.705
Sequences (12:30) Aligned. Score: 99.705
Sequences (12:31) Aligned. Score: 99.705
Sequences (12:32) Aligned. Score: 99.705
Sequences (12:33) Aligned. Score: 99.6313
Sequences (12:34) Aligned. Score: 99.705
Sequences (12:35) Aligned. Score: 99.705
Sequences (12:36) Aligned. Score: 99.6313
Sequences (12:37) Aligned. Score: 99.5575

Sequences (12:38) Aligned. Score: 99.705
Sequences (12:39) Aligned. Score: 99.3358
Sequences (13:14) Aligned. Score: 100
Sequences (13:15) Aligned. Score: 100
Sequences (13:16) Aligned. Score: 99.9263
Sequences (13:17) Aligned. Score: 99.9263
Sequences (13:18) Aligned. Score: 99.705
Sequences (13:19) Aligned. Score: 83.7898
Sequences (13:20) Aligned. Score: 83.7898
Sequences (13:21) Aligned. Score: 83.8638
Sequences (13:22) Aligned. Score: 100
Sequences (13:23) Aligned. Score: 85.1221
Sequences (13:24) Aligned. Score: 83.7898
Sequences (13:25) Aligned. Score: 99.6313
Sequences (13:26) Aligned. Score: 83.5059
Sequences (13:27) Aligned. Score: 99.3363
Sequences (13:28) Aligned. Score: 83.1361
Sequences (13:29) Aligned. Score: 99.705
Sequences (13:30) Aligned. Score: 99.705
Sequences (13:31) Aligned. Score: 99.705
Sequences (13:32) Aligned. Score: 99.705
Sequences (13:33) Aligned. Score: 99.6313
Sequences (13:34) Aligned. Score: 99.705
Sequences (13:35) Aligned. Score: 99.705
Sequences (13:36) Aligned. Score: 99.6313
Sequences (13:37) Aligned. Score: 99.5575
Sequences (13:38) Aligned. Score: 99.705
Sequences (13:39) Aligned. Score: 99.3358
Sequences (14:15) Aligned. Score: 100
Sequences (14:16) Aligned. Score: 99.9263
Sequences (14:17) Aligned. Score: 99.9263
Sequences (14:18) Aligned. Score: 99.705
Sequences (14:19) Aligned. Score: 83.7898
Sequences (14:20) Aligned. Score: 83.7898
Sequences (14:21) Aligned. Score: 83.8638
Sequences (14:22) Aligned. Score: 100
Sequences (14:23) Aligned. Score: 85.1221
Sequences (14:24) Aligned. Score: 83.7898
Sequences (14:25) Aligned. Score: 99.6313
Sequences (14:26) Aligned. Score: 83.5059
Sequences (14:27) Aligned. Score: 99.3363
Sequences (14:28) Aligned. Score: 83.1361
Sequences (14:29) Aligned. Score: 99.705
Sequences (14:30) Aligned. Score: 99.705
Sequences (14:31) Aligned. Score: 99.705
Sequences (14:32) Aligned. Score: 99.705
Sequences (14:33) Aligned. Score: 99.6313
Sequences (14:34) Aligned. Score: 99.705
Sequences (14:35) Aligned. Score: 99.705
Sequences (14:36) Aligned. Score: 99.6313
Sequences (14:37) Aligned. Score: 99.5575
Sequences (14:38) Aligned. Score: 99.705
Sequences (14:39) Aligned. Score: 99.3358
Sequences (15:16) Aligned. Score: 99.9263
Sequences (15:17) Aligned. Score: 99.9263
Sequences (15:18) Aligned. Score: 99.705

Sequences (15:19) Aligned. Score: 83.7898
Sequences (15:20) Aligned. Score: 83.7898
Sequences (15:21) Aligned. Score: 83.8638
Sequences (15:22) Aligned. Score: 100
Sequences (15:23) Aligned. Score: 85.1221
Sequences (15:24) Aligned. Score: 83.7898
Sequences (15:25) Aligned. Score: 99.6313
Sequences (15:26) Aligned. Score: 83.5059
Sequences (15:27) Aligned. Score: 99.3363
Sequences (15:28) Aligned. Score: 83.1361
Sequences (15:29) Aligned. Score: 99.705
Sequences (15:30) Aligned. Score: 99.705
Sequences (15:31) Aligned. Score: 99.705
Sequences (15:32) Aligned. Score: 99.705
Sequences (15:33) Aligned. Score: 99.6313
Sequences (15:34) Aligned. Score: 99.705
Sequences (15:35) Aligned. Score: 99.705
Sequences (15:36) Aligned. Score: 99.6313
Sequences (15:37) Aligned. Score: 99.5575
Sequences (15:38) Aligned. Score: 99.705
Sequences (15:39) Aligned. Score: 99.3358
Sequences (16:17) Aligned. Score: 99.8525
Sequences (16:18) Aligned. Score: 99.6313
Sequences (16:19) Aligned. Score: 83.8638
Sequences (16:20) Aligned. Score: 83.8638
Sequences (16:21) Aligned. Score: 83.9378
Sequences (16:22) Aligned. Score: 99.9263
Sequences (16:23) Aligned. Score: 85.1962
Sequences (16:24) Aligned. Score: 83.8638
Sequences (16:25) Aligned. Score: 99.5575
Sequences (16:26) Aligned. Score: 83.5799
Sequences (16:27) Aligned. Score: 99.2625
Sequences (16:28) Aligned. Score: 83.2101
Sequences (16:29) Aligned. Score: 99.6313
Sequences (16:30) Aligned. Score: 99.6313
Sequences (16:31) Aligned. Score: 99.6313
Sequences (16:32) Aligned. Score: 99.6313
Sequences (16:33) Aligned. Score: 99.5575
Sequences (16:34) Aligned. Score: 99.6313
Sequences (16:35) Aligned. Score: 99.6313
Sequences (16:36) Aligned. Score: 99.5575
Sequences (16:37) Aligned. Score: 99.4838
Sequences (16:38) Aligned. Score: 99.6313
Sequences (16:39) Aligned. Score: 99.262
Sequences (17:18) Aligned. Score: 99.6313
Sequences (17:19) Aligned. Score: 83.7158
Sequences (17:20) Aligned. Score: 83.7158
Sequences (17:21) Aligned. Score: 83.7898
Sequences (17:22) Aligned. Score: 99.9263
Sequences (17:23) Aligned. Score: 85.0481
Sequences (17:24) Aligned. Score: 83.7158
Sequences (17:25) Aligned. Score: 99.5575
Sequences (17:26) Aligned. Score: 83.432
Sequences (17:27) Aligned. Score: 99.2625
Sequences (17:28) Aligned. Score: 83.0621
Sequences (17:29) Aligned. Score: 99.6313

Sequences (17:30) Aligned. Score: 99.6313
Sequences (17:31) Aligned. Score: 99.6313
Sequences (17:32) Aligned. Score: 99.6313
Sequences (17:33) Aligned. Score: 99.5575
Sequences (17:34) Aligned. Score: 99.6313
Sequences (17:35) Aligned. Score: 99.6313
Sequences (17:36) Aligned. Score: 99.5575
Sequences (17:37) Aligned. Score: 99.4838
Sequences (17:38) Aligned. Score: 99.6313
Sequences (17:39) Aligned. Score: 99.262
Sequences (18:19) Aligned. Score: 83.5677
Sequences (18:20) Aligned. Score: 83.5677
Sequences (18:21) Aligned. Score: 83.6417
Sequences (18:22) Aligned. Score: 99.705
Sequences (18:23) Aligned. Score: 84.9001
Sequences (18:24) Aligned. Score: 83.5677
Sequences (18:25) Aligned. Score: 99.3363
Sequences (18:26) Aligned. Score: 83.284
Sequences (18:27) Aligned. Score: 99.0413
Sequences (18:28) Aligned. Score: 82.9142
Sequences (18:29) Aligned. Score: 99.41
Sequences (18:30) Aligned. Score: 99.41
Sequences (18:31) Aligned. Score: 99.41
Sequences (18:32) Aligned. Score: 99.41
Sequences (18:33) Aligned. Score: 99.3363
Sequences (18:34) Aligned. Score: 99.41
Sequences (18:35) Aligned. Score: 99.41
Sequences (18:36) Aligned. Score: 99.3363
Sequences (18:37) Aligned. Score: 99.2625
Sequences (18:38) Aligned. Score: 99.41
Sequences (18:39) Aligned. Score: 99.0406
Sequences (19:20) Aligned. Score: 99.4078
Sequences (19:21) Aligned. Score: 99.3338
Sequences (19:22) Aligned. Score: 83.7898
Sequences (19:23) Aligned. Score: 97.0392
Sequences (19:24) Aligned. Score: 99.6299
Sequences (19:25) Aligned. Score: 83.7158
Sequences (19:26) Aligned. Score: 99.3338
Sequences (19:27) Aligned. Score: 83.5677
Sequences (19:28) Aligned. Score: 98.8897
Sequences (19:29) Aligned. Score: 83.7158
Sequences (19:30) Aligned. Score: 83.7158
Sequences (19:31) Aligned. Score: 83.7158
Sequences (19:32) Aligned. Score: 83.7158
Sequences (19:33) Aligned. Score: 83.7158
Sequences (19:34) Aligned. Score: 83.7158
Sequences (19:35) Aligned. Score: 83.7158
Sequences (19:36) Aligned. Score: 83.7158
Sequences (19:37) Aligned. Score: 83.6417
Sequences (19:38) Aligned. Score: 83.7158
Sequences (19:39) Aligned. Score: 83.5677
Sequences (20:21) Aligned. Score: 99.926
Sequences (20:22) Aligned. Score: 83.7898
Sequences (20:23) Aligned. Score: 97.1132
Sequences (20:24) Aligned. Score: 99.3338
Sequences (20:25) Aligned. Score: 83.7158

Sequences (20:26) Aligned. Score: 99.0377
Sequences (20:27) Aligned. Score: 83.5677
Sequences (20:28) Aligned. Score: 98.5936
Sequences (20:29) Aligned. Score: 83.7158
Sequences (20:30) Aligned. Score: 83.7158
Sequences (20:31) Aligned. Score: 83.7158
Sequences (20:32) Aligned. Score: 83.7158
Sequences (20:33) Aligned. Score: 83.7158
Sequences (20:34) Aligned. Score: 83.7158
Sequences (20:35) Aligned. Score: 83.7158
Sequences (20:36) Aligned. Score: 83.7158
Sequences (20:37) Aligned. Score: 83.6417
Sequences (20:38) Aligned. Score: 83.7158
Sequences (20:39) Aligned. Score: 83.5677
Sequences (21:22) Aligned. Score: 83.8638
Sequences (21:23) Aligned. Score: 97.0392
Sequences (21:24) Aligned. Score: 99.2598
Sequences (21:25) Aligned. Score: 83.7898
Sequences (21:26) Aligned. Score: 98.9637
Sequences (21:27) Aligned. Score: 83.6417
Sequences (21:28) Aligned. Score: 98.5196
Sequences (21:29) Aligned. Score: 83.7898
Sequences (21:30) Aligned. Score: 83.7898
Sequences (21:31) Aligned. Score: 83.7898
Sequences (21:32) Aligned. Score: 83.7898
Sequences (21:33) Aligned. Score: 83.7898
Sequences (21:34) Aligned. Score: 83.7898
Sequences (21:35) Aligned. Score: 83.7898
Sequences (21:36) Aligned. Score: 83.7898
Sequences (21:37) Aligned. Score: 83.7158
Sequences (21:38) Aligned. Score: 83.7898
Sequences (21:39) Aligned. Score: 83.6417
Sequences (22:23) Aligned. Score: 85.1221
Sequences (22:24) Aligned. Score: 83.7898
Sequences (22:25) Aligned. Score: 99.6313
Sequences (22:26) Aligned. Score: 83.5059
Sequences (22:27) Aligned. Score: 99.3363
Sequences (22:28) Aligned. Score: 83.1361
Sequences (22:29) Aligned. Score: 99.705
Sequences (22:30) Aligned. Score: 99.705
Sequences (22:31) Aligned. Score: 99.705
Sequences (22:32) Aligned. Score: 99.705
Sequences (22:33) Aligned. Score: 99.6313
Sequences (22:34) Aligned. Score: 99.705
Sequences (22:35) Aligned. Score: 99.705
Sequences (22:36) Aligned. Score: 99.6313
Sequences (22:37) Aligned. Score: 99.5575
Sequences (22:38) Aligned. Score: 99.705
Sequences (22:39) Aligned. Score: 99.3358
Sequences (23:24) Aligned. Score: 96.9652
Sequences (23:25) Aligned. Score: 85.0481
Sequences (23:26) Aligned. Score: 97.1132
Sequences (23:27) Aligned. Score: 84.9001
Sequences (23:28) Aligned. Score: 96.3731
Sequences (23:29) Aligned. Score: 85.0481
Sequences (23:30) Aligned. Score: 85.0481

Sequences (23:31) Aligned. Score: 85.0481
Sequences (23:32) Aligned. Score: 85.0481
Sequences (23:33) Aligned. Score: 85.0481
Sequences (23:34) Aligned. Score: 85.0481
Sequences (23:35) Aligned. Score: 85.0481
Sequences (23:36) Aligned. Score: 85.0481
Sequences (23:37) Aligned. Score: 84.9741
Sequences (23:38) Aligned. Score: 85.0481
Sequences (23:39) Aligned. Score: 84.9001
Sequences (24:25) Aligned. Score: 83.7158
Sequences (24:26) Aligned. Score: 99.1858
Sequences (24:27) Aligned. Score: 83.5677
Sequences (24:28) Aligned. Score: 99.1118
Sequences (24:29) Aligned. Score: 83.7158
Sequences (24:30) Aligned. Score: 83.7158
Sequences (24:31) Aligned. Score: 83.7158
Sequences (24:32) Aligned. Score: 83.7158
Sequences (24:33) Aligned. Score: 83.7158
Sequences (24:34) Aligned. Score: 83.7158
Sequences (24:35) Aligned. Score: 83.7158
Sequences (24:36) Aligned. Score: 83.7158
Sequences (24:37) Aligned. Score: 83.6417
Sequences (24:38) Aligned. Score: 83.7158
Sequences (24:39) Aligned. Score: 83.5677
Sequences (25:26) Aligned. Score: 83.432
Sequences (25:27) Aligned. Score: 99.705
Sequences (25:28) Aligned. Score: 83.0621
Sequences (25:29) Aligned. Score: 99.4838
Sequences (25:30) Aligned. Score: 99.4838
Sequences (25:31) Aligned. Score: 99.4838
Sequences (25:32) Aligned. Score: 99.4838
Sequences (25:33) Aligned. Score: 99.41
Sequences (25:34) Aligned. Score: 99.4838
Sequences (25:35) Aligned. Score: 99.4838
Sequences (25:36) Aligned. Score: 99.41
Sequences (25:37) Aligned. Score: 99.9263
Sequences (25:38) Aligned. Score: 99.4838
Sequences (25:39) Aligned. Score: 99.1144
Sequences (26:27) Aligned. Score: 83.284
Sequences (26:28) Aligned. Score: 98.8905
Sequences (26:29) Aligned. Score: 83.432
Sequences (26:30) Aligned. Score: 83.432
Sequences (26:31) Aligned. Score: 83.432
Sequences (26:32) Aligned. Score: 83.432
Sequences (26:33) Aligned. Score: 83.432
Sequences (26:34) Aligned. Score: 83.432
Sequences (26:35) Aligned. Score: 83.432
Sequences (26:36) Aligned. Score: 83.432
Sequences (26:37) Aligned. Score: 83.358
Sequences (26:38) Aligned. Score: 83.432
Sequences (26:39) Aligned. Score: 83.284
Sequences (27:28) Aligned. Score: 82.9142
Sequences (27:29) Aligned. Score: 99.1888
Sequences (27:30) Aligned. Score: 99.1888
Sequences (27:31) Aligned. Score: 99.1888
Sequences (27:32) Aligned. Score: 99.1888

Sequences (27:33) Aligned. Score: 99.115
Sequences (27:34) Aligned. Score: 99.1888
Sequences (27:35) Aligned. Score: 99.1888
Sequences (27:36) Aligned. Score: 99.115
Sequences (27:37) Aligned. Score: 99.6313
Sequences (27:38) Aligned. Score: 99.1888
Sequences (27:39) Aligned. Score: 98.8192
Sequences (28:29) Aligned. Score: 83.0621
Sequences (28:30) Aligned. Score: 83.0621
Sequences (28:31) Aligned. Score: 83.0621
Sequences (28:32) Aligned. Score: 83.0621
Sequences (28:33) Aligned. Score: 83.0621
Sequences (28:34) Aligned. Score: 83.0621
Sequences (28:35) Aligned. Score: 83.0621
Sequences (28:36) Aligned. Score: 83.0621
Sequences (28:37) Aligned. Score: 82.9882
Sequences (28:38) Aligned. Score: 83.0621
Sequences (28:39) Aligned. Score: 82.9142
Sequences (29:30) Aligned. Score: 100
Sequences (29:31) Aligned. Score: 100
Sequences (29:32) Aligned. Score: 99.5575
Sequences (29:33) Aligned. Score: 99.4838
Sequences (29:34) Aligned. Score: 100
Sequences (29:35) Aligned. Score: 100
Sequences (29:36) Aligned. Score: 99.9263
Sequences (29:37) Aligned. Score: 99.41
Sequences (29:38) Aligned. Score: 100
Sequences (29:39) Aligned. Score: 99.631
Sequences (30:31) Aligned. Score: 100
Sequences (30:32) Aligned. Score: 99.5575
Sequences (30:33) Aligned. Score: 99.4838
Sequences (30:34) Aligned. Score: 100
Sequences (30:35) Aligned. Score: 100
Sequences (30:36) Aligned. Score: 99.9263
Sequences (30:37) Aligned. Score: 99.41
Sequences (30:38) Aligned. Score: 100
Sequences (30:39) Aligned. Score: 99.631
Sequences (31:32) Aligned. Score: 99.5575
Sequences (31:33) Aligned. Score: 99.4838
Sequences (31:34) Aligned. Score: 100
Sequences (31:35) Aligned. Score: 100
Sequences (31:36) Aligned. Score: 99.9263
Sequences (31:37) Aligned. Score: 99.41
Sequences (31:38) Aligned. Score: 100
Sequences (31:39) Aligned. Score: 99.631
Sequences (32:33) Aligned. Score: 99.9263
Sequences (32:34) Aligned. Score: 99.5575
Sequences (32:35) Aligned. Score: 99.5575
Sequences (32:36) Aligned. Score: 99.4838
Sequences (32:37) Aligned. Score: 99.41
Sequences (32:38) Aligned. Score: 99.5575
Sequences (32:39) Aligned. Score: 99.262
Sequences (33:34) Aligned. Score: 99.4838
Sequences (33:35) Aligned. Score: 99.4838
Sequences (33:36) Aligned. Score: 99.41
Sequences (33:37) Aligned. Score: 99.3363

```
Sequences (33:38) Aligned. Score: 99.4838
Sequences (33:39) Aligned. Score: 99.1882
Sequences (34:35) Aligned. Score: 100
Sequences (34:36) Aligned. Score: 99.9263
Sequences (34:37) Aligned. Score: 99.41
Sequences (34:38) Aligned. Score: 100
Sequences (34:39) Aligned. Score: 99.631
Sequences (35:36) Aligned. Score: 99.9263
Sequences (35:37) Aligned. Score: 99.41
Sequences (35:38) Aligned. Score: 100
Sequences (35:39) Aligned. Score: 99.631
Sequences (36:37) Aligned. Score: 99.3363
Sequences (36:38) Aligned. Score: 99.9263
Sequences (36:39) Aligned. Score: 99.5572
Sequences (37:38) Aligned. Score: 99.41
Sequences (37:39) Aligned. Score: 99.0406
Sequences (38:39) Aligned. Score: 99.631
Guide tree file created:   [clustalw.dnd]

There are 38 groups
Start of Multiple Alignment

Aligning...
Group 1: Sequences:   2      Score:22539
Group 2: Sequences:   2      Score:22559
Group 3: Sequences:   3      Score:22563
Group 4: Sequences:   4      Score:22565
Group 5: Sequences:   5      Score:22565
Group 6: Sequences:   6      Score:22566
Group 7: Sequences:   7      Score:22566
Group 8: Sequences:   9      Score:22544
Group 9: Sequences:  10      Score:22554
Group 10: Sequences:  11      Score:22552
Group 11: Sequences:   2      Score:22570
Group 12: Sequences:  13      Score:22551
Group 13: Sequences:   2      Score:22562
Group 14: Sequences:  15      Score:22524
Group 15: Sequences:   2      Score:22568
Group 16: Sequences:   3      Score:22568
Group 17: Sequences:   4      Score:22568
Group 18: Sequences:   5      Score:22568
Group 19: Sequences:   6      Score:22568
Group 20: Sequences:   7      Score:22558
Group 21: Sequences:   8      Score:22458
Group 22: Sequences:  23      Score:22508
Group 23: Sequences:   2      Score:22561
Group 24: Sequences:   3      Score:22523
Group 25: Sequences:  26      Score:22493
Group 26: Sequences:   2      Score:22462
Group 27: Sequences:   2      Score:22365
Group 28: Sequences:   4      Score:22297
Group 29: Sequences:   2      Score:22417
Group 30: Sequences:   6      Score:22288
Group 31: Sequences:   2      Score:22467
Group 32: Sequences:   3      Score:22467
Group 33: Sequences:   4      Score:22461
```

```
Group 34: Sequences:    5      Score:22446
Group 35: Sequences:    6      Score:22442
Group 36: Sequences:   12      Score:22272
Group 37: Sequences:   13      Score:22036
Group 38: Sequences:   39      Score:20303
Alignment Score 5911267

CLUSTAL-Alignment file created  [clustalw.aln]
```

---

clustalw.aln

```
CLUSTAL 2.1 multiple sequence alignment


NC_006577.2       MLLIIFILPTTLAVIGDFNCTNFAINDLNTTVPRISEYVVDVSYGLGTYYILDRVYLNTT
DQ415910          MLLIIFILPTTLAVIGDFNCTNFAINDLNTTVPRISEYVVDVSYGLGTYYILDRVYLNTT
DQ415896          MLLIIFILPTTLAVIGDFNCTNFAINDLNTTVPRISEYVVDVSYGLGTYYILDRVYLNTT
DQ415909          MLLIIFILPTTLAVIGDFNCTNFAINDLNTTVPRISEYVVDVSYGLGTYYILDRVYLNTT
DQ415904          MLLIIFILPTTLAVIGDFNCTNFAINDLNTTVPRISEYVVDVSYGLGTYYILDRVYLNTT
DQ415905          MLLIIFILPTTLAVIGDFNCTNFAINDLNTTVPRISEYVVDVSYGLGTYYILDRVYLNTT
DQ415907          MLLIIFILPTTLAVIGDFNCTNFAINDLNTTVPRISEYVVDVSYGLGTYYILDRVYLNTT
DQ415914          MLLIIFILPTTLAVIGDFNCTNFAINDLNTTVPRISEYVVDVSYGLGTYYILDRVYLNTT
DQ415906          MLLIIFILPTTLAVIGDFNCTNFAINDLNTTVPRISEYVVDVSYGLGTYYILDRVYLNTT
DQ415903          MLLIIFILPTTLAVIGDFNCTNFAINDLNTTVPRISEYVVDVSYGLGTYYILDRVYLNTT
DQ415908          MLLIIFILPTTLAVIGDFNCTNFAINDLNTTVPRISEYVVDVSYGLGTYYILDRVYLNTT
DQ415900          MLLIIFILPTTLAVIGDFNCTNFAINDKNTTVPRISEYVVDVSYGLGTYYILDRVYLNTT
DQ415901          MLLIIFILPTTLAVIGDFNCTNFAINDKNTTVPRISEYVVDVSYGLGTYYILDRVYLNTT
KT779555.1        MLLIIFILPTTLAVIGDFNCTNFAINDKNTTVPRISEYVVDVSYGLGTYYILDRVYLNTS
KT779556.1        MLLIIFILPTTLAVIGDFNCTNFAINDKNTTVPRISEYVVDVSYGLGTYYILDRVYLNTS
KY674941.1        MLLIIFILPTTLAVIGDFNCTNFAINDKNTTVPRISEYVVDVSYGLGTYYILDRVYLNTT
KY674942.1        MLLIIFILPTTLAVIGDFNCTNFAINDKNTTVPRISEYVVDVSYGLGTYYILDRVYLNTT
KY674943.1        MLLIIFILPTTLAVIGDFNCTNFAINDKNTTVPRISEYVVDVSYGLGTYYILDRVYLNTT
KF686341.1        MLLIIFILPTTLAVIGDFNCTNFAINDKNTTVPRISEYVVDVSYGLGTYYILDRVYLNTT
KF686340.1        MLLIIFILPTTLAVIGDFNCTNFAINDKNTTVPRISEYVVDVSYGLGTYYILDRVYLNTT
KF686346.1        MLLIIFILPTTLAVIGDFNCTNFAINDKNTTVPRISEYVVDVSYGLGTYYILDRVYLNTT
KF686343.1        MLLIIFILPTTLAVIGDFNCTNFAINDKNTTVPRISEYVVDVSYGLGTYYILDRVYLNTT
KF430201.1        MLLIIFILPTTLAVIGDFNCTNFAINDKNTTVPRISEYVVDVSYGLGTYYILDRVYLNTI
LC315650.1        MLLIIFILPTTLAVIGDFNCTNFAINDKNTTVPRISEYVVDVSYGLGTYYILDRVYLNTT
KF686344.1        MLLIIFILPTTLAVIGDFNCTNFAINDKNTTVPRISEYVVDVSYGLGTYYILDRVYLNTT
KY983584.1        MLLIIFILPTTLAVIGDFNCTNFAINDKNTTVPRISEYVVDVSHGLGTYYILDRVYLNTT
AY884001          MFLIIFILPTTLAVIGDFNCTNSFINDYNKTIPRISEDVVDVSLGLGTYYVLNRVYLNTT
MH940245.1        MFLIIFILPTTLAVIGDFNCTNSFINDYNKTIPRISEDVVDVSLGLGTYYVLNRVYLNTT
LC315651.1        MFLIIFILPTTLAVIGDFNCTNSFINHYNKTIPRISEDVVDVSLGLGTYYVLNRVYLNTT
KY674921.1        MFLIIFILPTTLAVIGDFNCTNSFINDYNKTIPRISEDVVDVSLGLGTYYVLNRVYLNTT
DQ415902          MFLIIFILPTTLAVIGDFNCTNSFINDYNKTIPRISEDVVDVSLGLGTYYVLNRVYLNTT
DQ415911          MFLIIFILPTTLAVIGDFNCTNSFINDYNKTIPRISEDVVDVSLGLGTYYVLNRVYLNTT
DQ415897          MFLIIFILPTTLAVIGDFNCTNSFINHYNKTIPRISEDVVDVSLGLGTYYVLNRVYLNTT
DQ415899          MFLIIFILPTTLAVIGDFNCTNSFINHYNKTIPRISEDVVDVSLGLGTYYVLNRVYLNTT
DQ415913          MFLIIFILPTTLAVIGDFNCTNSFINHYNKTIPRISEDVVDVSLGLGTYYVLNRVYLNTT
DQ415912          MFLIIFILPTTLAVIGDFNCTNSFINHYNKTIPRISEDVVDVSLGLGTYYVLNRVYLNTT
DQ415898          MFLIIFILPTTLAVIGDFNCTNSFINDYNKTIPRISEDVVDVSLGLGTYYVLNRVYLNTT
DQ339101.1        MFLIIFILPTTLAVIGDFNCTNSFINDYNKTIPRISEDVVDVSLGLGTYYVLNRVYLNTT
MK167038.1        MLLIIFILPTTLAVIGDFNCTNSFINHYNKTIPRISEDGVDVSLGLGTYYVLNRVYLNTT
                  *:*******************  **. *.*:*****  **** ******:*:******
```

```
NC_006577.2      ILFTGYFPKSGANFRDLSLKGTTYLSTLWYQKPFLSDFNNGIFSRVKNTKLYVNKTLYSE
DQ415910         ILFTGYFPKSGANFRDLSLKGTTYLSTLWYQKPFLSDFNNGIFSRVKNTKLYVNKTLYSE
DQ415896         ILFTGYFPKSGANFRDLSLKGTTYLSTLWYQKPFLSDFNNGIFSRVKNTKLYVNKTLYSE
DQ415909         ILFTGYFPKSGANFRDLSLKGTTYLSTLWYQKPFLSDFNNGIFSRVKNTKLYVNKTLYSE
DQ415904         ILFTGYFPKSGANFRDLSLKGTTYLSTLWYQKPFLSDFNNGIFSRVKNTKLYVNKTLYSE
DQ415905         ILFTGYFPKSGANFRDLSLKGTTYLSTLWYQKPFLSDFNNGIFSRVKNTKLYVNKTLYSE
DQ415907         ILFTGYFPKSGANFRDLSLKGTTYLSTLWYQKPFLSDFNNGIFSRVKNTKLYVNKTLYSE
DQ415914         ILFTGYFPKSGANFRDLSLKGTTYLSTLWYQKPFLSDFNNGIFSRVKNTKLYVNKTLYSE
DQ415906         ILFTGYFPKSGANFRDLSLKGTTYLSTLWYQKPFLSDFNNGIFSRVKNTKLYVNKTLYSE
DQ415903         ILFTGYFPKSGANFRDLSLKGTTYLSTLWYQKPFLSDFNNGIFSRVKNTKLYVNKTLYSE
DQ415908         ILFTGYFPKSGANFRDLSLKGTTYLSTLWYQKPFLSDFNNGIFSRVKNTKLYVNKTLYSE
DQ415900         ILFTGYFPKSGANFRDLSLKGTTYLSTLWYQKPFLSDFNNGIFSRVKNTKLYVNKTLYSE
DQ415901         ILFTGYFPKSGANFRDLSLKGTTYLSTLWYQKPFLSDFNNGIFSRVKNTKLYVNKTLYSE
KT779555.1       ILFTGYFPKSGANFRDLSLKGTTYLSTLWYQKPFLSDFNNGIFSRVKNTKLYVNKTLYSE
KT779556.1       ILFTGYFPKSGANFRDLSLKGTTYLSTLWYQKPFLSDFNNGIFSIVKNTKLYVNKTLYSE
KY674941.1       ILFTGYFPKSGANFRDLSLKGTTYLSTLWYQKPFLSDFNNGIFSRVKNTKLYVNKTLYSE
KY674942.1       ILFTGYFPKSGANFRDLSLKGTTYLSTLWYQKPFLSDFNNGIFSRVKNTKLYVNKTLYSE
KY674943.1       ILFTGYFPKSGANFRDLSLKGTTYLSTLWYQKPFLSDFNNGIFSRVKNTKLYVNKTLYSE
KF686341.1       ILFTGYFPKSGANFRDLSLKGTTYLSTLWYQKPFLSDFNNGIFSRVKNTKLYVNKTLYSE
KF686340.1       ILFTGYFPKSGANFRDLSLKGTTYLSTLWYQKPFLSDFNNGIFSRVKNTKLYVNKTLYSE
KF686346.1       ILFTGYFPKSGANFRDLSLKGTTYLSTLWYQKPFLSDFNNGIFSRVKNTKLYVNKTLYSE
KF686343.1       ILFTGYFPKSGANFRDLSLKGTTYLSTLWYQKPFLSDFNNGIFSRVKNTKLYVNKTLYSE
KF430201.1       ILFTGYFPKSGANFRDLSLKGTTYLSTLWYQKPFLSDFNNGIFSRVKNTKLYVNKTLYSE
LC315650.1       ILFTGYFPKAGANFRDLSLKGTTYLSTLWYQKPFLSDFNNGIFSRVKNTKLYVNKTLYSE
KF686344.1       ILFTGYFPKAGANFRDLSLKGTTYLSTLWYQKPFLSDFNNGIFSRVKNTKLYVNKTLYSE
KY983584.1       ILFTGYFPKAGANFRDLSLKGTTYLSTLWYQKPFLSDFNNGIFSRVKNTKLYVNKTLYSE
AY884001         LLFTGYFPKSGANFRDLALKGSKYLSTLWYKPPFLSDFNNGIFSKVKNTKLYVNNTLYSE
MH940245.1       LLFTGYFPKSGANFRDLALKGSKYLSTLWYKPPFLSDFNNGIFSKVKNTKLYVNNTLYSE
LC315651.1       LLFTGYFPKSGANFRDLALKGSTYLSTLWYKPPFLSDFNNGIFSKVKNTKLYVNNTLYSE
KY674921.1       LLFTGYFPKSGANFRDLALKGSKFLSTLWYKPPFLSDFNNGIFSKVKNTKLYVNNTLYSE
DQ415902         LLFTGYFPKSGANFRDLALKGSIYLSTLWYKPPFLSDFNNGIFSKVKNTKLYVNNTLYSE
DQ415911         LLFTGYFPKSGANFRDLALKGSIYLSTLWYKPPFLSDFNNGIFSKVKNTKLYVNNTLYSE
DQ415897         LLFTGYFPKSGANFRDLALKGSIYLSTLWYKPPFLSDFNNGIFSKVKNTKLYVNNTLYSE
DQ415899         LLFTGYFPKSGANFRDLALKGSIYLSTLWYKPPFLSDFNNGIFSKVKNTKLYVNNTLYSE
DQ415913         LLFTGYFPKSGANFRDLALKGSIYLSTLWYKPPFLSDFNNGIFSKVKNTKLYVNNTLYSE
DQ415912         LLFTGYFPKSGANFRDLALKGSIYLSTLWYKPPFLSDFNNGIFSKVKNTKLYVNNTLYSE
DQ415898         LLFTGYFPKSGANFRDLALKGSIYLSTLWYKPPFLSDFNNGIFSKVKNTKLYVNNTLYSE
DQ339101.1       LLFTGYFPKSGANFRDLALKGSIYLSTLWYKPPFLSDFNNGIFSKVKNTKLYVNNTLYSE
MK167038.1       LLFTGYFPKSGANFTDLALKGSTYLSTLWYKPPFLSDFNNGIFSKVKNTKLYVNNILYSE
                 :********:**** **:***: :******: *********** *********: ****

NC_006577.2      FSTIVIGSVFINNSYTIVVQPHNGVLEITACQYTMCEYPHTICKSKGSSRNESWHFDKSE
DQ415910         FSTIVIGSVFINNSYTIVVQPHNGVLEITACQYTMCEYPHTICKSKGSSRNESWHFDKSE
DQ415896         FSTIVIGSVFINNSYTIVVQPHNGVLEITACQYTMCEYPHTICKSKGSSRNESWHFDKSE
DQ415909         FSTIVIGSVFINNSYTIVVQPHNGVLEITACQYTMCEYPYTICKSKGSSRNESWHFDKSE
DQ415904         FSTIVIGSVFINNSYTIVVQPHNGVLEITACQYTMCEYPHTICKSKGSSRNESWHFDKSE
DQ415905         FSTIVIGSVFINNSYTIVVQPHNGVLEITACQYTMCEYPHTICKSKGSSRNESWHFDKSE
DQ415907         FSTIVIGSVFINNSYTIVVQPHNGVLEITACQYTMCEYPHTICKSKGSSRNESWHFDKSE
DQ415914         FSTIVIGSVFINNSYTIVVQPHNGVLEITACQYTMCEYPHTICKSKGSSRNESWHFDKSE
DQ415906         FSTIVIGSVFINNSYTIVVQPHNGVLEITACQYTMCEYPHTICKSKGSSRNESWHFDKSE
DQ415903         FSTIVIGSVFINNSYTIVVQPHNGVLEITACQYTMCEYPHTICKSKGSSRNESWHFDKSE
DQ415908         FSTIVIGSVFINNSYTIVVQPHNGVLEITACQYTMCEYPHTICKSKGSSRNESWHFDKSE
DQ415900         FSTIVIGSVFINNSYTIVVQPHNGVLEITACQYTMCEYPHTICKSKGSSRNESWHFDKSE
DQ415901         FSTIVIGSVFINNSYTIVVQPHNGVLEITACQYTMCEYPHTICKSKGSSRNESWHFDKSE
KT779555.1       FSTIVIGSVFINNSYTIVVQPHNGVLEITACQYTMCEYPHTICKSKGSFRNESWHFDKSE
```

```
KT779556.1      FSTIVIGSVFINNSYTIVVQPHNGVLEITACQYTMCEYPHTICKSKGSFRNESWHFDKSE
KY674941.1      FSTIVIGSVFINNSYTIVVQPHNGVLEITACQYTMCEYPHTICKSKGSSRNESWHFDKSE
KY674942.1      FSTIVIGSVFINNSYTIVVQPHNGVLEITACQYTMCEYPHTICKSKGSSRNESWHFDKSE
KY674943.1      FSTIVIGSVFINNSYTIVVQPHNGVLEITACQYTMCEYPHTICKSKGSSRNESWHFDKSE
KF686341.1      FSTIVIGSVFINNSYTIVVQPHNGVLEITACQYTMCEYPHTICKSKGSSRNESWHFDKSE
KF686340.1      FSTIVIGSVFINNSYTIVVQPHNGVLEITACQYTMCEYPHTICKSKGSSRNESWHFDKSE
KF686346.1      FSTIVIGSVFINNSYTIVVQPHNGVLEITACQYTMCEYPHTICKSKGSSRNESWHFDKSE
KF686343.1      FSTIVIGSVFINNSYTIVVQPHNGVLEITACQYTMCEYPHTICKSKGSSRNESWHFDKSE
KF430201.1      FSTIVIGSVFINNSYTIVVQPHNGVLEITACQYTMCEYPHTICKSKGSSRNESWHFDKSE
LC315650.1      FSTIVIGSVFINNSYTIVVQPHNGVLEITACQYTMCEYPHTICKSKGSSRNESWHFDKSE
KF686344.1      FSTIVIGSVFINNSYTIVVQPHNGVLDITACQYTMCEYPHTICKSKGSSRNESWHFDKSE
KY983584.1      FSTIVIGSVFINNSYTIVVQPHNGVLEITACQYTMCEYPHTICKSKGSSRNESWHFDKSE
AY884001        FSTIVIGSVFVNTSYTIVVQPHNGILEITACQYTMCEYPHTVCKSKGSIRNESWHIDSSE
MH940245.1      FSTIVIGSVFVNTSYTIVVQPHNGILEITACQYTMCEYPHTVCKSKGSIRNESWHIDSSE
LC315651.1      FSTIVIGSVFVNTSYTIVVQPHNGILEITACQYTMCEYPHTVCKSKGSIRNESWHIDSSE
KY674921.1      FSTIVIGSVFVNTSYTIVVQPHNGILEITACQYTMCEFPHTVCKSKGSIRNESWHIDSSE
DQ415902        FSTIVIGSVFVNTSYTIVVQPHNGILEITACQYTMCEYPHTVCKSKGSIRNESWHIDSSE
DQ415911        FSTIVIGSVFVNTSYTIVVQPHNGILEITACQYTMCEYPHTVCKSKGSIRNESWHIDSSE
DQ415897        FSTIVIGSVFVNTSYTIVVQPHNGILEITACQYTMCEYPHTVCKSKGSIRNESWHIDSSE
DQ415899        FSTIVIGSVFVNTSYTIVVQPHNGILEITACQYTMCEYPHTVCKSKGSIRNESWHIDSSE
DQ415913        FSTIVIGSVFVNTSYTIVVQPHNGILEITACQYTMCEYPHTVCKSKGSIRNESWHIDSSE
DQ415912        FSTIVIGSVFVNTSYTIVVQPHNGILEITACQYTMCEYPHTVCKSKGSIRNESWHIDSSE
DQ415898        FSTIVIGSVFVNTSYTIVVQPHNGILEITACQYTMCEYPHTVCKSKGSIRNESWHIDSSE
DQ339101.1      FSTIVIGSVFVNTSYTIVVQPHNGILEITACQYTMCEYPHTVCKSKGSIRNESWHIDSSE
MK167038.1      FSTIVIGSVFVNTSYTIVVQPHNGILEITACQYTMCEYPHTVCKSKGSIRNESWHIDSSE
                **********:*.**********:*:**********:*:*:****** ******:*.**

NC_006577.2     PLCLFKKNFTYNVSTDWLYFHFYQERGTFYAYYADSGMPTTFLFSLYLGTLLSHYYVLPL
DQ415910        PLCLFKKNFTYNVSTDWLYFHFYQERGTFYAYYADSGMPTTFLFSLYFGTLLSHYYVLPL
DQ415896        PLCLFKKNFTYNVSTDWLYFHFYQERGTFYAYYADSGMPTTFLFSLYLGTLLSHYYVLPL
DQ415909        PLCLFKKNFTYNVSTDWLYFHFYQERGTFYAYYADSGMPTTFLFSLYLGTLLSHYYVLPL
DQ415904        PLCLFKKNFTYNVSTDWLYFHFYQERGTFYAYYADSGMPTTFLFSLYLGTLLSHYYVLPL
DQ415905        PLCLFKKNFTYNVSTDWLYFHFYQERGTFYAYYADSGMPTTFLFSLYLGTLLSHYYVLPL
DQ415907        PLCLFKKNFTYNVSTDWLYFHFYQERGTFYAYYADSGMPTTFLFSLYLGTLLSHYYVLPL
DQ415914        PLCLFKKNFTYNVSTDWLYFHFYQERGTFYAYYADSGMPTTFLFSLYLGTLLSHYYVLPL
DQ415906        PLCLFKKNFTYNVSTDWLYFHFYQERGTFYAYYADSGMPTTFLFSLYLGTLLSHYYVLPL
DQ415903        PLCLFKKNFTYNVSTDWLYFHFYQERGTFYAYYADSGMPTTFLFSLYLGTLLSHYYVLPL
DQ415908        PLCLFKKNFTYNVSTDWLYFHFYQERGTFYAYYADSGMPTTFLFSLYLGTLLSHYYVLPL
DQ415900        PLCLFKKNFTYNVSTDWLYFHFYQERGTFYAYYADSGMPTTFLFSLYLGTLLSHYYVLPL
DQ415901        PLCLFKKNFTYNVSTDWLYFHFYQERGTFYAYYADSGMPTTFLFSLYLGTLLSHYYVLPL
KT779555.1      PLCLFKKNFTYNVSTDWLYFHFYQERGTFYAYYADSGMPTTFLFSLYLGTLLSHYYVLPL
KT779556.1      PLCLFKKNFTYNVSTDWLYFHFYQERGTFYAYYADSGMPTTFLFSLYLGTLLSHYYVLPL
KY674941.1      PLCLFKKNFTYNVSTDFLYFHFYQERGTFYAYYADSGMPTTFLFSLYLGTLLSHYYVLPL
KY674942.1      PLCLFKKNFTYNVSTDFLYFHFYQERGTFYAYYADSGMPTTFLFSLYLGTLLSHYYVLPL
KY674943.1      PLCLFKKNFTYNVSTDFLYFHFYQERGTFYAYYADSGMPTTFLFSLYLGTLLSHYYVLPL
KF686341.1      PLCLFKKNFTYNVSTDFLYFHFYQERGTFYAYYADSGMPTTFLFSLYLGTLLSHYYVLPL
KF686340.1      PLCLFKKNFTYNVSTDFLYFHFYQERGTFYAYYADSGMPTTFLFSLYLGTLLSHYYVLPL
KF686346.1      PLCLFKKNFTYNVSTDFLYFHFYQERGTFYAYYADSGMPTTFLFSLYLGTLLSHYYVLPL
KF686343.1      PLCLFKKNFTYNVSTDFLYFHFYQERGTFYAYYADSGMPTTFLFSLYLGTLLSHYYVLPL
KF430201.1      PLCLFKKNFTYNVSTDFLYFHFYQERGTFYAYYADSGMPTTFLFSLYLGTLLSHYYVLPL
LC315650.1      PLCLFKKNFTYNVSTDWLYFHFYQERGTFYAYYADSGMPTTFLFSLYLGTLLSHYYVLPL
KF686344.1      PLCLFKKNFTYNVSTDWLYFHFYQERGTFYAYYADSGMPTTFLFSLYLGTLLSHYYVLPL
KY983584.1      PLCLFKKNFTYNVSTDWLYFHFYQERGTFYAYYADSGMPTTFLFSLYLGTLLSHYYVLPL
AY884001        PLCLFKKNFTYNVSADWLYFHFYQERGVFYAYYADVGMPTTFLFSLYLGTILSHYYVMPL
MH940245.1      PLCLFKKNFTYNVSADWLYFHFYQERGVFYAYYADVGMPTTFLFSLYLGTILSHYYVMPL
LC315651.1      PLCLFKKNFTYNVSADWLYFHFYQERGVFYAYYADVGMPTTFLFSLYLGTILSHYYVMPL
```

```
KY674921.1      PLCLFKKNFTYNVYADWLYFHFYQERGVFYAYYADVGMPTTFLFSLYLGTILSHYYVMPL
DQ415902        PLCLFKKNFTYNVSADWLYFHFYQERGVFYAYYADVGMPTTFLFSLYLGTILSHYYVMPL
DQ415911        PLCLFKKNFTYNVSADWLYFHFYQERGVFYAYYADVGMPTTFLFSLYLGTILSHYYVMPL
DQ415897        PLCLFKKNFTYNVSADWLYFHFYQERGVFYAYYADVGMPTTFLFSLYLGTILSHYYVMPL
DQ415899        PLCLFKKNFTYNVSADWLYFHFYQERGVFYAYYADVGMPTTFLFSLYLGTILSHYYVMPL
DQ415913        PLCLFKKNFTYNVSADWLYFHFYQERGVFYAYYADVGMPTTFLFSLYLGTILSHYYVMPL
DQ415912        PLCLFKKNFTYNVSADWLYFHFYQERGVFYAYYADVGMPTTFLFSLYLGTILSHYYVMPL
DQ415898        PLCLFKKNFTYNVSADWLYFHFYQERGVFYAYYADVGMPTTFLFSLYLGTILSHYYVMPL
DQ339101.1      PLCLFKKNFTYNVSADWLYFHFYQERGVFYAYYADVGMPTTFLFSLYLGTILSHYYVMPL
MK167038.1      PLCLFKKNFTYNVSADWLYFHFYQERGVFYAYYADVGMPTTFLFSLYLGTILSHYYVMPL
                ************ :*:**********.******* **********:**:******:**

NC_006577.2     TCNAISSNTDNETLQYWVTPLSKRQYLLKFDNRGVITNAVDCSSSFFSEIQCKTKSLLPN
DQ415910        TCNAISSNTDNETLQYWVTPLSKRQYLLKFDNRGVITNAVDCSSSFFSEIQCKTKSLLPN
DQ415896        TCNAISSNTDNETLQYWVTPLSKRQYLLKFDNRGVITNAVDCSSSFFSEIQCKTKSLLPN
DQ415909        TCNAISSNTDNETLQYWVTPLSKRQYLLKFDNRGVITNAVDCSSSFFSEIQCKTKSLLPN
DQ415904        TCNAISSNTDNETLQYWVTPLSKRQYLLKFDNRGVITNAVDCSSSFFSEIQCKTKSLLPN
DQ415905        TCNAISSNTDNETLQYWVTPLSKRQYLLKFDNRGVITNAVDCSSSFFSEIQCKTKSLLPN
DQ415907        TCNAISSNTDNETLQYWVTPLSKRQYLLKFDNRGVITNAVDCSSSFFSEIQCKTKSLLPN
DQ415914        TCNAISSNTDNETLQYWVTPLSKRQYLLKFDNRGVITNAVDCSSSFFSEIQCKTKSLLPN
DQ415906        TCNAISSNTDNETLQYWVTPLSKRQYLLKFDNRGVITNAVDCSSSFFSEIQCKTKSLLPN
DQ415903        TCNAISSNTDNETLQYWVTPLSKRQYLLKFDNRGVITNAVDCSSSFFSEIQCKTKSLLPN
DQ415908        TCNAISSNTDNETLQYWVTPLSKRQYLLKFDNRGVITNAVDCSSSFFSEIQCKTKSLLPN
DQ415900        TCNAISSNTDNETLQYWVTPLSKRQYLLKFDNRGVITNAVDCSSSFFSEIQCKTKSLLPN
DQ415901        TCNAISSNTDNETLQYWVTPLSKRQYLLKFDNRGVITNAVDCSSSFFSEIQCKTKSLLPN
KT779555.1      TCNAISSNTDNETLQYWVTPLSKRQYLLKFDNRGVITNAVDCSSSFFSEIQCKTKSLLPN
KT779556.1      TCNAISSNTDNETLQYWVTPLSKRQYLLKFDNRGVITNAVDCSSSFFSEIQCKTKSLLPN
KY674941.1      TCNAISSNTDNETLQYWVTPLSKRQYLLKFDNRGVITNAVDCSSSFFSEIQCKTKSLLPN
KY674942.1      TCNAISSNTDNETLQYWVTPLSKRQYLLKFDNRGVITNAVDCSSSFFSEIQCKTKSLLPN
KY674943.1      TCNAISSNTDNETLQYWVTPLSKRQYLLKFDNRGVITNAVDCSSSFFSEIQCKTKSLLPN
KF686341.1      TCNAISSNTDNETLQYWVTPLSKRQYLLKFDNRGVITNAVDCSSSFFSEIQCKTKSLLPN
KF686340.1      TCNAISSNTDNETLQYWVTPLSKRQYLLKFDNRGVITNAVDCSSSFFSEIQCKTKSLLPN
KF686346.1      TCNAISSNTDNETLQYWVTPLSKRQYLLKFDNRGVITNAVDCSSSFFSEIQCKTKSLLPN
KF686343.1      TCNAISSNTDNETLQYWVTPLSKRQYLLKFDNRGVITNAVDCSSSFFSEIQCKTKSLLPN
KF430201.1      TCNAISSNTDNETLQYWVTPLSKRQYLLKFDNRGVITNAVDCSSSFFSEIQCKTKSLLPN
LC315650.1      TCNAISSNTDNETLQYWVTPLSKRQYLLKFDNRGVITNAVDCSSSFFSEIQCKTKSLLPN
KF686344.1      TCNAISSNTDNETLQYWVTPLSKRQYLLKFDNRGVITNAVDCSSSFFSEIQCKTKSLLPN
KY983584.1      TCNAISSNTDNETLQYWVTPLSKRQYLLKFDNRGVITNAVDCSSSFFSEIQCKTKSLLPN
AY884001        TCKAISSNTDNETLEYWVTPLSRRQYLLNFDEHGVITNAVDCSSSFLSEIQCKTQSFAPN
MH940245.1      TCKAISSNTDNETLEYWVTPLSRRQYLLNFDEHGVITNAVDCSSSFLSEIQCKTQSFAPN
LC315651.1      TCNAISPKTDNETLEYWVTPLSRRQYLLNFDEHGVITNAVDCSSSFLSEIQCKTQSFAPN
KY674921.1      TCNAISSTTDNETLEYWVTPLSRRQYLLNFDEHGVITNAVDCSSSFLSEIQCKTQSFAPN
DQ415902        TCNAISSNTDNETLEYWVTPLSRRQYLLNFDEHGVITNAVDCSSSFLSEIQCKTQSFAPN
DQ415911        TCNAISSNTDNETLEYWVTPLSRRQYLLNFDEHGVITNAVDCSSSFLSEIQCKTQSFAPN
DQ415897        TCNAISSNTDNETLEYWVTPLSRRQYLLNFDEHGVITNAVDCSSSFLSEIQCKTQSFAPN
DQ415899        TCNAISSNTDNETLEYWVTPLSRRQYLLNFDEHGVITNAVDCSSSFLSEIQCKTQSFAPN
DQ415913        TCNAISSNTDNETLEYWVTPLSRRQYLLNFDEHGVITNAVDCSSSFLSEIQCKTQSFAPN
DQ415912        TCNAISSNTDNETLEYWVTPLSRRQYLLNFDEHGVITNAVDCSSSFLSEIQCKTQSFAPN
DQ415898        TCNAISSNTDNETLEYWVTPLSRRQYLLNFDEHGVITNAVDCSSSFLSEIQCKTQSFAPN
DQ339101.1      TCNAISSNTDNETLEYWVTPLSRRQYLLNFDEHGVITNAVDCSSSFLSEIQCKTQSFAPN
MK167038.1      TCNAISPKTDKETLEYWVTPLSRRQYLLNFDEHGVITKAVDCSSSFLSEIQCKTQSFAPN
                **:***..**:***:*******:*****:**::****:********:*******:*: **

NC_006577.2     TGVYDLSGFTVKPVATVHRRIPDLPDCDIDKWLNNFNVPSPLNWERKIFSNCNFNLSTLL
DQ415910        TGVYDLSGFTVKPVATVHRRIPDLPDCDIDKWLNNFNVPSPLNWERKIFSNCNFNLSTLL
DQ415896        TGVYDLSGFTVKPVATVHRRIPDLPDCDIDKWLNNFNVPSPLNWERKIFSNCNFNLSTLL
```

```
DQ415909          TGVYDLSGFTVKPVATVHRRIPDLPDCDIDKWLNNFNVPSPLNWERKIFSNCNFNLSTLL
DQ415904          TGVYDLSGFTVKPVATVHRRIPDLPDCDIDKWLNNFNVPSPLNWERKIFSNCNFNLSTLL
DQ415905          TGVYDLSGFTVKPVATVHRRIPDLPDCDIDKWLNNFNVPSPLNWERKIFSNCNFNLSTLL
DQ415907          TGVYDLSGFTVKPVATVHRRIPDLPDCDIDKWLNNFNVPSPLNWERKIFSNCNFNLSTLL
DQ415914          TGVYDLSGFTVKPVATVHRRIPDLPDCDIDKWLNNFNVPSPLNWERKIFSNCNFNLSTLL
DQ415906          TGVYDLSGFTVKPVATVHRRIPDLPDCDIDKWLNNFNVPSPLNWERKIFSNCNFNLSTLL
DQ415903          TGVYDLSGFTVKPVATVHRRIPDLPDCDIDKWLNNFNVPSPLNWERKIFSNCNFNLSTLL
DQ415908          TGVYDLSGFTVKPVATVYRRIPDLPDCDIDKWLNNFNVPSPLNWERKIFSNCNFNLSTLL
DQ415900          TGVYDLSGFTVKPVATVHRRIPDLPDCDIDKWLNNFNVPSPLNWERKIFSNCNFNLSTLL
DQ415901          TGVYDLSGFTVKPVATVHRRIPDLPDCDIDKWLNNFNVPSPLNWERKIFSNCNFNLSTLL
KT779555.1        TGVYDLSGFTVKPVATVHRRIPDLPDCDIDKWLNNFNVPSPLNWERKIFSNCNFNLSTLL
KT779556.1        TGVYDLSGFTVKPVATVHRRIPDLPDCDIDKWLNNFNVPSPLNWERKIFSNCNFNLSTLL
KY674941.1        TGVYDLSGFTVKPVATVHRRIPDLPDCDIDKWLNNFNVPSPLNWERKIFSNCNFNLSTLL
KY674942.1        TGVYDLSGFTVKPVATVHRRIPDLPDCDIDKWLNNFNVPSPLNWERKIFSNCNFNLSTLL
KY674943.1        TGVYDLSGFTVKPVATVHRRIPDLPDCDIDKWLNNFNVPSPLNWERKIFSNCNFNLSTLL
KF686341.1        TGVYDLSGFTVKPVATVHRRIPDLPDCDIDKWLNNFNVPSPLNWERKIFSNCNFNLSTLL
KF686340.1        TGVYDLSGFTVKPVATVHRRIPDLPDCDIDKWLNNFNVPSPLNWERKIFSNCNFNLSTLL
KF686346.1        TGVYDLSGFTVKPVATVHRRIPDLPDCDIDKWLNNFNVPSPLNWERKIFSNCNFNLSTLL
KF686343.1        TGVYDLSGFTVKPVATVHRRIPDLPDCDIDKWLNNFNVPSPLNWERKIFSNCNFNLSTLL
KF430201.1        TGVYDLSGFTVKPVATVHRRIPDLPDCDIDKWLNNFNVPSPLNWERKIFSNCNFNLSTLL
LC315650.1        TGVYDLSGFTVKPVATVHRRIPDLPDCDIDKWLNNFNVPSPLNWERKIFSNCNFNLSTLL
KF686344.1        TGVYDLSGFTVKPVATVHRRIPDLPDCDIDKWLNNFNVPSPLNWERKIFSNCNFNLSTLL
KY983584.1        TGVYDLSGFTVKPVATVHRRIPDLPDCDIDKWLNNFNVPSPLNWERKIFSNCNFNLSTLL
AY884001          TGVYDLSGFTVKPVATVYRRIPNLPDCDIDNWLNNVSVPSPLNWERRIFSNCNFNLSTLL
MH940245.1        TGVYDLSGFTVKPVATVYRRIPNLPDCDIDNWLNNVSVPSPLNWERRIFSNCNFNLSTLL
LC315651.1        TGVYDLSGFTVKPVATVYRRIPNLPDCDIDNWLNNVSVPSPLNWERRIFSNCNFNLSTLL
KY674921.1        TGVYDLSGFTVKPVATVYRRIPNLPDCDIDNWLNNVSVPSPLNWERRIFSNCNFNLSTLL
DQ415902          TGVYDLSGFTVKPVATVYRRIPNLPDCDIDNWLNNVSVPSPLNWERRIFSNCNFNLSTLL
DQ415911          TGVYDLSGFTVKPVATVYRRIPNLPDCDIDNWLNNVSVPSPLNWERRIFSNCNFNLSTLL
DQ415897          TGVYDLSGFTVKPVATVYRRIPNLPDCDIDNWLNNVSVPSPLNWERRIFSNCNFNLSTLL
DQ415899          TGVYDLSGFTVKPVATVYRRIPNLPDCDIDNWLNNVSVPSPLNWERRIFSNCNFNLSTLL
DQ415913          TGVYDLSGFTVKPVATVYRRIPNLPDCDIDNWLNNVSVPSPLNWERRIFSNCNFNLSTLL
DQ415912          TGVYDLSGFTVKPVATVYRRIPNLPDCDIDNWLNNVSVPSPLNWERRIFSNCNFNLSTLL
DQ415898          TGVYDLSGFTVKPVATVYRRIPNLPDCDIDNWLNNVSVPSPLNWERRIFSNCNFNLSTLL
DQ339101.1        TGVYDLSGFTVKPVATVYRRIPNLPDCDIDNWLNNVSVPSPLNWERRIFSNCNFNLSTLL
MK167038.1        TGVYDLSGFTVKPVATVYRRIPNLPDCDIDNWLNNVSVPSPLNWERRIFSNCNFNLSTLL
                  ****************:****:*******:****..*********:**********

NC_006577.2       RLVHTDSFSCNNFDESKIYGSCFKSIVLDKFAIPNSRRSDLQLGSSGFLQSSNYKIDTTS
DQ415910          RLVHTDSFSCNNFDESKIYGSCFKSIVLDKFAIPNSRRSDLQLGSSGFLQSSNYKIDTTS
DQ415896          RLVHTDSFSCNNFDESKIYGSCFKSIVLDKFAIPNSRRSDLQLGSSGFLQSSNYKIDTTS
DQ415909          RLVHTDSFSCNNFDESKIYGSCFKSIVLDKFAIPNSRRSDLQLGSSGFLQSSNYKIDTTS
DQ415904          RLVHTDSFSCNNFDESKIYGSCFKSIVLDKFAIPNSRRSDLQLGSSGFLQSSNYKIDTTS
DQ415905          RLVHTDSFSCNNFDESKIYGSCFKSIVLDKFAIPNSRRSDLQLGSSGFLQSSNYKIDTTS
DQ415907          RLVHTDSFSCNNFDESKIYGSCFKSIVLDKFAIPNSRRSDLQLGSSGFLQSSNYKIDTTS
DQ415914          RLVHTDSFSCNNFDESKIYGSCFKSIVLDKFAIPNSRRSDLQLGSSGFLQSSNYKIDTTS
DQ415906          RLVHTDSFSCNNFDESKIYGSCFKSIVLDKFAIPNSRRSDLQLGSSGFLQSSNYKIDTTS
DQ415903          RLVHTDSFSCNNFDESKIYGSCFKSIVLDKFAIPNSRRSDLQLGSSGFLQSSNYKIDTTS
DQ415908          RLVHTDSFSCNNFDESKIYGSCFKSIVLDKFAIPNSRRSDLQLGSSGFLQSSNYKIDTTS
DQ415900          RLVHTDSFSCNNFDESKIYGSCFKSIVLDKFAIPNSRRSDLQLGSSGFLQSSNYKIDTTS
DQ415901          RLVHTDSFSCNNFDESKIYGSCFKSIVLDKFAIPNSRRSDLQLGSSGFLQSSNYKIDTTS
KT779555.1        RLVHTDSFSCNNFDESKIYGSCFKSIVLDKFAIPNSRRSDLQLGSSGFLQSSNYKIDTTS
KT779556.1        RLVHTDSFSCNNFDESKIYGSCFKSIVLDKFAIPNSRRSDLQLGSSGFLQSSNYKIDTTS
KY674941.1        RLVHTDSFSCNNFDESKIYGSCFKSIVLDKFAIPNSRRSDLQLGSSGFLQSSNYKIDTTS
KY674942.1        RLVHTDSFSCNNFDESKIYGSCFKSIVLDKFAIPNSRRSDLQLGSSGFLQSSNYKIDTTS
KY674943.1        RLVHTDSFSCNNFDESKIYGSCFKSIVLDKFAIPNSRRSDLQLGSSGFLQSSNYKIDTTS
```

```
KF686341.1      RLVHTDSFSCNNFDESKIYGSCFKSIVLDKFAIPNSRRSDLQLGSSGFLQSSNYKIDTTS
KF686340.1      RLVHTDSFSCNNFDESKIYGSCFKSIVLDKFAIPNSRRSDLQLGSSGFLQSSNYKIDTTS
KF686346.1      RLVHTDSFSCNNFDESKIYGSCFKSIVLDKFAIPNSRRSDLQLGSSGFLQSSNYKIDTTS
KF686343.1      RLVHTDSFSCNNFDESKIYGSCFKSIVLDKFAIPNSRRSDLQLGSSGFLQSSNYKIDTTS
KF430201.1      RLVHTDSFSCNNFDESKIYGSCFKSIVLDKFAIPNSRRSDLQLGSSGFLQSSNYKIDTTS
LC315650.1      RLVHTDSFSCNNFDESKIYGSCFKSIILDKFAIPNSRRSDLQLGSSGFLQSSNYKIDTTS
KF686344.1      RLVHTDSFSCNNFDESKIYGSCFKSIILDKFAIPNSRRSDLQLGSSGFLQSSNYKIDTTS
KY983584.1      RLVHTDSFSCNNFDESKIYGSCFKSIILDKFAIPNSRRSDLQLGSSGFLQSSNYKIDTTS
AY884001        RLVHVDSFSCNNLDKSKIFGSCFNSITVDKFAIPNRRRDDLQLGSSGFLQSSNYKIDISS
MH940245.1      RLVHVDSFSCNNLDKSKIFGSCFNSITVDKFAIPNRRRDDLQLGSSGFLQSSNYKIDISS
LC315651.1      RLVHVDSFSCNNLDKSKIFGSCFNSITVDKFAIPNRRRDDLQLGSSGFLQSSNYKIDISS
KY674921.1      RLVHVDSFSCNNLDKSKIFGSCFNSITVDKFAIPNRRRDDLQLGSSGFLQSSNYKIDISS
DQ415902        RLVHVDSFSCNNLDKSKIFGSCFNSITVDKFAIPNRRRDDLQLGSSGFLQSSNYKIDISS
DQ415911        RLVHVDSFSCNNLDKSKIFGSCFNSITVDKFAIPNRRRDDLQLGSSGFLQSSNYKIDISS
DQ415897        RLVHVDSFSCNNLDKSKIFGSCFNSITVDKFAIPNRRRDDLQLGSSGFLQSSNYKIDISS
DQ415899        RLVHVDSFSCNNLDKSKIFGSCFNSITVDKFAIPNRRRDDLQLGSSGFLQSSNYKIDISS
DQ415913        RLVHVDSFSCNNLDKSKIFGSCFNSITVDKFAIPNRRRDDLQLGSSGFLQSSNYKIDISS
DQ415912        RLVHVDSFSCNNLDKSKIFGSCFNSITVDKFAIPNRRRDDLQLGSSGFLQSSNYKIDISS
DQ415898        RLVHVDSFSCNNLDKSKIFGSCFNSITVDKFAIPNRRRDDLQLGSSGFLQSSNYKIDISS
DQ339101.1      RLVHVDSFSCNNLDKSKIFGSCFNSITVDKFAIPNRRRDDLQLGSSGFLQSSNYKIDISS
MK167038.1      RLVHVDSFSCNNLDKSKIFGSCFNSITVDKFAIPNRRRDDLQLGSSGFLQSSNYKIDTTS
                ****.*******:*:***:****:** :******* **.****************** :*

NC_006577.2     SSCQLYYSLPAINVTINNYNPSSWNRRYGFNNFNLSSHSVVYSRYCFSVNNTFCPCAKPS
DQ415910        SSCQLYYSLPAINVTINNYNPSFWNRRYGFNNFNLSSHSVVYSRYCFSVNNTFCPCAKPS
DQ415896        SSCQLYYSLPAINVTINNYNPSSWNRRYGFNNFNLSSHSVVYSRYCFSVNNTFCPCAKPS
DQ415909        SSCQLYYSLPAINVTINNYNPSSWNRRYGFNNFNLSSHSVVYSRYCFSVNNTFCPCAKPS
DQ415904        SSCQLYYSLPAINVTINNYNPSSWNRRYGFNNFNLSSHSVVYSRYCFSVNNTFCPCAKPS
DQ415905        SSCQLYYSLPAINVTINNYNPSSWNRRYGFNNFNLSSHSVVYSRYCFSVNNTFCPCAKPS
DQ415907        SSCQLYYSLPAINVTINNYNPSSWNRRYGFNNFNLSSHSVVYSRYCFSVNNTFCPCAKPS
DQ415914        SSCQLYYSLPAINVTINNYNPSSWNRRYGFNNFNLSSHSVVYSRYCFSVNNTFCPCAKPS
DQ415906        SSCQLYYSLPAINVTINNYNPSSWNRRYGFNNFNLSSHSVVYSRYCFSVNNTFCPCAKPS
DQ415903        SSCQLYYSLPAINVTINNYNPSSWNRRYGFNNFNLSSHSVVYSRYCFSVNNTFCPCAKPS
DQ415908        SSCQLYYSLPAINVTINNYNPSSWNRRYGFNNFNLSSHSVVYSRYCFSVNNTFCPCAKPS
DQ415900        SSCQLYYSLPAINVTINNYNPSSWNRRYGFNNFNLSSHSVVYSRYCFSVNNTFCPCAKPS
DQ415901        SSCQLYYSLPAINVTINNYNPSSWNRRYGFNNFNLSSHSVVYSRYCFSVNNTFCPCAKPS
KT779555.1      SSCQLYYSLPAINVTINNYNPSSWNRRYGFNNFNLSSHSVVYSRYCFSVNNTFCPCAKPS
KT779556.1      SSCQLYYSLPAINVTINNYNPSSWNRRYGFNNFNLSSHSVVYSRYCFSVNNTFCPCAKPS
KY674941.1      SSCQLYYSLPAINVTINNYNPSSWNRRYGFNNFNLSSHSVVYSRYCFSVNNTFCPCAKPS
KY674942.1      SSCQLYYSLPAINVTINNYNPSSWNRRYGFNNFNLSSHSVVYSRYCFSVNNTFCPCAKPS
KY674943.1      SSCQLYYSLPAINVTINNYNPSSWNRRYGFNNFNLSSHSVVYSRYCFSVNNTFCPCAKPS
KF686341.1      SSCQLYYSLPAINVTINNYNPSSWNRRYGFNNFNLSSHSVVYSRYCFSVNNTFCPCAKPS
KF686340.1      SSCQLYYSLPAINVTINNYNPSSWNRRYGFNNFNLSSHSVVYSRYCFSVNNTFCPCAKPS
KF686346.1      SSCQLYYSLPAINVTINNYNPSSWNRRYGFNNFNLSSHSVVYSRYCFSVNNTFCPCAKPS
KF686343.1      SSCQLYYSLPAINVTINNYNPSSWNRRYGFNNFNLSSHSVVYSRYCFSVNNTFCPCAKPS
KF430201.1      SSCQLYYSLPAINVTINNYNPSSWNRRYGFNNFNLSSHSVVYSRYCFSVNNTFCPCAKSS
LC315650.1      SSCQLYYSLPAINVTINNYNPSSWNRRYGFNNFNLSSHSVVYSRYCFSVNNTFCPCAKPS
KF686344.1      SSCQLYYSLPAINVTINNYNPSSWNRRYGFNNFNLSSHSVVYSRYCFSVNNTFCPCAKPS
KY983584.1      SSCQLYYSLPAINVTINNYNPSSWNRRYGFNNFILSSHSVVYSRYCFSVNNTFCPCAKPS
AY884001        SSCQLYYSLPLVNVTINNFNPSSWNRRYGFGSFNVSSYDVVYSDHCFSVNSDFCPCADPS
MH940245.1      SSCQLYYSLPLVNVTINNFNPSSWNRRYGFGSFNVSSYDVVYSDHCFSVNSDFCPCADPS
LC315651.1      SSCQLYYSLPLLNVTINNFNPSSWNRRYGFGSFNVSSYDVVYSDHCFSVNSDFCPCADPS
KY674921.1      SSCQLYYSLPLVNVTINNFNPSSWNRRYGFGSFNVSSYDVVYSDHCFSVNSDFCPCADPS
DQ415902        SSCQLYYSLPLVNVTINNFNPSSWNRRYGFGSFNVSSYDVVYSDHCFSVNSDFCPCADRS
DQ415911        SSCQLYYSLPLLNVTINNFNPSSWNRRYGFGSFNVSSYDVVYSDHCFSVNSDFCPCADPS
DQ415897        SSCQLYYSLPLVNVTINNFNPSSWNRRYGFGSFNLSSYDVVYSDHCFSVNSDFCPCADPS
```

```
DQ415899        SSCQLYYSLPLVNVTINNFNPSSWNRRYGFGSFNLSSYDVVYSDHCFSVNSDFCPCADPS
DQ415913        SSCQLYYSLPLVNVTINNFNPSSWNRRYGFGSFNLSSYDVVYSDHCFSVNSDFCPCADPS
DQ415912        SSCQLYYSLPLVNVTINNFNPSSWNRRYGFGSFNLSSYDVVYSDHCFSVNSDFCPCADPS
DQ415898        SSCQLYYSLPLVNVTINNFNPSSWNRRYGFGSFNLSSYDVVYSDHCFSVNSDFCPCADPS
DQ339101.1      SSCQLYYSLPLVNVTINNFNPSSWNRRYGFGSFNLSSYDVVYSDHCFSVNSDFCPCADPS
MK167038.1      SSCQLYYSLPAINVTINNYNPSSWNRRYGFNNFNLSSHSVVYSRYCFSVNNTFCPCAKPS
                ********** :******:*** *******..* :**:.**** :*****. *****. *

NC_006577.2     FASSCKSHKPPSASCPIGTNYRSCEST-TVLDHTDWCRCSCLPDPITAYDPRSCSQKKSL
DQ415910        FASSCKSHKPPSASCPIGTNYRSCEST-TVLDHTDWCRCSCLPDPITAYDPRSCSQKKSL
DQ415896        FASSCKSHKPPSASCPIGTNYRSCEST-TVLDHTDWCRCSCLPDPITAYDPRSCSQKKSL
DQ415909        FASSCKSHKPPSASCPIGTNYRSCEST-TVLDHTDWCRCSCLPDPITAYDPRSCSQKKSL
DQ415904        FASSCKSHKPPSASCPIGTNYRSCEST-TVLDHTDWCRCSCLPDPITAYDPRSCSQKKSL
DQ415905        FASSCKSHKPPSASCPIGTNYRSCEST-TVLDHTDWCRCSCLPDPITAYDPRSCSQKKSL
DQ415907        FASSCKSHKPPSASCPIGTNYRSCEST-TVLDHTDWCRCSCLPDPITAYDPRSCSQKKSL
DQ415914        FASSCKSHKPPSASCPIGTNYRSCEST-TVLDHTDWCRCSCLPDPITAYDPRSCSQKKSL
DQ415906        FASSCKSHKPPSASCPIGTNYRSCEST-TVLDHTDWCRCSCLPDPITAYDPRSCSQKKSL
DQ415903        FASSCKSHKPPSASCPIGTNYRSCEST-TVLDHTDWCRCSCLPDPITAYDPRSCSQKKSL
DQ415908        FASSCKSHKPPSASCPIGTNYRSCEST-TVLDHTDWCRCSCLPDPITAYDPRSCSQKKSL
DQ415900        FASSCKSHKPPSASCPIGTNYRSCEST-TVLDHTDWCRCSCLPDPITAYDPRSCSQKKSL
DQ415901        FASSCKSHKPPSASCPIGTNYRSCEST-TVLDHTDWCRCSCLPDPITAYDPRSCSQKKSL
KT779555.1      FASSCKSHKPPSASCPIGTNYRSCEST-TVLDHTDWCRCSCLPDPITAYDPRSCSQKKSL
KT779556.1      FASSCKSHKPPSASCPIGTNYRSCEST-TVLDHTDWCRCSCLPDPITAYDPRSCSQKKSL
KY674941.1      FASSCKSHKPPSASCPIGTNYRSCEST-TVLDHTDWCRCSCLPDPITAYDPRSCSQKKSL
KY674942.1      FASSCKSHKPPSASCPIGTNYRSCEST-TVLDHTDWCRCSCLPDPITAYDPRSCSQKKSL
KY674943.1      FASSCKSHKPPSASCPIGTNYRSCEST-TVLDHTDWCRCSCLPDPITAYDPRSCSQKKSL
KF686341.1      FASSCKSHKPPSASCPIGTNYRSCEST-TVLDHTDWCRCSCLPDPITAYDPRSCSQKKSL
KF686340.1      FASSCKSHKPPSASCPIGTNYRSCEST-TVLDHTDWCRCSCLPDPITAYDPRSCSQKKSL
KF686346.1      FASSCKSHKPPSASCPIGTNYRSCEST-TVLDHTDWCRCSCLPDPITAYDPRSCSQKKSL
KF686343.1      FASSCKSHKPPSASCPIGTNYRSCEST-TVLDHTDWCRCSCLPDPITAYDPRSCSQKKSL
KF430201.1      FASSCKSHKPPSASCPIGTNYRSCEST-TVLDHTDWCRCSCLPDPITAYDPRSCSQKKSL
LC315650.1      FASSCKSHKPPSASCPIGTNYRSCEST-TVLDRTDWCRCSCLPDPITAYDPRSCSQKKSL
KF686344.1      FASSCKSHKPPSASCPIGTNYRSCEST-TVLDRTDWCRCSCLPDPITAYDPRSCSQKKSL
KY983584.1      FASSCKSHKPPSASCPIGTNYRSCEST-TVLDRTDWCRCSCLPDPITAYDPRSCSQKKSL
AY884001        VVNSCVKSKPLSAICPAGTKYRHCDLD-TTLYVNNWCRCSCLPDPISTYSPNTCPQKKVV
MH940245.1      VVNSCVKSKPLSAICPAGTKYRHCDLD-TTLYVNNWCRCSCLPDPISTYSPNTCPQKKVV
LC315651.1      VVNSCVKSKPLSAICPAGTKYRHCDLDTTTLYVKNWCRCSCLPDPISTYSPNTCPQKKVV
KY674921.1      VVNSCAKSKPLSAICPAGTKYRHCDVDSTTLYVNNWCRCSCLPDPISTYSPNTCPQKKVV
DQ415902        VVNSCVKSKPPSAICPAGTKYRHCDLD-TTLYVKNWCRCSCLPDPISTYSPNTCPQKKVV
DQ415911        VVNSCVKSKPLSAICPAGTKYRHCDLD-TTLYVKNWCRCSCLPDPISTYSPNTCPQKKVV
DQ415897        VVNSCVKSKPPSAICPAGTKYRHCDLD-TTLYVKNWCRCSCLPDPISTYSPNTCPQKKVV
DQ415899        VVNSCVKSKPPSAICPAGTKYRHCDLD-TTLYVKNWCRCSCLPDPISTYSPNTCPQKKVV
DQ415913        VVNSCVKSKPPSAICPAGTKYRHCDLD-TTLYVKNWCRCSCLPDPISTYSPNTCPQKKVV
DQ415912        VVNSCVKSKPPSAICPAGTKYRHCDLD-TTLYVKNWCRCSCLPDPISTYSPNTCPQKKVV
DQ415898        VVNSCVKSKPPSAICPAGTKYRHCDLD-TTLYVKNWCRCSCLPDPISTYSPNTCPQKKVV
DQ339101.1      VVNSCAKSKPPSAICPAGTKYRHCDLD-TTLYVKNWCRCSCLPDPISTYSPNTCPQKKVV
MK167038.1      FASSCKSHKPPSASCPIGTKYRHCDLD-TTLYVKNWCRCSCLPDPISTYSPNTCPQKKVV
                ...** . ** ** ** **:** *:   *.*  .:***********::*.*.:*.*** :

NC_006577.2     VGVGEHCAGFGVDEEKCGVLDGSYNVSCLCSTDAFLGWSYDTCVSNNRCNIFSNFILNGI
DQ415910        VGVGEHCAGFGVDEEKCGVLDGSYNVSCLCSTDAFLGWSYDTCVSNNLCNIFSNFILNGI
DQ415896        VGVGEHCAGFGVDEEKCGVLDGSYNVSCLCSTDAFLGWSYDTCVSNNRCNIFSNFILNGI
DQ415909        VGVGEHCAGFGVDEEKCGVLDGSYNVSCLCSTDAFLGWSYDTCVSNNRCNIFSNFILNGI
DQ415904        VGVGEHCAGFGVDEEKCGVLDGSYNVSCLCSTDAFLGWSYDTCVSNNRCNIFSNFILNGI
DQ415905        VGVGEHCAGFGVDEEKCGVLDGSYNVSCLCSTDAFLGWSYDTCVSNNRCNIFSNFILNGI
DQ415907        VGVGEHCAGFGVDEEKCGVLDGSYNVSCLCSTDAFLGWSYDTCVSNNRCNIFSNFILNGI
```

```
DQ415914        VGVGEHCAGFGVDEEKCGVLDGSYNVSCLCSTDAFLGWSYDTCVSNNRCNIFSNFILNGI
DQ415906        VGVGEHCAGFGVDEEKCGVLDGSYNVSCLCSTDAFLGWSYDTCVSNNRCNIFSNFILNGI
DQ415903        VGVGEHCAGFGVDEEKCGVLDGSYNVSCLCSTDAFLGWSYDTCVSNNRCNIFSNFILNGI
DQ415908        VGVGEHCAGFGVDEEKCGVLDGSYNVSCLCSTDAFLGWSYDTCVSNNRCNIFSNFILNGI
DQ415900        VGVGEHCAGFGVDEEKCGVLDGSYNVSCLCSTDAFLGWSYDTCVSNNRCNIFSNFILNGI
DQ415901        VGVGEHCAGFGVDEEKCGVLDGSYNVSCLCSTDAFLGWSYDTCVSNNRCNIFSNFILNGI
KT779555.1      VGVGEHCAGFGVDEEKCGVLDGSYNVSCLCSTDAFLGWSYDTCVSNNRCNIFSNFILNGI
KT779556.1      VGVGEHCAGFGVDEEKCGVLDGSYNVSCLCSTDAFLGWSYDTCVSNNRCNIFSNFILNGI
KY674941.1      VGVGEHCAGFGVDEEKCGVLDGSYNVSCLCSTDAFLGWSYDTCVSNNRCNIFSNFILNGI
KY674942.1      VGVGEHCAGFGVDEEKCGVLDGSYNVSCLCSTDAFLGWSYDTCVSNNRCNIFSNFILNGI
KY674943.1      VGVGEHCAGFGVDEEKCGVLDGSYNVSCLCSTDAFLGWSYDTCVSNNRCNIFSNFILNGI
KF686341.1      VGVGEHCAGFGVDEEKCGVLDGSYNVSCLCSTDAFLGWSYDTCVSNNRCNIFSNFILNGI
KF686340.1      VGVGEHCAGFGVDEEKCGVLDGSYNVSCLCSTDAFLGWSYDTCVSNNRCNIFSNFILNGI
KF686346.1      VGVGEHCAGFGVDEEKCGVLDGSYNVSCLCSTDAFLGWSYDTCVSNNRCNIFSNFILNGI
KF686343.1      VGVGEHCAGFGVDEEKCGVLDGSYNVSCLCSTDAFLGWSYDTCVSNNRCNIFSNFILNGI
KF430201.1      VGVGEHCAGFGVDEEKCGVLDG-YNVSCLCSTDAFLGWSYDTCVSNNRCNIFSNFILNGI
LC315650.1      VGVGEHCAGFGVDEEKCGVLDGSYNASCLCSTDAFLGWSYDTCVSNNRCNIFSNFILNGI
KF686344.1      VGVGEHCAGFGVDEEKCGVLDGSYNASCLCSTDAFLGWSYDTCVSNNRCNIFSNFILNGI
KY983584.1      VGVGEHCAGFGVDEEKCGVLDGSYNASCLCSTDAFLGWSYDTCVSNNRCNIFSNFILNGI
AY884001        VGIGEHCPGLGINEEKCGTQLN--HSSCSCSPDAFLGWSFDSCISNNRCNIFSNFIFNGI
MH940245.1      VGIGEHCPGLGINEEKCGTQLN--HSSCSCSPDAFLGWSFDSCISNNRCNIFSNFIFNGI
LC315651.1      VGIGEHCPGLGINEEKCGTQLN--HTSCSCSPDAFLGWSFDSCISNNRCNIFSNFIFNGI
KY674921.1      VGIGEHCPGLGINEEKCGTQLN--HSSCSCSPDAFLGWSFDSCISNNRCNIFSNFIFNGI
DQ415902        VGIGEHCPGLGINEEKCGTQLN--HSSCSCSPDAFLGWSFDSCISNNRCNIFSNFIFNGI
DQ415911        VGIGEHCPGLGINEEKCGTQLN--HSSCSCSPHAFLGWSFDSCISNNRCNIFSNFIFNGI
DQ415897        VGIGEHCPGLGINEEKCGTQLN--HSSCFCSPDAFLGWSFDSCISNNRCNIFSNFIFNGI
DQ415899        VGIGEHCPGLGINEEKCGTQLN--HSSCFCSPDAFLGWSFDSCISNNRCNIFSNFIFNGI
DQ415913        VGIGEHCPGLGINEEKCGTQLN--HSSCFCSPDAFLGWSFDSCISNNRCNIFSNFIFNGI
DQ415912        VGIGEHCPGLGINEEKCGTQLN--HSSCFCSPDAFLGWSFDSCISNNRCNIFSNFIFNGI
DQ415898        VGIGEHCPGLGINEEKCGTQLN--HSSCFCSPDAFLGWSFDSCISNNRCNIFSNFIFNGI
DQ339101.1      VGIGEHCPGLGINEEKCGTQLN--HSSCFCSPDAFLGWSFDSCISNNRCNIFSNFIFNGI
MK167038.1      VGIGEHCPGLGINEEKCGTQLN--HSSCSCSPDAFLGWSFDSCISNNRCNIFSNFIFNGI
                **:****.*:*::*****.  .  : ** **..******:*:*:*** ********:***

NC_006577.2     NSGTTCSNDLLQPNTEVFTDVCVDYDLYGITGQGIFKEVSAVYYNSWQNLLYDSNGNIIG
DQ415910        NSGTTCSNDLLQPNTEVFTDVCVDYDLYGITGQGIFKEVSAVYYNSWQNLLYDSNGNIIG
DQ415896        NSGTTCSNDLLQPNTEVFTDVCVDYDLYGITGQGIFKEVSAVYYNSWQNLLYDSNGNIIG
DQ415909        NSGTTCSNDLLQPNTEVFTDVCVDYDLYGITGQGIFKEVSAVYYNSWQNLLYDSNGNIIG
DQ415904        NSGTTCSNDLLQPNTEVFTDVCVDYDLYGITGQGIFKEVSAVYYNSWQNLLYDSNGNIIG
DQ415905        NSGTTCSNDLLQPNTEVFTDVCVDYDLYGITGQGIFKEVSAVYYNSWQNLLYDSNGNIIG
DQ415907        NSGTTCSNDLLQPNTEVFTDVCVDYDLYGITGQGIFKEVSAVYYNSWQNLLYDSNGNIIG
DQ415914        NSGTTCSNDLLQPNTEVFTDVCVDYDLYGITGQGIFKEVSAVYYNSWQNLLYDSNGNIIG
DQ415906        NSGTTCSNDLLQPNTEVFTDVCVDYDLYGITGQGIFKEVSAVYYNSWQNLLYDSNGNIIG
DQ415903        NSGTTCSNDLLQPNTEVFTDVCVDYDLYGITGQGIFKEVSAVYYNSWQNLLYDSNGNIIG
DQ415908        NSGTTCSNDLLQPNTEVFTDVCVDYDLYGITGQGIFKEVSAVYYNSWQNLLYDSNGNIIG
DQ415900        NSGTTCSNDLLQPNTEVFTDVCVDYDLYGITGQGIFKEVSAVYYNSWQNLLYDSNGNIIG
DQ415901        NSGTTCSNDLLQPNTEVFTDVCVDYDLYGITGQGIFKEVSAVYYNSWQNLLYDSNGNIIG
KT779555.1      NSGTTCSNDLLQPNTEVFTDVCVDYDLYGITGQGIFKEVSAVYYNSWQNLLYDSNGNIIG
KT779556.1      NSGTTCSNDLLQPNTEVFTDVCVDYDLYGITGQGIFKEVSAVYYNSWQNLLYDSNGNIIG
KY674941.1      NSGTTCSNDLLQPNTEVYTDVCVDYDLYGITGQGIFKEVSAVYYNSWQNLLYDSNGNIIG
KY674942.1      NSGTTCSNDLLQPNTEVYTDVCVDYDLYGITGQGIFKEVSAVYYNSWQNLLYDSNGNIIG
KY674943.1      NSGTTCSNDLLQPNTEVYTDVCVDYDLYGITGQGIFKEVSAVYYNSWQNLLYDSNGNIIG
KF686341.1      NSGTTCSNDLLQPNTEVYTDVCVDYDLYGITGQGIFKEVSAVYYNSWQNLLYDSNGNIIG
KF686340.1      NSGTTCSNDLLQPNTEVYTDVCVDYDLYGITGQGIFKEVSAVYYNSWQNLLYDSNGNIIG
KF686346.1      NSGTTCSNDLLQPNTEVYTDVCVDYDLYGITGQGIFKEVSAVYYNSWQNLLYDSNGNIIG
KF686343.1      NSGTTCSNDLLQPNTEVYTDVCVDYDLYGITGQGIFKEVSAVYYNSWQNLLYDSNGNIIG
```

```
KF430201.1      NSGTTCSNDLLQPNTEVYTDVCVDYDLYGITGQGIFKEVSAVYYNSWQNLLYDSNGNIIG
LC315650.1      NSGTTCSNDLLQPNTEVFTDVCVDYDLYGITGQGIFKEVSAVYYNSWQNLLYDSNGNIIG
KF686344.1      NSGTTCSNDLLQPNTEVFTDVCVDYDLYGITGQGIFKEVSAVYYNSWQNLLYDSNGNIIG
KY983584.1      NSGTTCSNDLLQPNTEVFTDVCVDYDLYGITGQGIFKEVSAVYYNSWQNLLYDSNGNIIG
AY884001        NSGTTCSNDLLYSNTEVSTGVCVNYDLYGITGQGIFKEVSAAYYNNWQNLLYDSNGNIIG
MH940245.1      NSGTTCSNDLLYSNTEVSTGVCVNYDLYGITGQGIFKEVSAAYYNNWQNLLYDSNGNIIG
LC315651.1      NSGTTCSNDLLYSNTEVSTGVCVNYDLYGITGQGIFKEVSAAYYNNWQNLLYDSNGNIIG
KY674921.1      NSGTTCSNDLLYSNTEVSTGVCVNYDLYGITGQGIFKEVSAAYYNNWQNLLYDSNGNIIG
DQ415902        NSGTTCSNDLLYSNTEVSTGVCVNYDLYGITGQGIFKEVSAAYYNNWQNLLYDSNGNIIG
DQ415911        NSGTTCSNDLLYSNTEVSTGVCVNYDLYGITGQGIFKEVSAAYYNNWQNLLYDSNGNIIG
DQ415897        NSGTTCSNDLLYSNTEISTGVCVNYDLYGITGQGIFKEVSAAYYNNWQNLLYDSNGNIIG
DQ415899        NSGTTCSNDLLYSNTEISTGVCVNYDLYGITGQGIFKEVSAAYYNNWQNLLYDSNGNIIG
DQ415913        NSGTTCSNDLLYSNTEISTGVCVNYDLYGITGQGIFKEVSAAYYNNWQNLLYDSNGNIIG
DQ415912        NSGTTCSNDLLYSNTEISTGVCVNYDLYGITGQGIFKEVSAAYYNNWQNLLYDSNGNIIG
DQ415898        NSGTTCSNDLLYSNTEISTGVCVNYDLYGITGQGIFKEVSAAYYNNWQNLLYDSNGNIIG
DQ339101.1      NSGTTCSNDLLYSNTEISTGVCVNYDLYGITGQGIFKEVSAAYYNNWQNLLYDSNGNIIG
MK167038.1      NSGTTCSNDLLYSNTDVSTGVCVNYDLYGITGQGIFKEVSAAYYNDWQNLLYDSNGNIIG
                ********** .**:: *.***:****************.***.**************

NC_006577.2     FKDFVTNKTYNIFPCYAGRVSAAFHQNASSLALLYRNLKCSYVLNNISLTTQP-YFDSYL
DQ415910        FKDFVTNKTYNIFPCYAGRVSAAFHQNASSLALLYRNLKCSYVLNNISLTTQP-YFDSYL
DQ415896        FKDFVTNKTYNIFPCYAGRVSAAFHQNASSLALLYRNLKCSYVLNNISLATQP-YFDSYL
DQ415909        FKDFVTNKTYNIFPCYAGRVSAAFHQNASSLALLYRNLKCSYVLNNISLATQP-YFDSYL
DQ415904        FKDFVTNKTYNIFPCYAGRVSAAFHQNASSLALLYRNLKCSYVLNNISLATQP-YFDSYL
DQ415905        FKDFVTNKTYNIFPCYAGRVSAAFHQNASSLALLYRNLKCSYVLNNISLATQP-YFDSYL
DQ415907        FKDFVTNKTYNIFPCYAGRVSAAFHQNASSLALLYRNLKCSYVLNNISLATQP-YFDSYL
DQ415914        FKDFVTNKTYNIFPCYAGRVSAAFHQNASSLALLYRNLKCSYVLNNISLATQP-YFDSYL
DQ415906        FKDFVTNKTYNIFPCYAGRVSAAFHQNASSLALLYRNLKCSYVLNNISLATQP-YFDSYL
DQ415903        FKDFVTNKTYNIFPCYAGRVSAAFHQNASSLALLYRNLKCSYVLNNISLATQP-YFDSYL
DQ415908        FKDFVTNKTYNIFPCYAGRVSAAFHQNASSLALLYRNLKCSYVLNNISLATQP-YFDSYL
DQ415900        FKDFVTNKTYNIFPCYAGRVSAAFHQNASSLALLYRNLKCSYVLNNISLATQP-YFDSYL
DQ415901        FKDFVTNKTYNIFPCYAGRVSAAFHQNASSLALLYRNLKCSYVLNNISLATQP-YFDSYL
KT779555.1      FKDFVTNKTYNIFPCYAGRVSAAFHQNASSLALLYRNLKCSYVLNNISLATQP-YFDSYL
KT779556.1      FKDFVTNKTYNIFPCYAGRVSAAFHQNASSLALLYRNLKCSYVLNNISLATQP-YFDSYL
KY674941.1      FKDFVTNKTYNIFPCYAGRVSAAFHQNASSLALLYRNLKCSYVLNNISLATQP-YFDSYL
KY674942.1      FKDFVTNKTYNIFPCYAGRVSAAFHQNASSLALLYRNLKCSYVLNNISLATQP-YFDSYL
KY674943.1      FKDFVTNKTYNIFPCYAGRVSAAFHQNASSLALLYRNLKCSYVLNNISLATQP-YFDSYL
KF686341.1      FKDFVTNKTYNIFPCYAGRVSAAFHQNASSLALLYRNLKCSYVLNNISLATQP-YFDSYL
KF686340.1      FKDFVTNKTYNIFPCYAGRVSAAFHQNASSLALLYRNLKCSYVLNNISLATQP-YFDSYL
KF686346.1      FKDFVTNKTYNIFPCYAGRVSAAFHQNASSLALLYRNLKCSYVLNNISLATQP-YFDSYL
KF686343.1      FKDFVTNKTYNIFPCYAGRVSAAFHQNASSLALLYRNLKCSYVLNNISSATQP-YFDSYL
KF430201.1      FKDFVTNKTYNIFPCYAGRVSAAFHQNASSLALLYRNLKCSYVLNNISLATQP-YFDSYL
LC315650.1      FKDFVTNKTYNIFPCYAGRVSAAFHQNASSLALLYRNLKCSYVLNNISLATQP-YFDSYL
KF686344.1      FKDFVTNKTYNIFPCYAGRVSAAFHQNASSLALLYRNLKCSYVLNNISLATQP-YFDSYL
KY983584.1      FKDFVTNKTYNIFPCYAGRVSAAFHQNASSLALLYRNLKCSYVLNNISLATQP-YFDSYL
AY884001        FKDFLTNKTYTILPCYSGRVSAAFYQNSSSPALLYRNLKCSYVLNNISFISQPFYFDSYL
MH940245.1      FKDFLTNKTYTILPCYSGRVSAAFYQNSSSPALLYRNLKCSYVLNNISFISQPFYFDSYL
LC315651.1      FKDFLTNKTYTILPCYSGRVSAAFYQNSSSPALLYRNLKCSYVLNNISFISQPFYFDSYL
KY674921.1      FKDFLTNKTYTILPCYSGRVSAAFYQNSSSPALLYRNLKCSYVLNNISFISQPFYFDSYL
DQ415902        FKDFLTNKTYTILPCYSGRVSAAFYQNSSSPALLYRNLKCSYVLNNISFISQPFYFDSYL
DQ415911        FKDFLTNKTYTILPCYSGRVSAAFYQNSSSPALLYRNLKCSYVLNNISFISQPFYFDSYL
DQ415897        FKDFLTNKTYTILPCYSGRVSAAFYQNSSSPALLYRNLKCSYVLNNISFISQPFYFDSYL
DQ415899        FKDFLTNKTYTILPCYSGRVSAAFYQNSSSPALLYRNLKCSYVLNNISFISQPFYFDSYL
DQ415913        FKDFLTNKTYTILPCYSGRVSAAFYQNSSSPALLYRNLKCSYVLNNISFISQPFYFDSYL
DQ415912        FKDFLTNKTYTILPCYSGRVSAAFYQNSSSPALLYRNLKCSYVLNNISFISQPFYFDSYL
DQ415898        FKDFLTNKTYTILPCYSGRVSAAFYQNSSSPALLYRNLKCSYVLNNISFISQPFYFDSYL
```

```
DQ339101.1      FKDFLTNKTYTILPCYSGRVSAAFYQNSSSPALLYRNLKCSYVLNNISFISQPFYFDSYL
MK167038.1      FKDFLTNKTYTILPCYSGRVSAAFYKNSSSPALLYRNLKCSYVLNNISFISQPFYFDSYL
                ****:*****.*:***:*******::*:** ***************  :** ******

NC_006577.2     GCVFNADNLTDYSVSSCALRMGSGFCVDYNSPSSSSSRRKRRSISASYRFVTFEPFNVSF
DQ415910        GCVFNADNLTDYSVSSCALRMGSGFCVDYNSPSSSSSRRKRRSISASYRFVTFEPFNVSF
DQ415896        GCVFNADNLTDYSVSSCALRMGSGFCVDYNSPSSSSSRRKRRSISASYRFVTFEPFNVSF
DQ415909        GCVFNADNLTDYSVSSCALRMGSGFCVDYNSPSSSSSRRKRRSISASYRFVTFEPFNVSF
DQ415904        GCVFNADNLTDYSVSSCALRMGSGFCVDYNSPSSSSSRRKRRSISASYRFVTFEPFNVSF
DQ415905        GCVFNADNLTDYSVSSCALRMGSGFCVDYNSPSSSSSRRKRRSISASYRFVTFEPFNVSF
DQ415907        GCVFNADNLTDYSVSSCALRMGSGFCVDYNSPSSSSSRRKRRSISASYRFVTFEPFNVSF
DQ415914        GCVFNADNLTDYSVSSCALRMGSGFCVDYNSPSSSSSRRKRRSISASYRFVTFEPFNVSF
DQ415906        GCVFNADNLTDYSVSSCALRMGSGFCVDYNSPSSSSSRRKRRSISASYRFVTFEPFNVSF
DQ415903        GCVFNADNLTDYSVSSCALRMGSGFCVDYNSPSSSSSRRKRRSISASYRFVTFEPFNVSF
DQ415908        GCVFNADNLTDYSVSSCALRMGSGFCVDYNSPSSSSSRRKRRSISASYRFVTFEPFNVSF
DQ415900        GCVFNADNLTDYSVSSCALRMGSGFCVDYNSPSSSSSRRKRRSISASYRFVTFEPFNVSF
DQ415901        GCVFNADNLTDYSVSSCALRMGSGFCVDYNSPSSSSSRRKRRSISASYRFVTFEPFNVSF
KT779555.1      GCVFNADNLTDYSVSSCALRMGSGFCVDYNSPSSSSSRRKRRSISASYRFVTFEPFNVSF
KT779556.1      GCVFNADNLTDYSVSSCALRMGSGFCVDYNSPSSSSSRRKRRSISASYRFVTFEPFNVSF
KY674941.1      GCVFNADNLTDYSVSSCALRMGSGFCVDYNSPSFSSSRRKRRSISASYRFVTFEPFNVSF
KY674942.1      GCVFNADNLTDYSVSSCALRMGSGFCVDYNSPSFSSSRRKRRSISASYRFVTFEPFNVSF
KY674943.1      GCVFNADNLTDYSVSSCALRMGSGFCVDYNSPSFSSSRRKRRSISASYRFVTFEPFNVSF
KF686341.1      GCVFNADNLTDYSVSSCALRMGSGFCVDYNSPSFSSSRRKRRSISASYRFVTFEPFNVSF
KF686340.1      GCVFNADNLTDYSVSSCALRMGSGFCVDYNSPSFSSSRRKRRSISASYRFVTFEPFNVSF
KF686346.1      GCVFNADNLTDYSVSSCALRMGSGFCVDYNSPSFSSSRRKRRSISASYRFVTFEPFNVSF
KF686343.1      GCVFNADNLTDYSVSSCALRMGSGFCVDYNSPSFSSSRRKRRSISASYRFVTFEPFNVSF
KF430201.1      GCVFNADNLTDYSVSSCALRMGSGFCVDYNSPSFSSSRRKRRSISASYRFVTFEPFNVSF
LC315650.1      GCVFNADNLTDYSVSSCALRMGSGFCVDYNSPSSSSSRRKRRSISASYRFVTFEPFNVSF
KF686344.1      GCVFNADNLTDYSVSSCALRMGSGFCVDYNSPSSSSSRRKRRSISASYRFVTFEPFNVSF
KY983584.1      GCVFNADNLTDYSVSSCALRIGSGFCVDYNSPSSSSSRRKRRSISASYRFVTFEPFNVSF
AY884001        GCVLNAVNLTSYSVSSCDLRMGSGFCIDYALPS---SRRKRRGISSPYRFVTFEPFNVSF
MH940245.1      GCVLNAVNLTSYSVSSCDLRMGSGFCIDYALPS---SRRKRRGISSPYRFVTFEPFNVSF
LC315651.1      GCVLNAVNLTSYSVSSCDLRMGSGFCIDYALPS---SRRKRRGISSPYRFVTFEPFNVSF
KY674921.1      GCVLNAVNLTSYSVSSCDLRMGSGFCIDYALPS---SRRKRRGISSPYRFVTFEPFNVSF
DQ415902        GCVLNAVNLTSYSVSSCDLRMGSGFCIDYALPS---SRRKRRGISSPYRFVTFEPFNVSF
DQ415911        GCVLNAVNLTSYSVSSCDLRMGSGFCIDYALPS---SRRKRRGISSPYRFVTFEPFNVSF
DQ415897        GCVLNAVNLTSYSVSSCDLRMGSGFCIDYALPS---SRRKRRGISSPYRFVTFEPFNVSF
DQ415899        GCVLNAVNLTSYSVSSCDLRMGSGFCIDYALPS---SRRKRRGISSPYRFVTFEPFNVSF
DQ415913        GCVLNAVNLTSYSVSSCDLRMGSGFCIDYALPS---SRRKRRGISSPYRFVTFEPFNVSF
DQ415912        GCVLNAVNLTSYSVSSCDLRMGSGFCIDYALPS---SRRKRRGISSPYRFVTFEPFNVSF
DQ415898        GCVLNAVNLTSYSVSSCDLRMGSGFCIDYALPS---SRRKRRGISSPYRFVTFEPFNVSF
DQ339101.1      GCVLNAVNLTSYSVSSCDLRMGSGFCIDYALPS---SRRKRRGISSPYRFVTFEPFNVSF
MK167038.1      GCVLNAVNLTSYSVSSCDLRMGSGFCIDYALPS---SRRKRRGISSPYRFVTFEPFNVSF
                ***:** ***.****** **:*****:**  **   ******.**:.**************

NC_006577.2     VNDSIESVGGLYEIKIPTNFTIVGQEEFIQTNSPKVTIDCSLFVCSNYAACHDLLSEYGT
DQ415910        VNDSIESVGGLYEIKIPTNFTIVGQEEFIQTNSPKVTIDCSLFVCSNYAACHDLLSEYGT
DQ415896        VNDSIESVGGLYEIKIPTNFTIVGQEEFIQTNSPKVTIDCSLFVCSNYAACHDLLSEYGT
DQ415909        VNDSIESVGGLYEIKIPTNFTIVGQEEFIQTNSPKVTIDCSLFVCSNYAACHDLLSEYGT
DQ415904        VNDSIESVGGLYEIKIPTNFTIVGQEEFIQTNSPKVTIDCSLFVCSNYAACHDLLSEYGT
DQ415905        VNDSIESVGGLYEIKIPTNFTIVGQEEFIQTNSPKVTIDCSLFVCSNYAACHDLLSEYGT
DQ415907        VNDSIESVGGLYEIKIPTNFTIVGQEEFIQTNSPKVTIDCSLFVCSNYAACHDLLSEYGT
DQ415914        VNDSIESVGGLYEIKIPTNFTIVGQEEFIQTNSPKVTIDCSLFVCSNYAACHDLLSEYGT
DQ415906        VNDSIESVGGLYEIKIPTNFTIVGQEEFIQTNSPKVTIDCSLFVCSNYAACHDLLSEYGT
DQ415903        VNDSIESVGGLYEIKIPTNFTIVGQEEFIQTNSPKVTIDCSLFVCSNYAACHDLLSEYGT
DQ415908        VNDSIESVGGLYEIKIPTNFTIVGQEEFIQTNSPKVTIDCSLFVCSNYAACHDLLSEYGT
```

```
DQ415900        VNDSIESVGGLYEIKIPTNFTIVGQEEFIQTNSPKVTIDCSLFVCSNYAACHDLLSEYGT
DQ415901        VNDSIESVGGLYEIKIPTNFTIVGQEEFIQTNSPKVTIDCSLFVCSNYAACHDLLSEYGT
KT779555.1      VNDSIESVGGLYEIKIPTNFTIVGQEEFIQTNSPKVTIDCSLFVCSNYAACHDLLSEYGT
KT779556.1      VNDSIESVGGLYEIKIPTNFTIVGQEEFIQTNSPKVTIDCSLFVCSNYAACHDLLSEYGT
KY674941.1      VNDSIESVGGLYEIKIPTNFTIVGQEEFIQTNSPKVTIDCSLFVCSNYAACHDLLSEYGT
KY674942.1      VNDSIESVGGLYEIKIPTNFTIVGQEEFIQTNSPKVTIDCSLFVCSNYAACHDLLSEYGT
KY674943.1      VNDSIESVGGLYEIKIPTNFTIVGQEEFIQTNSPKVTIDCSLFVCSNYAACHDLLSEYGT
KF686341.1      VNDSIESVGGLYEIKIPTNFTIVGQEEFIQTNSPKVTIDCSLFVCSNYAACHDLLSEYGT
KF686340.1      VNDSIESVGGLYEIKIPTNFTIVGQEEFIQTNSPKVTIDCSLFVCSNYAACHDLLSEYGT
KF686346.1      VNDSIESVGGLYEIKIPTNFTIVGQEEFIQTNSPKVTIDCSLFVCSNYAACHDLLSEYGT
KF686343.1      VNDSIESVGGLYEIKIPTNFTIVGQEEFIQTNSPKVTIDCSLFVCSNYAACHDLLSEYGT
KF430201.1      VNDSIESVGGLYEIKIPTNFTIVGQEEFIQTNSPKVTIDCSLFVCSNYAACHDLLSEYGT
LC315650.1      VNDSIESVGGLYEIKIPTNFTIVGQEEFIQTNSPKVTIDCSLFVCSNYAACHDLLSEYGT
KF686344.1      VNDSIESVGGLYEIKIPTNFTIVGQEEFIQTNSPKVTIDCSLFVCSNYAACHDLLSEYGT
KY983584.1      VNDSIESVGGLYEIKIPTNFTIVGQEEFIQTNSPKVTIDCSLFVCSNYAACHDLLSEYGT
AY884001        VNDSVETVGGLFEIQIPTNFTIAGHEEFIQTSSPKVTIDCSAFVCSNYAACHDLLSEYGT
MH940245.1      VNDSVETVGGLFEIQIPTNFTIAGHEEFIQTSSPKVTIDCSAFVCSNYAACHDLLSEYGT
LC315651.1      VNDSVETVGGLFEIQIPTNFTIAGHEEFIQTSSPKVTIDCSAFVCSNYAACHDLLSEYGT
KY674921.1      VNDSVETVGGLFEIQIPTNFTIAGHEEFIQTSSPKVTIDCSAFVCSNYAACHDLLSEYGT
DQ415902        VNDSVETVGGLFEIQIPTNFTIAGHEEFIQTSSPKVTIDCSAFVCSNYAACHDLLSEYGT
DQ415911        VNDSVETVGGLFEIQIPTNFTIAGHEEFIQTSSPKVTIDCSAFVCSNYAACHDLLSEYGT
DQ415897        VNDSVETVGGLFEIQIPTNFTIAGHEEFIQTSSPKVTIDCAAFVCSNYAACHDLLSEYGT
DQ415899        VNDSVETVGGLFEIQIPTNFTIAGHEEFIQTSSPKVTIDCAAFVCSNYAACHDLLSEYGT
DQ415913        VNDSVETVGGLFEIQIPTNFTIAGHEEFIQTSSPKVTIDCAAFVCSNYAACHDLLSEYGT
DQ415912        VNDSVETVGGLFEIQIPTNFTIAGHEEFIQTSSPKVTIDCAAFVCSNYAACHDLLSEYGT
DQ415898        VNDSVETVGGLFEIQIPTNFTIAGHEEFIQTSSPKVTIDCSAFVCSNYAACHDLLSEYGT
DQ339101.1      VNDSVETVGGLFEIQIPTNFTIAGHEEFIQTSSPKVTIDCSAFVCSNYAACHDLLSEYGT
MK167038.1      VNDSVETVGGLFEIQIPTNFTIAGHEEFIQTSSPKVTIDCSAFVCSNYAACHDLLSEYGT
                ****:*:****:**:*******.*:******.********: **********

NC_006577.2     FCDNINSILDEVNGLLDTTQLHVADTLMQGVTLSSNLNTNLHFDVDNINFKSLVGCLGPH
DQ415910        FCDNINSILDEVNGLLDTTQLHVADTLMQGVTLSSNLNTNLHFDVDNINFKSLVGCLGPH
DQ415896        FCDNINSILDEVNGLLDTTQLHVADTLMQGVTLSSNLNTNLHFDVDNINFKSLVGCLGPH
DQ415909        FCDNINSILDEVNGLLDTTQLHVADTLMQGVTLSSNLNTNLHFDVDNINFKSLVGCLGPH
DQ415904        FCDNINSILDEVNGLLDTTQLHVADTLMQGVTLSSNLNTNLHFDVDNINFKSLVGCLGPH
DQ415905        FCDNINSILDEVNGLLDTTQLHVADTLMQGVTLSSNLNTNLHFDVDNINFKSLVGCLGPH
DQ415907        FCDNINSILDEVNGLLDTTQLHVADTLMQGVTLSSNLNTNLHFDVDNINFKSLVGCLGPH
DQ415914        FCDNINSILDEVNGLLDTTQLHVADTLMQGVTLSSNLNTNLHFDVDNINFKSLVGCLGPH
DQ415906        FCDNINSILDEVNGLLDTTQLHVADTLMQGVTLSSNLNTNLHFDVDNINFKSLVGCLGPH
DQ415903        FCDNINSILDEVNGLLDTTQLHVADTLMQGVTLSSNLNTNLHFDVDNINFKSLVGCLGPH
DQ415908        FCDNINSILDEVNGLLDTTQLHVADTLMQGVTLSSNLNTNLHFDVDNINFKSLVGCLGPH
DQ415900        FCDNINSILDEVNGLLDTTQLHVADTLMQGVTLSSNLNTNLHFDVDNINFKSLVGCLGPH
DQ415901        FCDNINSILDEVNGLLDTTQLHVADTLMQGVTLSSNLNTNLHFDVDNINFKSLVGCLGPH
KT779555.1      FCDNINSILDEVNGLLDTTQLHVADTLMQGVTLSSNLNTNLHFDVDNINFKSLVGCLGPH
KT779556.1      FCDNINSILDEVNGLLDTTQLHVADTLMQGVTLSSNLNTNLHFDVDNINFKSLVGCLGPH
KY674941.1      FCDNINSILDEVNGLLDTTQLHVADTLMQGVTLSSNLNTNLHFDVDNINFKSLVGCLGPH
KY674942.1      FCDNINSILDEVNGLLDTTQLHVADTLMQGVTLSSNLNTNLHFDVDNINFKSLVGCLGPH
KY674943.1      FCDNINSILDEVNGLLDTTQLHVADTLMQGVTLSSNLNTNLHFDVDNINFKSLVGCLGPH
KF686341.1      FCDNINSILDEVNGLLDTTQLHVADTLMQGVTLSSNLNTNLHFDVDNINFKSLVGCLGPH
KF686340.1      FCDNINSILDEVNGLLDTTQLHVADTLMQGVTLSSNLNTNLHFDVDNINFKSLVGCLGPH
KF686346.1      FCDNINSILDEVNGLLDTTQLHVADTLMQGVTLSSNLNTNLHFDVDNINFKSLVGCLGPH
KF686343.1      FCDNINSILDEVNGLLDTTQLHVADTLMQGVTLSSNLNTNLHFDVDNINFKSLVGCLGPH
KF430201.1      FCDNINSILDEVNGLLDTTQLHVADTLMQGVTLSSNLNTNLHFDVDNINFKSLVGCLGPH
LC315650.1      FCDNINSILDEVNGLLDTTQLHVADTLMQGVTLSSNLNTNLHFDVDNINFKSLVGCLGPH
KF686344.1      FCDNINSILDEVNGLLDTTQLHVADTLMQGVTLSSNLNTNLHFDVDNINFKSLVGCLGPH
KY983584.1      FCDNINSILDEVNGLLDTTQLHVADTLMQGVTLSSNLNTNLHFDVDNINFKSLVGCLGPH
```

```
AY884001          FCDNINSILNEVNDLLDITQLQVANALMQGVTLSSNLNTNLHSDVDNIDFKSLLGCLGSQ
MH940245.1        FCDNINSILNEVNDLLDITQLQVANALMQGVTLSSNLNTNLHSDVDNIDFKSLLGCLGSQ
LC315651.1        FCDNINSILNEVNDLLDITQLQVANALMQGVTLSSNLNTNLHSDVDNIDFKSLLGCLGSQ
KY674921.1        FCDNINSILNEVNDLLDITQLQVANALMQGVTLSSNLNTNLHSDVDNIDFKSLLGCLGSQ
DQ415902          FCDNINSILNEVNDLLDITQLQVANALMQGVTLSSNLNTNLHSDVDNIDFKSLLGCLGSQ
DQ415911          FCDNINSILNEVNDLLDITQLQVANALMQGVTLSSNLNTNLHSDVDNIDFKSLLGCLGSQ
DQ415897          FCDNINSILNEVNDLLDITQLQVANALMQGVTLSSNLNTNLHSDVDNIDFKSLLGCLGSQ
DQ415899          FCDNINSILNEVNDLLDITQLQVANALMQGVTLSSNLNTNLHSDVDNIDFKSLLGCLGSQ
DQ415913          FCDNINSILNEVNDLLDITQLQVANALMQGVTLSSNLNTNLHSDVDNIDFKSLLGCLGSQ
DQ415912          FCDNINSILNEVNDLLDITQLQVANALMQGVTLSSNLNTNLHSDVDNIDFKSLLGCLGSQ
DQ415898          FCDNINSILNEVNDLLDITQLQVANALMQGVTLSSNLNTNLHSDVDNIDFKSLLGCLGSQ
DQ339101.1        FCDNINSILNEVNDLLDITQLQVANALMQGVTLSSNLNTNLHSDVDNIDFKSLLGCLGSQ
MK167038.1        FCDNINSILNEVNDLLDITQLQVANALMQGVTLSSNLNTNLHSDVDNIDFKSLLGCLGSQ
                  *********:***.*** ***:**::*************** *****:****:****.:*

NC_006577.2       CGSSSRSFFEDLLFDKVKLSDVGFVEAYNNCTGGSEIRDLLCVQSFNGIKVLPPILSESQ
DQ415910          CGSSSRSFFEDLLFDKVKLSDVGFVEAYNNCTGGSEIRDLLCVQSFNGIKVLPPILSESQ
DQ415896          CGSSSRSFFEDLLFDKVKLSDVGFVEAYNNCTGGSEIRDLLCVQSFNGIKVLPPILSESQ
DQ415909          CGSSSRSFFEDLLFDKVKLSDVGFVEAYNNCTGGSEIRDLLCVQSFNGIKVLPPILSESQ
DQ415904          CGSSSRSFFEDLLFDKVKLSDVGFVEAYNNCTGGSEIRDLLCVQSFNGIKVLPPILSESQ
DQ415905          CGSSSRSFFEDLLFDKVKLSDVGFVEAYNNCTGGSEIRDLLCVQSFNGIKVLPPILSESQ
DQ415907          CGSSSRSFFEDLLFDKVKLSDVGFVEAYNNCTGGSEIRDLLCVQSFNGIKVLPPILSESQ
DQ415914          CGSSSRSFFEDLLFDKVKLSDVGFVEAYNNCTGGSEIRDLLCVQSFNGIKVLPPILSESQ
DQ415906          CGSSSRSFFEDLLFDKVKLSDVGFVEAYNNCTGGSEIRDLLCVQSFNGIKVLPPILSESQ
DQ415903          CGSSSRSFFEDLLFDKVKLSDVGFVEAYNNCTGGSEIRDLLCVQSFNGIKVLPPILSESQ
DQ415908          CGSSSRSFFEDLLFDKVKLSDVGFVEAYNNCTGGSEIRDLLCVQSFNGIKVLPPILSESQ
DQ415900          CGSSSRSFFEDLLFDKVKLSDVGFVEAYNNCTGGSEIRDLLCVQSFNGIKVLPPILSESQ
DQ415901          CGSSSRSFFEDLLFDKVKLSDVGFVEAYNNCTGGSEIRDLLCVQSFNGIKVLPPILSESQ
KT779555.1        CGSSSRSFFEDLLFDKVKLSDVGFVEAYNNCTGGSEIRDLLCVQSFNGIKVLPPILSESQ
KT779556.1        CGSSSRSFFEDLLFDKVKLSDVGFVEAYNNCTGGSEIRDLLCVQSFNGIKVLPPILSESQ
KY674941.1        CGSSSRSFFEDLLFDKVKLSDVGFVEAYNNCTGGSEIRDLLCVQSFNGIKVLPPILSESQ
KY674942.1        CGSSSRSFFEDLLFDKVKLSDVGFVEAYNNCTGGSEIRDLLCVQSFNGIKVLPPILSESQ
KY674943.1        CGSSSRSFFEDLLFDKVKLSDVGFVEAYNNCTGGSEIRDLLCVQSFNGIKVLPPILSESQ
KF686341.1        CGSSSRSFFEDLLFDKVKLSDVGFVEAYNNCTGGSEIRDLLCVQSFNGIKVLPPILSESQ
KF686340.1        CGSSSRSFFEDLLFDKVKLSDVGFVEAYNNCTGGSEIRDLLCVQSFNGIKVLPPILSESQ
KF686346.1        CGSSSRSFFEDLLFDKVKLSDVGFVEAYNNCTGGSEIRDLLCVQSFNGIKVLPPILSESQ
KF686343.1        CGSSSRSFFEDLLFDKVKLSDVGFVEAYNNCTGGSEIRDLLCVQSFNGIKVLPPILSESQ
KF430201.1        CGSSSRSFFEDLLFDKVKLSDVGFVEAYNNCTGGSEIRDLLCVQSFNGIKVLPPILSESQ
LC315650.1        CGSSSRSFFEDLLFDKVKLSDVGFVEAYNNCTGGSEIRDLLCVQSFNGIKVLPPILSESQ
KF686344.1        CGSSSRSFFEDLLFDKVKLSDVGFVEAYNNCTGGSEIRDLLCVQSFNGIKVLPPILSESQ
KY983584.1        CGSSSRSFIEDLLFDKVKLSDVGFVEAYNNCTGGSEIRDLLCVQSFNGIKVLPPILSESQ
AY884001          CGSSSRSLLEDLLFNKVKLSDVGFVEAYNNCTGGSEIRDLLCVQSFNGIKVLPPILSETQ
MH940245.1        CGSSSRSLLEDLLFNKVKLSDVGFVEAYNNCTGGSEIRDLLCVQSFNGIKVLPPILSETQ
LC315651.1        CGSSSRSLLEDLLFNKVKLSDVGFVEAYNNCTGGSEIRDLLCVQSFNGIKVLPPILSETQ
KY674921.1        CGSSSRSLLEDLLFNKVKLSDVGFVEAYNNCTGGSEIRDLLCVQSFNGIKVLPPILSETQ
DQ415902          CGSSSRSLLEDLLFNKVKLSDVGFVEAYNNCTGGSEIRDLLCVQSFNGIKVLPPILSETQ
DQ415911          CGSSSRSLLEDLLFNKVKLSDVGFVEAYNNCTGGSEIRDLLCVQSFNGIKVLPPILSETQ
DQ415897          CGSSSRSLLEDLLFNKVKLSDVGFVEAYNNCTGGSEIRDLLCVQSFNGIKVLPPILSETQ
DQ415899          CGSSSRSLLEDLLFNKVKLSDVGFVEAYNNCTGGSEIRDLLCVQSFNGIKVLPPILSETQ
DQ415913          CGSSSRSLLEDLLFNKVKLSDVGFVEAYNNCTGGSEIRDLLCVQSFNGIKVLPPILSETQ
DQ415912          CGSSSRSLLEDLLFNKVKLSDVGFVEAYNNCTGGSEIRDLLCVQSFNGIKVLPPILSETQ
DQ415898          CGSSSRSLLEDLLFNKVKLSDVGFVEAYNNCTGGSEIRDLLCVQSFNGIKVLPPILSETQ
DQ339101.1        CGSSSRSLLEDLLFNKVKLSDVGFVEAYNNCTGGSEIRDLLCVQSFNGIKVLPPILSETQ
MK167038.1        CGSSSRSLLEDLLFNKVKLSDVGFVEAYNNCTGGSEIRDLLCVQSFNGIKVLPPILSETQ
                  *******::*****:****************************************:*
```

```
NC_006577.2     ISGYTTAATVAAMFPPWSAAAGIPFSLNVQYRINGLGVTMDVLNKNQKLIATAFNNALLS
DQ415910        ISGYTTAATVAAMFPPWSAAAGIPFSLNVQYRINGLGVTMDVLNKNQKLIATAFNNALLS
DQ415896        ISGYTTAATVAAMFPPWSAAAGIPFSLNVQYRINGLGVTMDVLNKNQKLIATAFNNALLS
DQ415909        ISGYTTAATVAAMFPPWSAAAGIPFSLNVQYRINGLGVTMDVLNKNQKLIATAFNNALLS
DQ415904        ISGYTTAATVAAMFPPWSAAAGIPFSLNVQYRINGLGVTMDVLNKNQKLIATAFNNALLS
DQ415905        ISGYTTAATVAAMFPPWSAAAGIPFSLNVQYRINGLGVTMDVLNKNQKLIATAFNNALLS
DQ415907        ISGYTTAATVAAMFPPWSAAAGIPFSLNVQYRINGLGVTMDVLNKNQKLIATAFNNALLS
DQ415914        ISGYTTAATVAAMFPPWSAAAGIPFSLNVQYRINGLGVTMDVLNKNQKLIATAFNNALLS
DQ415906        ISGYTTAATVAAMFPPWSAAAGIPFSLNVQYRINGLGVTMDVLNKNQKLIATAFNNALLS
DQ415903        ISGYTTAATVAAMFPPWSAAAGIPFSLNVQYRINGLGVTMDVLNKNQKLIATAFNNALLS
DQ415908        ISGYTTAATVAAMFPPWSAAAGIPFSLNVQYRINGLGVTMDVLNKNQKLIATAFNNALLS
DQ415900        ISGYTTAATVAAMFPPWSAAAGIPFSLNVQYRINGLGVTMDVLNKNQKLIATAFNNALLS
DQ415901        ISGYTTAATVAAMFPPWSAAAGIPFSLNVQYRINGLGVTMDVLNKNQKLIATAFNNALLS
KT779555.1      ISGYTTAATVAAMFPPWSAAAGIPFSLNVQYRINGLGVTMDVLNKNQKLIATAFNNALLS
KT779556.1      ISGYTTAATVAAMFPPWSAAAGIPFSLNVQYRINGLGVTMDVLNKNQKLIATAFNNALLS
KY674941.1      ISGYTTAATVAAMFPPWSAAAGIPFSLNVQYRINGLGVTMDVLNKNQKLIATAFNNALLS
KY674942.1      ISGYTTAATVAAMFPPWSAAAGIPFSLNVQYRINGLGVTMDVLNKNQKLIATAFNNALLS
KY674943.1      ISGYTTAATVAAMFPPWSAAAGIPFSLNVQYRINGLGVTMDVLNKNQKLIATAFNNALLS
KF686341.1      ISGYTTAATVAAMFPPWSAAAGIPFSLNVQYRINGLGVTMDVLNKNQKLIATAFNNALLS
KF686340.1      ISGYTTAATVAAMFPPWSAAAGIPFSLNVQYRINGLGVTMDVLNKNQKLIATAFNNALLS
KF686346.1      ISGYTTAATVAAMFPPWSAAAGIPFSLNVQYRINGLGVTMDVLNKNQKLIATAFNNALLS
KF686343.1      ISGYTTAATVAAMFPPWSAAAGIPFSLNVQYRINGLGVTMDVLNKNQKLIATAFNNALLS
KF430201.1      ISGYTTAATVAAMFPPWSAAAGIPFSLNVQYRINGLGVTMDVLNKNQKLIATAFNNALLS
LC315650.1      ISGYTTAATVAAMFPPWSAAAGIPFSLNVQYRINGLGVTMDVLNKNQKLIATAFNNALLS
KF686344.1      ISGYTTAATVAAMFPPWSAAAGIPFSLNVQYRINGLGVTMDVLNKNQKLIATAFNNALLS
KY983584.1      ISGYTTAATVAAMFPPWSAAAGIPFSLNVQYRINGLGVTMDVLNKNQKLIATAFNNALLS
AY884001        ISGYTTAATVAAMFPPWSAAAGVPFSLNVQYRINGLGVTMDVLNKNQKLIANAFNKALLS
MH940245.1      ISGYTTAATVAAMFPPWSAAAGVPFSLNVQYRINGLGVTMDVLNKNQKLIANAFNKALLS
LC315651.1      ISGYTTAATVAAMFPPWSAAAGVPFSLNVQYRINGLGVTMDVLNKNQKLIANAFNKALLS
KY674921.1      ISGYTTAATVAAMFPPWSAAAGVPFSLNVQYRINGLGVTMDVLNKNQKLIANAFNKALLS
DQ415902        ISGYTTAATVAAMFPPWSAAAGVPFSLNVQYRINGLGVTMDVLNKNQKLIANAFNKALLS
DQ415911        ISGYTTAATVAAMFPPWSAAAGVPFSLNVQYRINGLGVTMDVLNKNQKLIANAFNKALLS
DQ415897        ISGYTTAATVAAMFPPWSAAAGVPFSLNVQYRINGLGVTMDVLNKNQKLIANAFNKALLS
DQ415899        ISGYTTAATVAAMFPPWSAAAGVPFSLNVQYRINGLGVTMDVLNKNQKLIANAFNKALLS
DQ415913        ISGYTTAATVAAMFPPWSAAAGVPFSLNVQYRINGLGVTMDVLNKNQKLIANAFNKALLS
DQ415912        ISGYTTAATVAAMFPPWSAAAGVPFSLNVQYRINGLGVTMDVLNKNQKLIANAFNKALLS
DQ415898        ISGYTTAATVAAMFPPWSAAAGVPFSLNVQYRINGLGVTMDVLNKNQKLIANAFNKALLS
DQ339101.1      ISGYTTAATVAAMFPPWSAAAGVPFSLNVQYRINGLGVTMDVLNKNQKLIANAFNKALLS
MK167038.1      ISGYTTAATVAAMFPPWSAAAGVPFSLNVQYRINGLGVTMDVLNKNQKLIANAFNKALLS
                ********************:**************************.***:****

NC_006577.2     IQNGFSATNSALAKIQSVVNSNAQALNSLLQQLFNKFGAISSSLQEILSRLDALEAQVQI
DQ415910        IQNGFSATNSALAKIQSVVNSNAQALNSLLQQLFNKFGAISSSLQEILSRLDALEAQVQI
DQ415896        IQNGFSATNSALAKIQSVVNSNAQALNSLLQQLFNKFGAISSSLQEILSRLDALEAQVQI
DQ415909        IQNGFSATNSALAKIQSVVNSNAQALNSLLQQLFNKFGAISSSLQEILSRLDALEAQVQI
DQ415904        IQNGFSATNSALAKIQSVVNSNAQALNSLLQQLFNKFGAISSSLQEILSRLDALEAQVQI
DQ415905        IQNGFSATNSALAKIQSVVNSNAQALNSLLQQLFNKFGAISSSLQEILSRLDALEAQVQI
DQ415907        IQNGFSATNSALAKIQSVVNSNAQALNSLLQQLFNKFGAISSSLQEILSRLDALEAQVQI
DQ415914        IQNGFSATNSALAKIQSVVNSNAQALNSLLQQLFNKFGAISSSLQEILSRLDALEAQVQI
DQ415906        IQNGFSATNSALAKIQSVVNSNAQALNSLLQQLFNKFGAISSSLQEILSRLDALEAQVQI
DQ415903        IQNGFSATNSALAKIQSVVNSNAQALNSLLQQLFNKFGAISSSLQEILSRLDVLEAQVQI
DQ415908        IQNGFSATNSALAKIQSVVNSNAQALNSLLQQLFNKFGAISSSLQEILSRLDALEAQVQI
DQ415900        IQNGFSATNSALAKIQSVVNSNAQALNSLLQQLFNKFGAISSSLQEILSRLDALEAQVQI
DQ415901        IQNGFSATNSALAKIQSVVNSNAQALNSLLQQLFNKFGAISSSLQEILSRLDALEAQVQI
KT779555.1      IQNGFSATNSALAKIQSVVNSNAQALNSLLQQLFNKFGAISSSLQEILSRLDALEAQVQI
KT779556.1      IQNGFSATNSALAKIQSVVNSNAQALNSLLQQLFNKFGAISSSLQEILSRLDALEAQVQI
```

```
KY674941.1      IQNGFSATNSALAKIQSVVNSNAQALNSLLQQLFNKFGAISSSLQEILSRLDALEAQVQI
KY674942.1      IQNGFSATNSALAKIQSVVNSNAQALNSLLQQLFNKFGAISSSLQEILSRLDALEAQVQI
KY674943.1      IQNGFSATNSALAKIQSVVNSNAQALNSLLQQLFNKFGAISSSLQEILSRLDALEAQVQI
KF686341.1      IQNGFSATNSALAKIQSVVNSNAQALNSLLQQLFNKFGAISSSLQEILSRLDALEAQVQI
KF686340.1      IQNGFSATNSALAKIQSVVNSNAQALNSLLQQLFNKFGAISSSLQEILSRLDALEAQVQI
KF686346.1      IQNGFSATNSALAKIQSVVNSNAQALNSLLQQLFNKFGAISSSLQEILSRLDALEAQVQI
KF686343.1      IQNGFSATNSALAKIQSVVNSNAQALNSLLQQLFNKFGAISSSLQEILSRLDALEAQVQI
KF430201.1      IQNGFSATNSALAKIQSVVNSNAQALNSLLQQLFNKFGAISSSLQEILSRLDALEAQVQI
LC315650.1      IQNGFSATNSALAKIQSVVNSNAQALNSLLQQLFNKFGAISSSLQEILSRLDALEAQVQI
KF686344.1      IQNGFSATNSALAKIQSVVNSNAQALNSLLQQLFNKFGAISSSLQEILSRLDALEAQVQI
KY983584.1      IQNGFSATNSALAKIQSVVNSNAQALNSLLQQLFNKFGAISSSLQEILSRLDALEAQVQI
AY884001        IQNGFTATNSALAKIQSVVNANAQALNSLLQQLFNKFGAISSSLQEILSRLDNLEAQVQI
MH940245.1      IQNGFTATNSALAKIQSVVNANAQALNSLLQQLFNKFGAISSSLQEILSRLDNLEAQVQI
LC315651.1      IQNGFTATNSALAKIQSVVNANAQALNSLLQQLFNKFGAISSSLQEILSRLDNLEAQVQI
KY674921.1      IQNGFTATNSALAKIQSVVNANAQALNSLLQQLFNKFGAISSSLQEILSRLDNLEAQVQI
DQ415902        IQNGFTATNSALAKIQSVVNANAQALNSLLQQLFNKFGAISSSLQEILSRLDNLEAQVQI
DQ415911        IQNGFTATNSALAKIQSVVNANAQALNSLLQQLFNKFGAISSSLQEILSRLDNLEAQVQI
DQ415897        IQNGFTATNSALAKIQSVVNANAQALNSLLQQLFNKFGAISSSLQEILSRLDNLEAQVQI
DQ415899        IQNGFTATNSALAKIQSVVNANAQALNSLLQQLFNKFGAISSSLQEILSRLDNLEAQVQI
DQ415913        IQNGFTATNSALAKIQSVVNANAQALNSLLQQLFNKFGAISSSLQEILSRLDNLEAQVQI
DQ415912        IQNGFTATNSALAKIQSVVNANAQALNSLLQQLFNKFGAISSSLQEILSRLDNLEAQVQI
DQ415898        IQNGFTATNSALAKIQSVVNANAQALNSLLQQLFNKFGAISSSLQEILSRLDNLEAQVQI
DQ339101.1      IQNGFTATNSALAKIQSVVNANAQALNSLLQQLFNKFGAISSSLQEILSRLDNLEAQVQI
MK167038.1      IQNGFTATNSALAKIQSVVNANAQALNSLLQQLFNKFGAISSSLQEILSRLDNLEAQVQI
                *****:**************:****************************** *******

NC_006577.2     DRLINGRLTALNAYVSQQLSDISLVKFGAALAMEKVNECVKSQSPRINFCGNGNHILSLV
DQ415910        DRLINGRLTALNAYVSQQLSDISLVKFGAALAMEKVNECVKSQSPRINFCGNGNHILSLV
DQ415896        DRLINGRLTALNAYVSQQLSDISLVKFGAALAMEKVNECVKSQSPRINFCGNGNHILSLV
DQ415909        DRLINGRLTALNAYVSQQLSDISLVKFGAALAMEKVNECVKSQSPRINFCGNGNHILSLV
DQ415904        DRLINGRLTALNAYVSQQLSDISLVKFGAALAMEKVNECVKSQSPRINFCGNGNHILSLV
DQ415905        DRLINGRLTALNAYVSQQLSDISLVKFGAALAMEKVNECVKSQSPRINFCGNGNHILSLV
DQ415907        DRLINGRLTALNAYVSQQLSDISLVKFGAALAMEKVNECVKSQSPRINFCGNGNHILSLV
DQ415914        DRLINGRLTALNAYVSQQLSDISLVKFGAALAMEKVNECVKSQSPRINFCGNGNHILSLV
DQ415906        DRLINGRLTALNAYVSQQLSDISLVKFGAALAMEKVNECVKSQSPRINFCGNGNHILSLV
DQ415903        DRLINGRLTALNAYVSQQLSDISLVKFGAALAMEKVNECVKSQSPRINFCGNGNHILSLV
DQ415908        DRLINGRLTALNAYVSQQLSDISLVKFGAALAMEKVNECVKSQSPRINFCGNGNHILSLV
DQ415900        DRLINGRLTALNAYVSQQLSDISLVKFGAALAMEKVNECVKSQSPRINFCGNGNHILSLV
DQ415901        DRLINGRLTALNAYVSQQLSDISLVKFGAALAMEKVNECVKSQSPRINFCGNGNHILSLV
KT779555.1      DRLINGRLTALNAYVSQQLSDISLVKFGAALAMEKVNECVKSQSPRINFCGNGNHILSLV
KT779556.1      DRLINGRLTALNAYVSQQLSDISLVKFGAALAMEKVNECVKSQSPRINFCGNGNHILSLV
KY674941.1      DRLINGRLTALNAYVSQQLSDISLVKFGAALAMEKVNECVKSQSPRINFCGNGNHILSLV
KY674942.1      DRLINGRLTALNAYVSQQLSDISLVKFGAALAMEKVNECVKSQSPRINFCGNGNHILSLV
KY674943.1      DRLINGRLTALNAYVSQQLSDISLVKFGAALAMEKVNECVKSQSPRINFCGNGNHILSLV
KF686341.1      DRLINGRLTALNAYVSQQLSDISLVKFGAALAMEKVNECVKSQSPRINFCGNGNHILSLV
KF686340.1      DRLINGRLTALNAYVSQQLSDISLVKFGAALAMEKVNECVKSQSPRINFCGNGNHILSLV
KF686346.1      DRLINGRLTALNAYVSQQLSDISLVKFGAALAMEKVNECVKSQSPRINFCGNGNHILSLV
KF686343.1      DRLINGRLTALNAYVSQQLSDISLVKFGAALAMEKVNECVKSQSPRINFCGNGNHILSLV
KF430201.1      DRLINGRLTALNAYVSQQLSDISLVKFGAALAMEKVNECVKSQSPRINFCGNGNHILSLV
LC315650.1      DRLINGRLTALNAYVSQQLSDISLVKFGAALAMEKVNECVKSQSPRINFCGNGNHILSLV
KF686344.1      DRLINGRLTALNAYVSQQLSDISLVKFGAALAMEKVNECVKSQSPRINFCGNGNHILSLV
KY983584.1      DRLINGRLTALNAYVSQQLSDISLVKFGAALAMEKVNECVKSQSPRINFCGNGNHILSLV
AY884001        DRLINGRLTALNAYVSQQLSDITLIKAGASRAIEKVNECVKSQSPRINFCGNGNHILSLV
MH940245.1      DRLINGRLTALNAYVSQQLSDITLIKAGASRAIEKVNECVKSQSPRINFCGNGNHILSLV
LC315651.1      DRLINGRLTALNAYVSQQLSDITLIKAGASRAIEKVNECVKSQSPRINFCGNGNHILSLV
KY674921.1      DRLINGRLTALNAYVSQQLSDITLIKAGASRAIEKVNECVKSQSPRINFCGNGNHILSLV
```

```
DQ415902        DRLINGRLTALNAYVSQQLSDITLIKAGASRAIEKVNECVKSQSPRINFCGNGNHILSLV
DQ415911        DRLINGRLTALNAYVSQQLSDITLIKAGASRAIEKVNECVKSQSPRINFCGNGNHILSLV
DQ415897        DRLINGRLTALNAYVSQQLSDITLIKAGASRAIEKVNECVKSQSPRINFCGNGNHILSLV
DQ415899        DRLINGRLTALNAYVSQQLSDITLIKAGASRAIEKVNECVKSQSPRINFCGNGNHILSLV
DQ415913        DRLINGRLTALNAYVSQQLSDITLIKAGASRAIEKVNECVKSQSPRINFCGNGNHILSLV
DQ415912        DRLINGRLTALNAYVSQQLSDITLIKAGASRAIEKVNECVKSQSPRINFCGNGNHILSLV
DQ415898        DRLINGRLTALNAYVSQQLSDITLIKAGASRAIEKVNECVKSQSPRINFCGNGNHILSLV
DQ339101.1      DRLINGRLTALNAYVSQQLSDITLIKAGASRAIEKVNECVKSQSPRINFCGNGNHILSLV
MK167038.1      DRLINGRLTALNAYVSQQLSDITLIKAGASRAIEKVNECVKSQSPRINFCGNGNHILSLV
                ********************:*:* **: *:**************************

NC_006577.2     QNAPYGLLFMHFSYKPISFKTVLVSPGLCISGDVGIAPKQGYFIKHNDHWMFTGSSYYYP
DQ415910        QNAPYGLLFMHFSYKPISFKTVLVSPGLCISGDVGIAPKQGYFIKHNDHWMFTGSSYYYP
DQ415896        QNAPYGLLFMHFSYKPISFKTVLVSPGLCISGDVGIAPKQGYFIKHNDHWMFTGSSYYYP
DQ415909        QNAPYGLLFMHFSYKPISFKTVLVSPGLCISGDVGIAPKQGYFIKHNDHWMFTGSSYYYP
DQ415904        QNAPYGLLFMHFSYKPISFKTVLVSPGLCISGDVGIAPKQGYFIKHNDHWMFTGSSYYYP
DQ415905        QNAPYGLLFMHFSYKPISFKTVLVSPGLCISGDVGIAPKQGYFIKHNDHWMFTGSSYYYP
DQ415907        QNAPYGLLFMHFSYKPISFKTVLVSPGLCISGDVGIAPKQGYFIKHNDHWMFTGSSYYYP
DQ415914        QNAPYGLLFMHFSYKPISFKTVLVSPGLCISGDVGIAPKQGYFIKHNDHWMFTGSSYYYP
DQ415906        QNAPYGLLFMHFSYKPISFKTVLVSPGLCISGDVGIAPKQGYFIKHNDHWMFTGSSYYYP
DQ415903        QNAPYGLLFMHFSYKPISFKTVLVSPGLCISGDVGIAPKQGYFIKHNDHWMFTGSSYYYP
DQ415908        QNAPYGLLFMHFSYKPISFKTVLVSPGLCISGDVGIAPKQGYFIKHNDHWMFTGSSYYYP
DQ415900        QNAPYGLLFMHFSYKPISFKTVLVSPGLCISGDVGIAPKQGYFIKHNDHWMFTGSSYYYP
DQ415901        QNAPYGLLFMHFSYKPISFKTVLVSPGLCISGDVGIAPKQGYFIKHNDHWMFTGSSYYYP
KT779555.1      QNAPYGLLFMHFSYKPISFKTVLVSPGLCISGDVGIAPKQGYFIKHNDHWMFTGSSYYYP
KT779556.1      QNAPYGLLFMHFSYKPISFKTVLVSPGLCISGDVGIAPKQGYFIKHNDHWMFTGSSYYYP
KY674941.1      QNAPYGLLFMHFSYKPISFKTVLVSPGLCISGDVGIAPKQGYFIKHNDHWMFTGSSYYYP
KY674942.1      QNAPYGLLFMHFSYKPISFKTVLVSPGLCISGDVGIAPKQGYFIKHNDHWMFTGSSYYYP
KY674943.1      QNAPYGLLFMHFSYKPISFKTVLVSPGLCISGDVGIAPKQGYFIKHNDHWMFTGSSYYYP
KF686341.1      QNAPYGLLFMHFSYKPISFKTVLVSPGLCISGDVGIAPKQGYFIKHNDHWMFTGSSYYYP
KF686340.1      QNAPYGLLFMHFSYKPISFKTVLVSPGLCISGDVGIAPKQGYFIKHNDHWMFTGSSYYYP
KF686346.1      QNAPYGLLFMHFSYKPISFKTVLVSPGLCISGDVGIAPKQGYFIKHNDHWMFTGSSYYYP
KF686343.1      QNAPYGLLFMHFSYKPISFKTVLVSPGLCISGDVGIAPKQGYFIKHNDHWMFTGSSYYYP
KF430201.1      QNAPYGLLFMHFSYKPISFKTVLVSPGLCISGDVGIAPKQGYFIKHNDHWMFTGSSYYYP
LC315650.1      QNAPYGLLFMHFSYKPISFKTVLVSPGLCISGDVGIAPKQGYFIKHNDHWMFTGSSYYYP
KF686344.1      QNAPYGLLFMHFSYKPISFKTVLVSPGLCISGDVGIAPKQGYFIKHNDHWMFTGSSYYYP
KY983584.1      QNAPYGLLFMHFSYKPISFKTVLVSPGLCISGDVGIAPKQGYFIKHNDHWMFTGSSYYYP
AY884001        QNAPYGLLFIHFSYKPTSFKTVLVSPGLCLSGDRGIAPKQGYFIKQNDSWMFTGSSYYYP
MH940245.1      QNAPYGLLFIHFSYKPTSFKTVLVSPGLCLSGDRGIAPKQGYFIKQNDSWMFTGSSYYYP
LC315651.1      QNAPYGLLFIHFSYKPTSFKTVLVSPGLCLSGDRGIAPKQGYFIKQNDSWMFTGSSYYYP
KY674921.1      QNAPYGLLFIHFSYKPTSFKTVLVSPGLCLSGDRGIAPKQGYFIKQNDSWMFTGSSYYYP
DQ415902        QNAPYGLLFIHFSYKPTSFKTVLVSPGLCLSGDRGIAPKQGYFIKQNDSWMFTGSSYYYP
DQ415911        QNAPYGLLFIHFSYKPTSFKTVLVSPGLCLSGDRGIAPKQGYFIKQNDSWMFTGSSYYYP
DQ415897        QNAPYGLLFIHFSYKPTSFKTVLVSPGLCLSGDRGIAPKQGYFIKQNDSWMFTGSSYYYP
DQ415899        QNAPYGLLFIHFSYKPTSFKTVLVSPGLCLSGDRGIAPKQGYFIKQNDSWMFTGSSYYYP
DQ415913        QNAPYGLLFIHFSYKPTSFKTVLVSPGLCLSGDRGIAPKQGYFIKQNDSWMFTGSSYYYP
DQ415912        QNAPYGLLFIHFSYKPTSFKTVLVSPGLCLSGDRGIAPKQGYFIKQNDSWMFTGSSYYYP
DQ415898        QNAPYGLLFIHFSYKPTSFKTVLVSPGLCLSGDRGIAPKQGYFIKQNDSWMFTGSSYYYP
DQ339101.1      QNAPYGLLFIHFSYKPTSFKTVLVSPGLCLSGDRGIAPKQGYFIKQNDSWMFTGSSYYYP
MK167038.1      QNAPYGLLFIHFSYKPTSFKTVLVSPGLCLSGDIGIAPKQGYFIKQNDSWMFTGSSYYYP
                *********:****** ***********:*** ***********:** ***********

NC_006577.2     EPISDKNVVFMNTCSVNFTKAPLVYLNHSVPKLSDFESELSHWFKNQTSIAPNLTLNLHT
DQ415910        EPISDKNVVFMNTCSVNFTKAPLVYLNHSVPKLSDFESELSHWFKNQTSIAPNLTLNLHT
DQ415896        EPISDKNVVFMNTCSVNFTKAPLVYLNHSVPKLSDFESELSHWFKNQTSIAPNLTLNLHT
DQ415909        EPISDKNVVFMNTCSVNFTKAPLVYLNHSVPKLSDFESELSHWFKNQTSIAPNLTLNLHT
```

```
DQ415904        EPISDKNVVFMNTCSVNFTKAPLVYLNHSVPKLSDFESELSHWFKNQTSIAPNLTLNLHT
DQ415905        EPISDKNVVFMNTCSVNFTKAPLVYLNHSVPKLSDFESELSHWFKNQTSIAPNLTLNLHT
DQ415907        EPISDKNVVFMNTCSVNFTKAPLVYLNHSVPKLSDFESELSHWFKNQTSIAPNLTLNLHT
DQ415914        EPISDKNVVFMNTCSVNFTKAPLVYLNHSVPKLSDFESELSHWFKNQTSIAPNLTLNLHT
DQ415906        EPISDKNVVFMNTCSVNFTKAPLVYLNHSVPKLSDFESELSHWFKNQTSIAPNLTLNLHT
DQ415903        EPISDKNVVFMNTCSVNFTKAPLVYLNHSVPKLSDFESELSHWFKNQTSIAPNLTLNLHT
DQ415908        EPISDKNVVFMNTCSVNFTKAPLVYLNHSVPKLSDFESELSHWFKNQTSIAPNLTLNLHT
DQ415900        EPISDKNVVFMNTCSVNFTKAPLVYLNHSVPKLSDFESELSHWFKNQTSIAPNLTLNLHT
DQ415901        EPISDKNVVFMNTCSVNFTKAPLVYLNHSVPKLSDFESELSHWFKNQTSIAPNLTLNLHT
KT779555.1      EPISDKNVVFMNTCSVNFTKAPLVYLNHSVPKLSDFESELSHWFKNQTSIAPNLTLNFHT
KT779556.1      EPISDKNVVFMNTCSVNFTKAPLVYLNHSVPKLSDFESELSHWFKNQTSIAPNLTLNFHT
KY674941.1      EPISDKNVVFMNTCSVNFTKAPLVYLNHSVPKLSDFESELSHWFKNQTSIAPNLTLNLHT
KY674942.1      EPISDKNVVFMNTCSVNFTKAPLVYLNHSVPKLSDFESELSHWFKNQTSIAPNLTLNLHT
KY674943.1      EPISDKNVVFMNTCSVNFTKAPLVYLNHSVPKLSDFESELSHWFKNQTSIAPNLTLNLHT
KF686341.1      EPISDKNVVFMNTCSVNFTKAPLVYLNHSVPKLSDFESELSHWFKNQTSIAPNLTLNLHT
KF686340.1      EPISDKNVVFMNTCSVNFTKAPLVYLNHSVPKLSDFESELSHWFKNQTSIAPNLTLNLHT
KF686346.1      EPISDKNVVFMNTCSVNFTKAPLVYLNHSVPKLSDFESELSHWFKNQTSIAPNLTLNLHT
KF686343.1      EPISDKNVVFMNTCSVNFTKAPLVYLNHSVPKLSDFESELSHWFKNQTSIAPNLTLNLHT
KF430201.1      EPISDKNVVFMNTCSVNFTKAPLVYLNHSVPKLSDFESELSHWFKNQTSIAPNLTLNLHT
LC315650.1      EPISDKNVVFMNTCSVNFTKAPLVYLNHSVPKLSDFESELSHWFKNQTSIAPNLTLNLHT
KF686344.1      EPISDKNVVFMNTCSVNFTKAPLVYLNHSVPKLSDFESELSHWFKNQTSIAPNLTLNLHT
KY983584.1      EPISDKNVVFMNTCSVNFTKAPLVYLNHSVPKLSDFESELSHWFKNQTSIAPNLTLNLHT
AY884001        EPISDKNVVFMNSCSVNFTKAPFIYLNNSIPNLSDFEAEFSLWFKNHTSIAPNLTFNSHI
MH940245.1      EPISDKNVVFMNSCSVNFTKAPFIYLNNSIPNLSDFEAEFSLWFKNHTSIAPNLTFNSHI
LC315651.1      EPISDKNVVFMNSCSVNFTKAPFIYLNNSIPNLSDFEAEFSLWFKNHTSIAPNLTFNSHI
KY674921.1      EPISDKNVVFMNSCSVNFTKAPFIYFNNSIPNLSDFEAEFSLWFKNHTSMAPNLTFNSHI
DQ415902        EPISDKNVVFMNSCSVNFTKAPFIYLNNSIPNLSDFEAEFSLWFKNHTSIAPNLTFNSHI
DQ415911        EPISDKNVVFMNSCSVNFTKAPFIYLNNSIPNLSDFEAEFSLWFKNHTSIAPNLTFNSHI
DQ415897        EPISDKNVVFMNSCSVNFTKAPFIYLNNSIPNLSDFEAELSLWFKNHTSIAPNLTFNSHI
DQ415899        EPISDKNVVFMNSCSVNFTKAPFIYLNNSIPNLSDFEAELSLWFKNHTSIAPNLTFNSHI
DQ415913        EPISDKNVVFMNSCSVNFTKAPFIYLNNSIPNLSDFEAELSLWFKNHTSIAPNLTFNSHI
DQ415912        EPISDKNVVFMNSCSVNFTKAPFIYLNNSIPNLSDFEAEFSLWFKNHTSIAPNLTFNSHI
DQ415898        EPISDKNVVFMNSCSVNFTKAPFIYLNNSIPNLSDFEAELSLWFKNHTSIAPNLTFNSHI
DQ339101.1      EPISDKNVVFMNSCSVNFTKAPFIYLNNSIPNLSDFEAELSLWFKNHTSIAPNLTFNSHI
MK167038.1      EPISDKNVVFMNSCSVNFTKAPFIYLNNSIPNLSDFEAEFSLWFKNHTSIAPNLTFNSHI
                ***********:*********:::*:*:*:*:*****:*:* ****:**:*****:* *

NC_006577.2     INATFLDLYYEMNLIQESIKSLNNSYINLKDIGTYEMYVKWPWYVWLLISFSFIIFLVLL
DQ415910        INATFLDLYYEMNLIQESIKSLNNSYINLKDIGTYEMYVKWPWYVWLLISFSFIIFLVLL
DQ415896        INATFLDLYYEMNLIQESIKSLNNSYINLKDIGTYEMYVKWPWYVWLLISFSFIIFLVLL
DQ415909        INATFLDLYYEMNLIQESIKSLNNSYINLKDIGTYEMYVKWPWYVWLLISFSFIIFLVLL
DQ415904        INATFLDLYYEMNLIQESIKSLNNSYINLKDIGTYEMYVKWPWYVWLLISFSFIIFLVLL
DQ415905        INATFLDLYYEMNLIQESIKSLNNSYINLKDIGTYEMYVKWPWYVWLLISFSFIIFLVLL
DQ415907        INATFLDLYYEMNLIQESIKSLNNSYINLKDIGTYEMYVKWPWYVWLLISFSFIIFLVLL
DQ415914        INATFLDLYYEMNLIQESIKSLNNSYINLKDIGTYEMYVKWPWYVWLLISFSFIIFLVLL
DQ415906        INATFLDLYYEMNLIQESIKSLNNSYINLKDIGTYEMYVKWPWYVWLLISFSFIIFLVLL
DQ415903        INATFLDLYYEMNLIQESIKSLNNSYINLKDIGTYEMYVKWPWYVWLLISFSFIIFLVLL
DQ415908        INATFLDLYYEMNLIQESIKSLNNSYINLKDIGTYEMYVKWPWYVWLLISFSFIIFLVLL
DQ415900        INATFLDLYYEMNLIQESIKSLNNSYINLKDIGTYEMYVKWPWYVWLLISFSFIIFLVLL
DQ415901        INATFLDLYYEMNLIQESIKSLNNSYINLKDIGTYEMYVKWPWYVWLLISFSFIIFLVLL
KT779555.1      INATFLDLYYEMNLIQESIKSLNNSYINLKDIGTYEMYVKWPWYVWLLISFSFIIFLVLL
KT779556.1      INATFLDLYYEMNLIQESIKSLNNSYINLKDIGTYEMYVKWPWYVWLLISFSFIIFLVLL
KY674941.1      INATFLDLYYEMNLIQESIKSLNNSYINLKDIGTYEMYVKWPWYVWLLISFSFIIFLVLL
KY674942.1      INATFLDLYYEMNLIQESIKSLNNSYINLKDIGTYEMYVKWPWYVWLLISFSFIIFLVLL
KY674943.1      INATFLDLYYEMNLIQESIKSLNNSYINLKDIGTYEMYVKWPWYVWLLISFSFIIFLVLL
KF686341.1      INATFLDLYYEMNLIQESIKSLNNSYINLKDIGTYEMYVKWPWYVWLLISFSFIIFLVLL
```

```
KF686340.1        INATFLDLYYEMNLIQESIKSLNNSYINLKDIGTYEMYVKWPWYVWLLISFSFIIFLVLL
KF686346.1        INATFLDLYYEMNLIQESIKSLNNSYINLKDIGTYEMYVKWPWYVWLLISFSFIIFLVLL
KF686343.1        INATFLDLYYEMNLIQESIKSLNNSYINLKDIGTYEMYVKWPWYVWLLISFSFIIFLVLL
KF430201.1        INATFLDLYYEMNLIQESIKSLNNSYINLKDIGTYEMYVKWPWYVWLLISFSFIIFLVLL
LC315650.1        INATFLDLYYEMNLIQESIKSLNNSYINLKDIGTYEMYVKWPWYVWLLISFSFIIFLVLL
KF686344.1        INATFLDLYYEMNLIQESIKSLNNSYINLKDIGTYEMYVKWPWYVWLLISFSFIIFLVLL
KY983584.1        INATFLDLYYEMNLIQESIKSLNNSYINLKDIGTYEMYVKWPWYVWLLISFSFIIFLVLL
AY884001          N-ATFLDLYYEMNVIQESIKSLNSSFINLKEIGTYEMYVKWPWYIWLLIVILFIIFLMIL
MH940245.1        N-ATFLDLYYEMNVIQESIKSLNSSFINLKEIGTYEMYVKWPWYIWLLIVILFIIFLMIL
LC315651.1        N-ATFLDLYYEMNVIQESIKSLNSSFINLKEIGTYEMYVKWPWYIWLLIVILFIIFLMIL
KY674921.1        N-ATFLDLYYEMNVIQESIKSLNSSFINLKEIGTYEMYVKWPWYIWLLIVILFIIFLMIL
DQ415902          N-ATFLDLYYEMNVIQESIKSLNSSFINLKEIGTYEMYVKWPWYIWLLIVILFIIFLMIL
DQ415911          N-ATFLDLYYEMNVIQESIKSLNSSFINLKEIGTYEMYVKWPWYIWLLIVILFIIFLMIL
DQ415897          N-ATFLDLYYEMNVIQESIKSLNSSFINLKEIGTYEMYVKWPWYIWLLIVILFIIFLMIL
DQ415899          N-ATFLDLYYEMNVIQESIKSLNSSFINLKEIGTYEMYVKWPWYIWLLIVILFIIFLMIL
DQ415913          N-ATFLDLYYEMNVIQESIKSLNSSFINLKEIGTYEMYVKWPWYIWLLIVILFIIFLMIL
DQ415912          N-ATFLDLYYEMNVIQESIKSLNSSFINLKEIGTYEMYVKWPWYIWLLIVILFIIFLMIL
DQ415898          N-ATFLDLYYEMNVIQESIKSLNSSFINLKEIGTYEMYVKWPWYIWLLIVILFIIFLMIL
DQ339101.1        N-ATFLDLYYEMNVIQESIKSLNSSFINLKEIGTYEMYVKWPWYIWLLIVILFIIFLMIL
MK167038.1        N-ATFLDLYYEMNVIQESIKSLNSSFINLKEIGTYEMYVKWPWYIWLLIVISFIIFLMIL
                    **********:*********.*:****:*************:**** : *****::*

NC_006577.2       FFICCCTGCGSACFSKCHNCCDEYGGHHDFVIKTSHDD
DQ415910          FFICCCTGCGSACFSKCHNCCDEYGGHHDFVIKTSHDD
DQ415896          FFICCCTGCGSACFSKCHNCCDEYGGHHDFVIKTSHDD
DQ415909          FFICCCTGCGSACFSKCHNCCDEYGGHHDFVIKTSHDD
DQ415904          FFICCCTGCGSACFSKCHNCCDEYGGHHDFVIKTSHDD
DQ415905          FFICCCTGCGSACFSKCHNCCDEYGGHHDFVIKTSHDD
DQ415907          FFICCCTGCGSACFSKCHNCCDEYGGHHDFVIKTSHDD
DQ415914          FFICCCTGCGSACFSKCHNCCDEYGGHHDFVIKTSHDD
DQ415906          FFICCCTGCGSACFSKCHNCCDEYGGHHDFVIKTSHDD
DQ415903          FFICCCTGCGSACFSKCHNCCDEYGGHHDFVIKTSHDD
DQ415908          FFICCCTGCGSACFSKCHNCCDEYGGHHDFVIKTSHDD
DQ415900          FFICCCTGCGSACFSKCHNCCDEYGGHHDFVIKTSHDD
DQ415901          FFICCCTGCGSACFSKCHNCCDEYGGHHDFVIKTSHDD
KT779555.1        FFICCCTGCGSACFSKCHNCCDEYGGHHDFVIKTSHDD
KT779556.1        FFICCCTGCGSACFSKCHNCCDEYGGHHDFVIKTSHDD
KY674941.1        FFICCCTGCGSACFSKCHNCCDEYGGHHDFVIKTSHDD
KY674942.1        FFICCCTGCGSACFSKCHNCCDEYGGHHDFVIKTSHDD
KY674943.1        FFICCCTGCGSACFSKCHNCCDEYGGHHDFVIKTSHDD
KF686341.1        FFICCCTGCGSACFSKCHNCCDEYGGHHDFVIKTSHDD
KF686340.1        FFICCCTGCGSACFSKCHNCCDEYGGHHDFVIKTSHDD
KF686346.1        FFICCCTGCGSACFSKCHNCCDEYGGHHDFVIKTSHDD
KF686343.1        FFICCCTGCGSACFSKCHNCCDEYGGHHDFVIKTSHDD
KF430201.1        FFICCCTGCGSACFSKCHNCCDEYGGHHDFVIKTSHDD
LC315650.1        FFICCCTGCGSACFSKCHNCCDEYGGHHDFVIKTSHDD
KF686344.1        FFICCCTGCGSACFSKCHNCCDEYGGHHDFVIKTSHDD
KY983584.1        FFICCCTGCGSACFSKCHNCCDEYGGHHDFVIKTSHDD
AY884001          FFICCCTGCGSACFSKCHNCCDEYGGHNDFVIKASHDD
MH940245.1        FFICCCTGCGSACFSKCHNCCDEYGGHNDFVIKASHDD
LC315651.1        FFICCCTGCGSACFSKCHNCCDEYGGHNDFVIKASHDD
KY674921.1        FFICCCTGCGSACFSKCHNCCDEYGGHNDFVIKASHDD
DQ415902          FFICCCTGCGSACFSKCHNCCDEYGGHNDFVIKASHDD
DQ415911          FFICCCTGCGSACFSKCHNCCDEYGGHNDFVIKASHDD
DQ415897          FFICCCTGCGSACFSKCHNCCDEYGGHNDFVIKASHDD
DQ415899          FFICCCTGCGSACFSKCHNCCDEYGGHNDFVIKASHDD
```

```
DQ415913          FFICCCTGCGSACFSKCHNCCDEYGGHNDFVIKASHDD
DQ415912          FFICCCTGCGSACFSKCHNCCDEYGGHNDFVIKASHDD
DQ415898          FFICCCTGCGSACFSKCHNCCDEYGGHNDFVIKASHDD
DQ339101.1        FFICCCTGCGSACFSKCHNCCDEYGGHNDFVIKASHDD
MK167038.1        FFICCCTGCGSACFSKCHNCCDEYGGHNDFVIKASHDD
                  **************************:*****:****
```

---

clustalw.dnd

```
(
(
(
(
NC_006577.2:0.00000,
DQ415910:0.00221)
:0.00073,
(
(
(
(
(
(
(
(
(
(
AY884001:0.00000,
MH940245.1:0.00000)
:0.00189,
(
LC315651.1:0.00369,
KY674921.1:0.00741)
:0.00108)
:0.00041,
(
DQ415902:0.00108,
DQ415911:0.00188)
:0.00033)
:0.00168,
(
DQ339101.1:0.00041,
(
(
(
(
DQ415897:0.00000,
DQ415899:0.00000)
:0.00000,
DQ415913:0.00000)
:0.00011,
DQ415912:0.00063)
:0.00143,
DQ415898:0.00000)
:0.00033)
```

```
:0.00142)
:0.01785,
MK167038.1:0.00850)
:0.13826,
(
(
LC315650.1:0.00000,
KF686344.1:0.00074)
:0.00000,
KY983584.1:0.00292)
:0.00203)
:0.00055,
(
(
(
(
(
(
KY674941.1:0.00000,
KY674942.1:0.00000)
:0.00000,
KY674943.1:0.00000)
:0.00000,
KF686341.1:0.00000)
:0.00000,
KF686340.1:0.00000)
:0.00000,
KF686346.1:0.00000)
:0.00000,
KF686343.1:0.00072)
:0.00000,
KF430201.1:0.00361)
:0.00175)
:0.00027,
(
KT779555.1:0.00000,
KT779556.1:0.00072)
:0.00200)
:0.00026,
(
DQ415900:0.00000,
DQ415901:0.00000)
:0.00000)
:0.00064,
DQ415908:0.00070)
:0.00000,
DQ415903:0.00073)
:0.00000)
:0.00000,
DQ415906:0.00000)
:0.00000,
(
(
(
(
```

```
DQ415896:0.00000,
DQ415909:0.00074)
:0.00000,
DQ415904:0.00000)
:0.00000,
DQ415905:0.00000)
:0.00000,
DQ415907:0.00000)
:0.00000,
DQ415914:0.00000);
```

Select tree menu ▼ Exec

CLUSTALW Result

Supplementary Material 5
Sequence Alignment of
HuCoVNL63 Isolates

[clustalw.aln][clustalw.dnd][readme]
Select tree menu ▼ Exec

```
 CLUSTAL 2.1 Multiple Sequence Alignments


Sequence type explicitly set to Protein
Sequence format is Pearson
Sequence 1: NC_005831.2  1356 aa
Sequence 2: LC488388.1   1355 aa
Sequence 3: MN306040.1   1355 aa
Sequence 4: MK334044.1   1355 aa
Sequence 5: MK334045.1   1356 aa
Sequence 6: MK334046.1   1355 aa
Sequence 7: MK334047.1   1355 aa
Sequence 8: MN026166.1   1355 aa
Sequence 9: KM055632.1   1356 aa
Sequence 10: KM055633.1   1356 aa
Sequence 11: KM055634.1   1356 aa
Sequence 12: KM055635.1   1356 aa
Sequence 13: KM055636.1   1356 aa
Sequence 14: KM055637.1   1356 aa
Sequence 15: KM055638.1   1356 aa
Sequence 16: KM055639.1   1356 aa
Sequence 17: KM055640.1   1356 aa
Sequence 18: KM055641.1   1356 aa
Sequence 19: KM055642.1   1356 aa
Sequence 20: KM055643.1   1356 aa
Sequence 21: KM055644.1   1356 aa
Sequence 22: KM055645.1   1356 aa
Sequence 23: KM055646.1   1356 aa
Sequence 24: KM055647.1   1356 aa
Sequence 25: KM055648.1   1356 aa
Sequence 26: KM055649.1   1356 aa
Sequence 27: KM055650.1   1356 aa
Sequence 28: MG428699.1   1356 aa
Sequence 29: MG428700.1   1356 aa
Sequence 30: MG428701.1   1356 aa
Sequence 31: MG428702.1   1356 aa
Sequence 32: MG772808.1   1355 aa
Sequence 33: KY829118.1   1356 aa
Sequence 34: KX179500.1   1356 aa
Sequence 35: KF530104.1   1355 aa
Sequence 36: KF530105.1   1356 aa
Sequence 37: KF530106.1   1355 aa
Sequence 38: KF530107.1   1355 aa
Sequence 39: KF530108.1   1355 aa
Sequence 40: JX504050.1   1356 aa
```

```
Sequence 41: JX524171.1   1356 aa
Sequence 42: JQ765563.1   1355 aa
Start of Pairwise alignments
Aligning...



Sequences (1:2) Aligned. Score: 96.7528
Sequences (1:3) Aligned. Score: 98.5978
Sequences (1:4) Aligned. Score: 98.5978
Sequences (1:5) Aligned. Score: 98.5251
Sequences (1:6) Aligned. Score: 96.8266
Sequences (1:7) Aligned. Score: 96.2362
Sequences (1:8) Aligned. Score: 96.8266
Sequences (1:9) Aligned. Score: 98.8938
Sequences (1:10) Aligned. Score: 98.8938
Sequences (1:11) Aligned. Score: 98.8201
Sequences (1:12) Aligned. Score: 98.8938
Sequences (1:13) Aligned. Score: 98.8938
Sequences (1:14) Aligned. Score: 98.8938
Sequences (1:15) Aligned. Score: 98.8938
Sequences (1:16) Aligned. Score: 98.9676
Sequences (1:17) Aligned. Score: 98.9676
Sequences (1:18) Aligned. Score: 98.9676
Sequences (1:19) Aligned. Score: 98.8938
Sequences (1:20) Aligned. Score: 98.3776
Sequences (1:21) Aligned. Score: 98.8938
Sequences (1:22) Aligned. Score: 98.9676
Sequences (1:23) Aligned. Score: 98.3038
Sequences (1:24) Aligned. Score: 98.9676
Sequences (1:25) Aligned. Score: 98.8938
Sequences (1:26) Aligned. Score: 98.8938
Sequences (1:27) Aligned. Score: 98.8938
Sequences (1:28) Aligned. Score: 98.8938
Sequences (1:29) Aligned. Score: 98.8938
Sequences (1:30) Aligned. Score: 98.8938
Sequences (1:31) Aligned. Score: 98.8938
Sequences (1:32) Aligned. Score: 96.7528
Sequences (1:33) Aligned. Score: 99.41
Sequences (1:34) Aligned. Score: 98.9676
Sequences (1:35) Aligned. Score: 99.1882
Sequences (1:36) Aligned. Score: 99.4838
Sequences (1:37) Aligned. Score: 99.1882
Sequences (1:38) Aligned. Score: 99.1144
Sequences (1:39) Aligned. Score: 99.1882
Sequences (1:40) Aligned. Score: 99.9263
Sequences (1:41) Aligned. Score: 98.8938
Sequences (1:42) Aligned. Score: 96.7528
Sequences (2:3) Aligned. Score: 96.9004
Sequences (2:4) Aligned. Score: 97.048
Sequences (2:5) Aligned. Score: 96.4576
Sequences (2:6) Aligned. Score: 99.9262
Sequences (2:7) Aligned. Score: 99.3358
Sequences (2:8) Aligned. Score: 99.1882
Sequences (2:9) Aligned. Score: 96.8266
Sequences (2:10) Aligned. Score: 96.8266
```

Sequences (2:11) Aligned. Score: 96.7528
Sequences (2:12) Aligned. Score: 96.8266
Sequences (2:13) Aligned. Score: 96.8266
Sequences (2:14) Aligned. Score: 96.8266
Sequences (2:15) Aligned. Score: 96.8266
Sequences (2:16) Aligned. Score: 96.9004
Sequences (2:17) Aligned. Score: 96.9004
Sequences (2:18) Aligned. Score: 96.9004
Sequences (2:19) Aligned. Score: 96.8266
Sequences (2:20) Aligned. Score: 97.3432
Sequences (2:21) Aligned. Score: 96.8266
Sequences (2:22) Aligned. Score: 96.9004
Sequences (2:23) Aligned. Score: 97.417
Sequences (2:24) Aligned. Score: 96.9004
Sequences (2:25) Aligned. Score: 96.8266
Sequences (2:26) Aligned. Score: 96.8266
Sequences (2:27) Aligned. Score: 96.8266
Sequences (2:28) Aligned. Score: 96.8266
Sequences (2:29) Aligned. Score: 96.8266
Sequences (2:30) Aligned. Score: 96.8266
Sequences (2:31) Aligned. Score: 96.8266
Sequences (2:32) Aligned. Score: 99.1144
Sequences (2:33) Aligned. Score: 96.9004
Sequences (2:34) Aligned. Score: 96.9004
Sequences (2:35) Aligned. Score: 97.1218
Sequences (2:36) Aligned. Score: 96.9004
Sequences (2:37) Aligned. Score: 97.1218
Sequences (2:38) Aligned. Score: 97.048
Sequences (2:39) Aligned. Score: 97.1218
Sequences (2:40) Aligned. Score: 96.679
Sequences (2:41) Aligned. Score: 96.8266
Sequences (2:42) Aligned. Score: 99.4096
Sequences (3:4) Aligned. Score: 99.7048
Sequences (3:5) Aligned. Score: 98.8192
Sequences (3:6) Aligned. Score: 96.9742
Sequences (3:7) Aligned. Score: 96.3838
Sequences (3:8) Aligned. Score: 96.8266
Sequences (3:9) Aligned. Score: 99.4834
Sequences (3:10) Aligned. Score: 99.4834
Sequences (3:11) Aligned. Score: 99.4096
Sequences (3:12) Aligned. Score: 99.4834
Sequences (3:13) Aligned. Score: 99.4834
Sequences (3:14) Aligned. Score: 99.4834
Sequences (3:15) Aligned. Score: 99.4834
Sequences (3:16) Aligned. Score: 99.5572
Sequences (3:17) Aligned. Score: 99.5572
Sequences (3:18) Aligned. Score: 99.5572
Sequences (3:19) Aligned. Score: 99.4834
Sequences (3:20) Aligned. Score: 98.9668
Sequences (3:21) Aligned. Score: 99.4834
Sequences (3:22) Aligned. Score: 99.5572
Sequences (3:23) Aligned. Score: 98.893
Sequences (3:24) Aligned. Score: 99.5572
Sequences (3:25) Aligned. Score: 99.4834
Sequences (3:26) Aligned. Score: 99.4834
Sequences (3:27) Aligned. Score: 99.4834

Sequences (3:28) Aligned. Score: 99.4834
Sequences (3:29) Aligned. Score: 99.4834
Sequences (3:30) Aligned. Score: 99.4834
Sequences (3:31) Aligned. Score: 99.4834
Sequences (3:32) Aligned. Score: 96.7528
Sequences (3:33) Aligned. Score: 98.9668
Sequences (3:34) Aligned. Score: 99.4096
Sequences (3:35) Aligned. Score: 98.8192
Sequences (3:36) Aligned. Score: 98.893
Sequences (3:37) Aligned. Score: 98.8192
Sequences (3:38) Aligned. Score: 98.7454
Sequences (3:39) Aligned. Score: 98.8192
Sequences (3:40) Aligned. Score: 98.524
Sequences (3:41) Aligned. Score: 99.4834
Sequences (3:42) Aligned. Score: 96.9742
Sequences (4:5) Aligned. Score: 98.9668
Sequences (4:6) Aligned. Score: 97.1218
Sequences (4:7) Aligned. Score: 96.5314
Sequences (4:8) Aligned. Score: 96.9742
Sequences (4:9) Aligned. Score: 99.4834
Sequences (4:10) Aligned. Score: 99.4834
Sequences (4:11) Aligned. Score: 99.4096
Sequences (4:12) Aligned. Score: 99.4834
Sequences (4:13) Aligned. Score: 99.4834
Sequences (4:14) Aligned. Score: 99.4834
Sequences (4:15) Aligned. Score: 99.4834
Sequences (4:16) Aligned. Score: 99.5572
Sequences (4:17) Aligned. Score: 99.5572
Sequences (4:18) Aligned. Score: 99.5572
Sequences (4:19) Aligned. Score: 99.4834
Sequences (4:20) Aligned. Score: 98.9668
Sequences (4:21) Aligned. Score: 99.4834
Sequences (4:22) Aligned. Score: 99.5572
Sequences (4:23) Aligned. Score: 98.893
Sequences (4:24) Aligned. Score: 99.5572
Sequences (4:25) Aligned. Score: 99.4834
Sequences (4:26) Aligned. Score: 99.4834
Sequences (4:27) Aligned. Score: 99.4834
Sequences (4:28) Aligned. Score: 99.4834
Sequences (4:29) Aligned. Score: 99.4834
Sequences (4:30) Aligned. Score: 99.4834
Sequences (4:31) Aligned. Score: 99.4834
Sequences (4:32) Aligned. Score: 96.9004
Sequences (4:33) Aligned. Score: 98.9668
Sequences (4:34) Aligned. Score: 99.4096
Sequences (4:35) Aligned. Score: 98.9668
Sequences (4:36) Aligned. Score: 98.893
Sequences (4:37) Aligned. Score: 98.9668
Sequences (4:38) Aligned. Score: 99.0406
Sequences (4:39) Aligned. Score: 98.9668
Sequences (4:40) Aligned. Score: 98.524
Sequences (4:41) Aligned. Score: 99.4834
Sequences (4:42) Aligned. Score: 97.1218
Sequences (5:6) Aligned. Score: 96.5314
Sequences (5:7) Aligned. Score: 95.941
Sequences (5:8) Aligned. Score: 96.5314

Sequences (5:9) Aligned. Score: 99.0413
Sequences (5:10) Aligned. Score: 99.0413
Sequences (5:11) Aligned. Score: 98.9676
Sequences (5:12) Aligned. Score: 99.0413
Sequences (5:13) Aligned. Score: 99.0413
Sequences (5:14) Aligned. Score: 99.0413
Sequences (5:15) Aligned. Score: 99.0413
Sequences (5:16) Aligned. Score: 99.115
Sequences (5:17) Aligned. Score: 99.115
Sequences (5:18) Aligned. Score: 99.115
Sequences (5:19) Aligned. Score: 99.0413
Sequences (5:20) Aligned. Score: 98.5251
Sequences (5:21) Aligned. Score: 99.0413
Sequences (5:22) Aligned. Score: 99.115
Sequences (5:23) Aligned. Score: 98.4513
Sequences (5:24) Aligned. Score: 99.115
Sequences (5:25) Aligned. Score: 99.0413
Sequences (5:26) Aligned. Score: 99.0413
Sequences (5:27) Aligned. Score: 99.0413
Sequences (5:28) Aligned. Score: 99.0413
Sequences (5:29) Aligned. Score: 99.0413
Sequences (5:30) Aligned. Score: 99.0413
Sequences (5:31) Aligned. Score: 99.0413
Sequences (5:32) Aligned. Score: 96.4576
Sequences (5:33) Aligned. Score: 98.8938
Sequences (5:34) Aligned. Score: 99.115
Sequences (5:35) Aligned. Score: 98.524
Sequences (5:36) Aligned. Score: 98.8201
Sequences (5:37) Aligned. Score: 98.524
Sequences (5:38) Aligned. Score: 98.4502
Sequences (5:39) Aligned. Score: 98.524
Sequences (5:40) Aligned. Score: 98.4513
Sequences (5:41) Aligned. Score: 99.0413
Sequences (5:42) Aligned. Score: 96.6052
Sequences (6:7) Aligned. Score: 99.4096
Sequences (6:8) Aligned. Score: 99.262
Sequences (6:9) Aligned. Score: 96.9004
Sequences (6:10) Aligned. Score: 96.9004
Sequences (6:11) Aligned. Score: 96.8266
Sequences (6:12) Aligned. Score: 96.9004
Sequences (6:13) Aligned. Score: 96.9004
Sequences (6:14) Aligned. Score: 96.9004
Sequences (6:15) Aligned. Score: 96.9004
Sequences (6:16) Aligned. Score: 96.9742
Sequences (6:17) Aligned. Score: 96.9742
Sequences (6:18) Aligned. Score: 96.9742
Sequences (6:19) Aligned. Score: 96.9004
Sequences (6:20) Aligned. Score: 97.417
Sequences (6:21) Aligned. Score: 96.9004
Sequences (6:22) Aligned. Score: 96.9742
Sequences (6:23) Aligned. Score: 97.4908
Sequences (6:24) Aligned. Score: 96.9742
Sequences (6:25) Aligned. Score: 96.9004
Sequences (6:26) Aligned. Score: 96.9004
Sequences (6:27) Aligned. Score: 96.9004
Sequences (6:28) Aligned. Score: 96.9004

Sequences (6:29) Aligned. Score: 96.9004
Sequences (6:30) Aligned. Score: 96.9004
Sequences (6:31) Aligned. Score: 96.9004
Sequences (6:32) Aligned. Score: 99.1882
Sequences (6:33) Aligned. Score: 96.9742
Sequences (6:34) Aligned. Score: 96.9742
Sequences (6:35) Aligned. Score: 97.1956
Sequences (6:36) Aligned. Score: 96.9742
Sequences (6:37) Aligned. Score: 97.1956
Sequences (6:38) Aligned. Score: 97.1218
Sequences (6:39) Aligned. Score: 97.1956
Sequences (6:40) Aligned. Score: 96.7528
Sequences (6:41) Aligned. Score: 96.9004
Sequences (6:42) Aligned. Score: 99.4834
Sequences (7:8) Aligned. Score: 98.6716
Sequences (7:9) Aligned. Score: 96.31
Sequences (7:10) Aligned. Score: 96.31
Sequences (7:11) Aligned. Score: 96.2362
Sequences (7:12) Aligned. Score: 96.31
Sequences (7:13) Aligned. Score: 96.31
Sequences (7:14) Aligned. Score: 96.31
Sequences (7:15) Aligned. Score: 96.31
Sequences (7:16) Aligned. Score: 96.3838
Sequences (7:17) Aligned. Score: 96.3838
Sequences (7:18) Aligned. Score: 96.3838
Sequences (7:19) Aligned. Score: 96.31
Sequences (7:20) Aligned. Score: 96.8266
Sequences (7:21) Aligned. Score: 96.31
Sequences (7:22) Aligned. Score: 96.3838
Sequences (7:23) Aligned. Score: 96.9004
Sequences (7:24) Aligned. Score: 96.3838
Sequences (7:25) Aligned. Score: 96.31
Sequences (7:26) Aligned. Score: 96.31
Sequences (7:27) Aligned. Score: 96.31
Sequences (7:28) Aligned. Score: 96.31
Sequences (7:29) Aligned. Score: 96.31
Sequences (7:30) Aligned. Score: 96.31
Sequences (7:31) Aligned. Score: 96.31
Sequences (7:32) Aligned. Score: 98.5978
Sequences (7:33) Aligned. Score: 96.3838
Sequences (7:34) Aligned. Score: 96.3838
Sequences (7:35) Aligned. Score: 96.6052
Sequences (7:36) Aligned. Score: 96.3838
Sequences (7:37) Aligned. Score: 96.6052
Sequences (7:38) Aligned. Score: 96.5314
Sequences (7:39) Aligned. Score: 96.6052
Sequences (7:40) Aligned. Score: 96.1624
Sequences (7:41) Aligned. Score: 96.31
Sequences (7:42) Aligned. Score: 98.893
Sequences (8:9) Aligned. Score: 96.7528
Sequences (8:10) Aligned. Score: 96.7528
Sequences (8:11) Aligned. Score: 96.679
Sequences (8:12) Aligned. Score: 96.7528
Sequences (8:13) Aligned. Score: 96.7528
Sequences (8:14) Aligned. Score: 96.7528
Sequences (8:15) Aligned. Score: 96.7528

Sequences (8:16) Aligned. Score: 96.8266
Sequences (8:17) Aligned. Score: 96.8266
Sequences (8:18) Aligned. Score: 96.8266
Sequences (8:19) Aligned. Score: 96.7528
Sequences (8:20) Aligned. Score: 97.2694
Sequences (8:21) Aligned. Score: 96.7528
Sequences (8:22) Aligned. Score: 96.8266
Sequences (8:23) Aligned. Score: 97.1956
Sequences (8:24) Aligned. Score: 96.8266
Sequences (8:25) Aligned. Score: 96.7528
Sequences (8:26) Aligned. Score: 96.7528
Sequences (8:27) Aligned. Score: 96.7528
Sequences (8:28) Aligned. Score: 96.7528
Sequences (8:29) Aligned. Score: 96.7528
Sequences (8:30) Aligned. Score: 96.7528
Sequences (8:31) Aligned. Score: 96.7528
Sequences (8:32) Aligned. Score: 99.9262
Sequences (8:33) Aligned. Score: 96.9742
Sequences (8:34) Aligned. Score: 96.8266
Sequences (8:35) Aligned. Score: 97.1956
Sequences (8:36) Aligned. Score: 96.9742
Sequences (8:37) Aligned. Score: 97.1956
Sequences (8:38) Aligned. Score: 97.1218
Sequences (8:39) Aligned. Score: 97.1956
Sequences (8:40) Aligned. Score: 96.7528
Sequences (8:41) Aligned. Score: 96.7528
Sequences (8:42) Aligned. Score: 99.1144
Sequences (9:10) Aligned. Score: 100
Sequences (9:11) Aligned. Score: 99.9263
Sequences (9:12) Aligned. Score: 100
Sequences (9:13) Aligned. Score: 100
Sequences (9:14) Aligned. Score: 100
Sequences (9:15) Aligned. Score: 99.8525
Sequences (9:16) Aligned. Score: 99.9263
Sequences (9:17) Aligned. Score: 99.9263
Sequences (9:18) Aligned. Score: 99.9263
Sequences (9:19) Aligned. Score: 99.8525
Sequences (9:20) Aligned. Score: 99.4838
Sequences (9:21) Aligned. Score: 99.8525
Sequences (9:22) Aligned. Score: 99.9263
Sequences (9:23) Aligned. Score: 99.41
Sequences (9:24) Aligned. Score: 99.9263
Sequences (9:25) Aligned. Score: 100
Sequences (9:26) Aligned. Score: 100
Sequences (9:27) Aligned. Score: 100
Sequences (9:28) Aligned. Score: 100
Sequences (9:29) Aligned. Score: 100
Sequences (9:30) Aligned. Score: 100
Sequences (9:31) Aligned. Score: 100
Sequences (9:32) Aligned. Score: 96.679
Sequences (9:33) Aligned. Score: 99.2625
Sequences (9:34) Aligned. Score: 99.7788
Sequences (9:35) Aligned. Score: 98.7454
Sequences (9:36) Aligned. Score: 99.1888
Sequences (9:37) Aligned. Score: 98.7454
Sequences (9:38) Aligned. Score: 98.6716

Sequences (9:39) Aligned. Score: 98.7454
Sequences (9:40) Aligned. Score: 98.8201
Sequences (9:41) Aligned. Score: 100
Sequences (9:42) Aligned. Score: 96.9004
Sequences (10:11) Aligned. Score: 99.9263
Sequences (10:12) Aligned. Score: 100
Sequences (10:13) Aligned. Score: 100
Sequences (10:14) Aligned. Score: 100
Sequences (10:15) Aligned. Score: 99.8525
Sequences (10:16) Aligned. Score: 99.9263
Sequences (10:17) Aligned. Score: 99.9263
Sequences (10:18) Aligned. Score: 99.9263
Sequences (10:19) Aligned. Score: 99.8525
Sequences (10:20) Aligned. Score: 99.4838
Sequences (10:21) Aligned. Score: 99.8525
Sequences (10:22) Aligned. Score: 99.9263
Sequences (10:23) Aligned. Score: 99.41
Sequences (10:24) Aligned. Score: 99.9263
Sequences (10:25) Aligned. Score: 100
Sequences (10:26) Aligned. Score: 100
Sequences (10:27) Aligned. Score: 100
Sequences (10:28) Aligned. Score: 100
Sequences (10:29) Aligned. Score: 100
Sequences (10:30) Aligned. Score: 100
Sequences (10:31) Aligned. Score: 100
Sequences (10:32) Aligned. Score: 96.679
Sequences (10:33) Aligned. Score: 99.2625
Sequences (10:34) Aligned. Score: 99.7788
Sequences (10:35) Aligned. Score: 98.7454
Sequences (10:36) Aligned. Score: 99.1888
Sequences (10:37) Aligned. Score: 98.7454
Sequences (10:38) Aligned. Score: 98.6716
Sequences (10:39) Aligned. Score: 98.7454
Sequences (10:40) Aligned. Score: 98.8201
Sequences (10:41) Aligned. Score: 100
Sequences (10:42) Aligned. Score: 96.9004
Sequences (11:12) Aligned. Score: 99.9263
Sequences (11:13) Aligned. Score: 99.9263
Sequences (11:14) Aligned. Score: 99.9263
Sequences (11:15) Aligned. Score: 99.7788
Sequences (11:16) Aligned. Score: 99.8525
Sequences (11:17) Aligned. Score: 99.8525
Sequences (11:18) Aligned. Score: 99.8525
Sequences (11:19) Aligned. Score: 99.7788
Sequences (11:20) Aligned. Score: 99.41
Sequences (11:21) Aligned. Score: 99.7788
Sequences (11:22) Aligned. Score: 99.8525
Sequences (11:23) Aligned. Score: 99.3363
Sequences (11:24) Aligned. Score: 99.8525
Sequences (11:25) Aligned. Score: 99.9263
Sequences (11:26) Aligned. Score: 99.9263
Sequences (11:27) Aligned. Score: 99.9263
Sequences (11:28) Aligned. Score: 99.9263
Sequences (11:29) Aligned. Score: 99.9263
Sequences (11:30) Aligned. Score: 99.9263
Sequences (11:31) Aligned. Score: 99.9263

Sequences (11:32) Aligned. Score: 96.6052
Sequences (11:33) Aligned. Score: 99.1888
Sequences (11:34) Aligned. Score: 99.705
Sequences (11:35) Aligned. Score: 98.6716
Sequences (11:36) Aligned. Score: 99.115
Sequences (11:37) Aligned. Score: 98.6716
Sequences (11:38) Aligned. Score: 98.5978
Sequences (11:39) Aligned. Score: 98.6716
Sequences (11:40) Aligned. Score: 98.7463
Sequences (11:41) Aligned. Score: 99.9263
Sequences (11:42) Aligned. Score: 96.8266
Sequences (12:13) Aligned. Score: 100
Sequences (12:14) Aligned. Score: 100
Sequences (12:15) Aligned. Score: 99.8525
Sequences (12:16) Aligned. Score: 99.9263
Sequences (12:17) Aligned. Score: 99.9263
Sequences (12:18) Aligned. Score: 99.9263
Sequences (12:19) Aligned. Score: 99.8525
Sequences (12:20) Aligned. Score: 99.4838
Sequences (12:21) Aligned. Score: 99.8525
Sequences (12:22) Aligned. Score: 99.9263
Sequences (12:23) Aligned. Score: 99.41
Sequences (12:24) Aligned. Score: 99.9263
Sequences (12:25) Aligned. Score: 100
Sequences (12:26) Aligned. Score: 100
Sequences (12:27) Aligned. Score: 100
Sequences (12:28) Aligned. Score: 100
Sequences (12:29) Aligned. Score: 100
Sequences (12:30) Aligned. Score: 100
Sequences (12:31) Aligned. Score: 100
Sequences (12:32) Aligned. Score: 96.679
Sequences (12:33) Aligned. Score: 99.2625
Sequences (12:34) Aligned. Score: 99.7788
Sequences (12:35) Aligned. Score: 98.7454
Sequences (12:36) Aligned. Score: 99.1888
Sequences (12:37) Aligned. Score: 98.7454
Sequences (12:38) Aligned. Score: 98.6716
Sequences (12:39) Aligned. Score: 98.7454
Sequences (12:40) Aligned. Score: 98.8201
Sequences (12:41) Aligned. Score: 100
Sequences (12:42) Aligned. Score: 96.9004
Sequences (13:14) Aligned. Score: 100
Sequences (13:15) Aligned. Score: 99.8525
Sequences (13:16) Aligned. Score: 99.9263
Sequences (13:17) Aligned. Score: 99.9263
Sequences (13:18) Aligned. Score: 99.9263
Sequences (13:19) Aligned. Score: 99.8525
Sequences (13:20) Aligned. Score: 99.4838
Sequences (13:21) Aligned. Score: 99.8525
Sequences (13:22) Aligned. Score: 99.9263
Sequences (13:23) Aligned. Score: 99.41
Sequences (13:24) Aligned. Score: 99.9263
Sequences (13:25) Aligned. Score: 100
Sequences (13:26) Aligned. Score: 100
Sequences (13:27) Aligned. Score: 100
Sequences (13:28) Aligned. Score: 100

Sequences (13:29) Aligned. Score: 100
Sequences (13:30) Aligned. Score: 100
Sequences (13:31) Aligned. Score: 100
Sequences (13:32) Aligned. Score: 96.679
Sequences (13:33) Aligned. Score: 99.2625
Sequences (13:34) Aligned. Score: 99.7788
Sequences (13:35) Aligned. Score: 98.7454
Sequences (13:36) Aligned. Score: 99.1888
Sequences (13:37) Aligned. Score: 98.7454
Sequences (13:38) Aligned. Score: 98.6716
Sequences (13:39) Aligned. Score: 98.7454
Sequences (13:40) Aligned. Score: 98.8201
Sequences (13:41) Aligned. Score: 100
Sequences (13:42) Aligned. Score: 96.9004
Sequences (14:15) Aligned. Score: 99.8525
Sequences (14:16) Aligned. Score: 99.9263
Sequences (14:17) Aligned. Score: 99.9263
Sequences (14:18) Aligned. Score: 99.9263
Sequences (14:19) Aligned. Score: 99.8525
Sequences (14:20) Aligned. Score: 99.4838
Sequences (14:21) Aligned. Score: 99.8525
Sequences (14:22) Aligned. Score: 99.9263
Sequences (14:23) Aligned. Score: 99.41
Sequences (14:24) Aligned. Score: 99.9263
Sequences (14:25) Aligned. Score: 100
Sequences (14:26) Aligned. Score: 100
Sequences (14:27) Aligned. Score: 100
Sequences (14:28) Aligned. Score: 100
Sequences (14:29) Aligned. Score: 100
Sequences (14:30) Aligned. Score: 100
Sequences (14:31) Aligned. Score: 100
Sequences (14:32) Aligned. Score: 96.679
Sequences (14:33) Aligned. Score: 99.2625
Sequences (14:34) Aligned. Score: 99.7788
Sequences (14:35) Aligned. Score: 98.7454
Sequences (14:36) Aligned. Score: 99.1888
Sequences (14:37) Aligned. Score: 98.7454
Sequences (14:38) Aligned. Score: 98.6716
Sequences (14:39) Aligned. Score: 98.7454
Sequences (14:40) Aligned. Score: 98.8201
Sequences (14:41) Aligned. Score: 100
Sequences (14:42) Aligned. Score: 96.9004
Sequences (15:16) Aligned. Score: 99.9263
Sequences (15:17) Aligned. Score: 99.9263
Sequences (15:18) Aligned. Score: 99.9263
Sequences (15:19) Aligned. Score: 99.8525
Sequences (15:20) Aligned. Score: 99.3363
Sequences (15:21) Aligned. Score: 99.8525
Sequences (15:22) Aligned. Score: 99.9263
Sequences (15:23) Aligned. Score: 99.2625
Sequences (15:24) Aligned. Score: 99.9263
Sequences (15:25) Aligned. Score: 99.8525
Sequences (15:26) Aligned. Score: 99.8525
Sequences (15:27) Aligned. Score: 99.8525
Sequences (15:28) Aligned. Score: 99.8525
Sequences (15:29) Aligned. Score: 99.8525

Sequences (15:30) Aligned. Score: 99.8525
Sequences (15:31) Aligned. Score: 99.8525
Sequences (15:32) Aligned. Score: 96.679
Sequences (15:33) Aligned. Score: 99.2625
Sequences (15:34) Aligned. Score: 99.7788
Sequences (15:35) Aligned. Score: 98.7454
Sequences (15:36) Aligned. Score: 99.1888
Sequences (15:37) Aligned. Score: 98.7454
Sequences (15:38) Aligned. Score: 98.6716
Sequences (15:39) Aligned. Score: 98.7454
Sequences (15:40) Aligned. Score: 98.8201
Sequences (15:41) Aligned. Score: 99.8525
Sequences (15:42) Aligned. Score: 96.9004
Sequences (16:17) Aligned. Score: 100
Sequences (16:18) Aligned. Score: 100
Sequences (16:19) Aligned. Score: 99.9263
Sequences (16:20) Aligned. Score: 99.41
Sequences (16:21) Aligned. Score: 99.9263
Sequences (16:22) Aligned. Score: 100
Sequences (16:23) Aligned. Score: 99.3363
Sequences (16:24) Aligned. Score: 100
Sequences (16:25) Aligned. Score: 99.9263
Sequences (16:26) Aligned. Score: 99.9263
Sequences (16:27) Aligned. Score: 99.9263
Sequences (16:28) Aligned. Score: 99.9263
Sequences (16:29) Aligned. Score: 99.9263
Sequences (16:30) Aligned. Score: 99.9263
Sequences (16:31) Aligned. Score: 99.9263
Sequences (16:32) Aligned. Score: 96.7528
Sequences (16:33) Aligned. Score: 99.3363
Sequences (16:34) Aligned. Score: 99.8525
Sequences (16:35) Aligned. Score: 98.8192
Sequences (16:36) Aligned. Score: 99.2625
Sequences (16:37) Aligned. Score: 98.8192
Sequences (16:38) Aligned. Score: 98.7454
Sequences (16:39) Aligned. Score: 98.8192
Sequences (16:40) Aligned. Score: 98.8938
Sequences (16:41) Aligned. Score: 99.9263
Sequences (16:42) Aligned. Score: 96.9742
Sequences (17:18) Aligned. Score: 100
Sequences (17:19) Aligned. Score: 99.9263
Sequences (17:20) Aligned. Score: 99.41
Sequences (17:21) Aligned. Score: 99.9263
Sequences (17:22) Aligned. Score: 100
Sequences (17:23) Aligned. Score: 99.3363
Sequences (17:24) Aligned. Score: 100
Sequences (17:25) Aligned. Score: 99.9263
Sequences (17:26) Aligned. Score: 99.9263
Sequences (17:27) Aligned. Score: 99.9263
Sequences (17:28) Aligned. Score: 99.9263
Sequences (17:29) Aligned. Score: 99.9263
Sequences (17:30) Aligned. Score: 99.9263
Sequences (17:31) Aligned. Score: 99.9263
Sequences (17:32) Aligned. Score: 96.7528
Sequences (17:33) Aligned. Score: 99.3363
Sequences (17:34) Aligned. Score: 99.8525

Sequences (17:35) Aligned. Score: 98.8192
Sequences (17:36) Aligned. Score: 99.2625
Sequences (17:37) Aligned. Score: 98.8192
Sequences (17:38) Aligned. Score: 98.7454
Sequences (17:39) Aligned. Score: 98.8192
Sequences (17:40) Aligned. Score: 98.8938
Sequences (17:41) Aligned. Score: 99.9263
Sequences (17:42) Aligned. Score: 96.9742
Sequences (18:19) Aligned. Score: 99.9263
Sequences (18:20) Aligned. Score: 99.41
Sequences (18:21) Aligned. Score: 99.9263
Sequences (18:22) Aligned. Score: 100
Sequences (18:23) Aligned. Score: 99.3363
Sequences (18:24) Aligned. Score: 100
Sequences (18:25) Aligned. Score: 99.9263
Sequences (18:26) Aligned. Score: 99.9263
Sequences (18:27) Aligned. Score: 99.9263
Sequences (18:28) Aligned. Score: 99.9263
Sequences (18:29) Aligned. Score: 99.9263
Sequences (18:30) Aligned. Score: 99.9263
Sequences (18:31) Aligned. Score: 99.9263
Sequences (18:32) Aligned. Score: 96.7528
Sequences (18:33) Aligned. Score: 99.3363
Sequences (18:34) Aligned. Score: 99.8525
Sequences (18:35) Aligned. Score: 98.8192
Sequences (18:36) Aligned. Score: 99.2625
Sequences (18:37) Aligned. Score: 98.8192
Sequences (18:38) Aligned. Score: 98.7454
Sequences (18:39) Aligned. Score: 98.8192
Sequences (18:40) Aligned. Score: 98.8938
Sequences (18:41) Aligned. Score: 99.9263
Sequences (18:42) Aligned. Score: 96.9742
Sequences (19:20) Aligned. Score: 99.3363
Sequences (19:21) Aligned. Score: 99.8525
Sequences (19:22) Aligned. Score: 99.9263
Sequences (19:23) Aligned. Score: 99.2625
Sequences (19:24) Aligned. Score: 99.9263
Sequences (19:25) Aligned. Score: 99.8525
Sequences (19:26) Aligned. Score: 99.8525
Sequences (19:27) Aligned. Score: 99.8525
Sequences (19:28) Aligned. Score: 99.8525
Sequences (19:29) Aligned. Score: 99.8525
Sequences (19:30) Aligned. Score: 99.8525
Sequences (19:31) Aligned. Score: 99.8525
Sequences (19:32) Aligned. Score: 96.679
Sequences (19:33) Aligned. Score: 99.2625
Sequences (19:34) Aligned. Score: 99.7788
Sequences (19:35) Aligned. Score: 98.7454
Sequences (19:36) Aligned. Score: 99.1888
Sequences (19:37) Aligned. Score: 98.7454
Sequences (19:38) Aligned. Score: 98.6716
Sequences (19:39) Aligned. Score: 98.7454
Sequences (19:40) Aligned. Score: 98.8201
Sequences (19:41) Aligned. Score: 99.8525
Sequences (19:42) Aligned. Score: 96.9004
Sequences (20:21) Aligned. Score: 99.3363

Sequences (20:22) Aligned. Score: 99.41
Sequences (20:23) Aligned. Score: 99.9263
Sequences (20:24) Aligned. Score: 99.41
Sequences (20:25) Aligned. Score: 99.4838
Sequences (20:26) Aligned. Score: 99.4838
Sequences (20:27) Aligned. Score: 99.4838
Sequences (20:28) Aligned. Score: 99.4838
Sequences (20:29) Aligned. Score: 99.4838
Sequences (20:30) Aligned. Score: 99.4838
Sequences (20:31) Aligned. Score: 99.4838
Sequences (20:32) Aligned. Score: 97.1956
Sequences (20:33) Aligned. Score: 98.7463
Sequences (20:34) Aligned. Score: 99.2625
Sequences (20:35) Aligned. Score: 98.2288
Sequences (20:36) Aligned. Score: 98.6726
Sequences (20:37) Aligned. Score: 98.2288
Sequences (20:38) Aligned. Score: 98.155
Sequences (20:39) Aligned. Score: 98.2288
Sequences (20:40) Aligned. Score: 98.3038
Sequences (20:41) Aligned. Score: 99.4838
Sequences (20:42) Aligned. Score: 97.417
Sequences (21:22) Aligned. Score: 99.9263
Sequences (21:23) Aligned. Score: 99.2625
Sequences (21:24) Aligned. Score: 99.9263
Sequences (21:25) Aligned. Score: 99.8525
Sequences (21:26) Aligned. Score: 99.8525
Sequences (21:27) Aligned. Score: 99.8525
Sequences (21:28) Aligned. Score: 99.8525
Sequences (21:29) Aligned. Score: 99.8525
Sequences (21:30) Aligned. Score: 99.8525
Sequences (21:31) Aligned. Score: 99.8525
Sequences (21:32) Aligned. Score: 96.679
Sequences (21:33) Aligned. Score: 99.2625
Sequences (21:34) Aligned. Score: 99.7788
Sequences (21:35) Aligned. Score: 98.7454
Sequences (21:36) Aligned. Score: 99.1888
Sequences (21:37) Aligned. Score: 98.7454
Sequences (21:38) Aligned. Score: 98.6716
Sequences (21:39) Aligned. Score: 98.7454
Sequences (21:40) Aligned. Score: 98.8201
Sequences (21:41) Aligned. Score: 99.8525
Sequences (21:42) Aligned. Score: 96.9004
Sequences (22:23) Aligned. Score: 99.3363
Sequences (22:24) Aligned. Score: 100
Sequences (22:25) Aligned. Score: 99.9263
Sequences (22:26) Aligned. Score: 99.9263
Sequences (22:27) Aligned. Score: 99.9263
Sequences (22:28) Aligned. Score: 99.9263
Sequences (22:29) Aligned. Score: 99.9263
Sequences (22:30) Aligned. Score: 99.9263
Sequences (22:31) Aligned. Score: 99.9263
Sequences (22:32) Aligned. Score: 96.7528
Sequences (22:33) Aligned. Score: 99.3363
Sequences (22:34) Aligned. Score: 99.8525
Sequences (22:35) Aligned. Score: 98.8192
Sequences (22:36) Aligned. Score: 99.2625

Sequences (22:37) Aligned. Score: 98.8192
Sequences (22:38) Aligned. Score: 98.7454
Sequences (22:39) Aligned. Score: 98.8192
Sequences (22:40) Aligned. Score: 98.8938
Sequences (22:41) Aligned. Score: 99.9263
Sequences (22:42) Aligned. Score: 96.9742
Sequences (23:24) Aligned. Score: 99.3363
Sequences (23:25) Aligned. Score: 99.41
Sequences (23:26) Aligned. Score: 99.41
Sequences (23:27) Aligned. Score: 99.41
Sequences (23:28) Aligned. Score: 99.41
Sequences (23:29) Aligned. Score: 99.41
Sequences (23:30) Aligned. Score: 99.41
Sequences (23:31) Aligned. Score: 99.41
Sequences (23:32) Aligned. Score: 97.1218
Sequences (23:33) Aligned. Score: 98.6726
Sequences (23:34) Aligned. Score: 99.1888
Sequences (23:35) Aligned. Score: 98.155
Sequences (23:36) Aligned. Score: 98.5988
Sequences (23:37) Aligned. Score: 98.155
Sequences (23:38) Aligned. Score: 98.0812
Sequences (23:39) Aligned. Score: 98.155
Sequences (23:40) Aligned. Score: 98.2301
Sequences (23:41) Aligned. Score: 99.41
Sequences (23:42) Aligned. Score: 97.4908
Sequences (24:25) Aligned. Score: 99.9263
Sequences (24:26) Aligned. Score: 99.9263
Sequences (24:27) Aligned. Score: 99.9263
Sequences (24:28) Aligned. Score: 99.9263
Sequences (24:29) Aligned. Score: 99.9263
Sequences (24:30) Aligned. Score: 99.9263
Sequences (24:31) Aligned. Score: 99.9263
Sequences (24:32) Aligned. Score: 96.7528
Sequences (24:33) Aligned. Score: 99.3363
Sequences (24:34) Aligned. Score: 99.8525
Sequences (24:35) Aligned. Score: 98.8192
Sequences (24:36) Aligned. Score: 99.2625
Sequences (24:37) Aligned. Score: 98.8192
Sequences (24:38) Aligned. Score: 98.7454
Sequences (24:39) Aligned. Score: 98.8192
Sequences (24:40) Aligned. Score: 98.8938
Sequences (24:41) Aligned. Score: 99.9263
Sequences (24:42) Aligned. Score: 96.9742
Sequences (25:26) Aligned. Score: 100
Sequences (25:27) Aligned. Score: 100
Sequences (25:28) Aligned. Score: 100
Sequences (25:29) Aligned. Score: 100
Sequences (25:30) Aligned. Score: 100
Sequences (25:31) Aligned. Score: 100
Sequences (25:32) Aligned. Score: 96.679
Sequences (25:33) Aligned. Score: 99.2625
Sequences (25:34) Aligned. Score: 99.7788
Sequences (25:35) Aligned. Score: 98.7454
Sequences (25:36) Aligned. Score: 99.1888
Sequences (25:37) Aligned. Score: 98.7454
Sequences (25:38) Aligned. Score: 98.6716

Sequences (25:39) Aligned. Score: 98.7454
Sequences (25:40) Aligned. Score: 98.8201
Sequences (25:41) Aligned. Score: 100
Sequences (25:42) Aligned. Score: 96.9004
Sequences (26:27) Aligned. Score: 100
Sequences (26:28) Aligned. Score: 100
Sequences (26:29) Aligned. Score: 100
Sequences (26:30) Aligned. Score: 100
Sequences (26:31) Aligned. Score: 100
Sequences (26:32) Aligned. Score: 96.679
Sequences (26:33) Aligned. Score: 99.2625
Sequences (26:34) Aligned. Score: 99.7788
Sequences (26:35) Aligned. Score: 98.7454
Sequences (26:36) Aligned. Score: 99.1888
Sequences (26:37) Aligned. Score: 98.7454
Sequences (26:38) Aligned. Score: 98.6716
Sequences (26:39) Aligned. Score: 98.7454
Sequences (26:40) Aligned. Score: 98.8201
Sequences (26:41) Aligned. Score: 100
Sequences (26:42) Aligned. Score: 96.9004
Sequences (27:28) Aligned. Score: 100
Sequences (27:29) Aligned. Score: 100
Sequences (27:30) Aligned. Score: 100
Sequences (27:31) Aligned. Score: 100
Sequences (27:32) Aligned. Score: 96.679
Sequences (27:33) Aligned. Score: 99.2625
Sequences (27:34) Aligned. Score: 99.7788
Sequences (27:35) Aligned. Score: 98.7454
Sequences (27:36) Aligned. Score: 99.1888
Sequences (27:37) Aligned. Score: 98.7454
Sequences (27:38) Aligned. Score: 98.6716
Sequences (27:39) Aligned. Score: 98.7454
Sequences (27:40) Aligned. Score: 98.8201
Sequences (27:41) Aligned. Score: 100
Sequences (27:42) Aligned. Score: 96.9004
Sequences (28:29) Aligned. Score: 100
Sequences (28:30) Aligned. Score: 100
Sequences (28:31) Aligned. Score: 100
Sequences (28:32) Aligned. Score: 96.679
Sequences (28:33) Aligned. Score: 99.2625
Sequences (28:34) Aligned. Score: 99.7788
Sequences (28:35) Aligned. Score: 98.7454
Sequences (28:36) Aligned. Score: 99.1888
Sequences (28:37) Aligned. Score: 98.7454
Sequences (28:38) Aligned. Score: 98.6716
Sequences (28:39) Aligned. Score: 98.7454
Sequences (28:40) Aligned. Score: 98.8201
Sequences (28:41) Aligned. Score: 100
Sequences (28:42) Aligned. Score: 96.9004
Sequences (29:30) Aligned. Score: 100
Sequences (29:31) Aligned. Score: 100
Sequences (29:32) Aligned. Score: 96.679
Sequences (29:33) Aligned. Score: 99.2625
Sequences (29:34) Aligned. Score: 99.7788
Sequences (29:35) Aligned. Score: 98.7454
Sequences (29:36) Aligned. Score: 99.1888

Sequences (29:37) Aligned. Score: 98.7454
Sequences (29:38) Aligned. Score: 98.6716
Sequences (29:39) Aligned. Score: 98.7454
Sequences (29:40) Aligned. Score: 98.8201
Sequences (29:41) Aligned. Score: 100
Sequences (29:42) Aligned. Score: 96.9004
Sequences (30:31) Aligned. Score: 100
Sequences (30:32) Aligned. Score: 96.679
Sequences (30:33) Aligned. Score: 99.2625
Sequences (30:34) Aligned. Score: 99.7788
Sequences (30:35) Aligned. Score: 98.7454
Sequences (30:36) Aligned. Score: 99.1888
Sequences (30:37) Aligned. Score: 98.7454
Sequences (30:38) Aligned. Score: 98.6716
Sequences (30:39) Aligned. Score: 98.7454
Sequences (30:40) Aligned. Score: 98.8201
Sequences (30:41) Aligned. Score: 100
Sequences (30:42) Aligned. Score: 96.9004
Sequences (31:32) Aligned. Score: 96.679
Sequences (31:33) Aligned. Score: 99.2625
Sequences (31:34) Aligned. Score: 99.7788
Sequences (31:35) Aligned. Score: 98.7454
Sequences (31:36) Aligned. Score: 99.1888
Sequences (31:37) Aligned. Score: 98.7454
Sequences (31:38) Aligned. Score: 98.6716
Sequences (31:39) Aligned. Score: 98.7454
Sequences (31:40) Aligned. Score: 98.8201
Sequences (31:41) Aligned. Score: 100
Sequences (31:42) Aligned. Score: 96.9004
Sequences (32:33) Aligned. Score: 96.9004
Sequences (32:34) Aligned. Score: 96.7528
Sequences (32:35) Aligned. Score: 97.1218
Sequences (32:36) Aligned. Score: 96.9004
Sequences (32:37) Aligned. Score: 97.1218
Sequences (32:38) Aligned. Score: 97.048
Sequences (32:39) Aligned. Score: 97.1218
Sequences (32:40) Aligned. Score: 96.679
Sequences (32:41) Aligned. Score: 96.679
Sequences (32:42) Aligned. Score: 99.0406
Sequences (33:34) Aligned. Score: 99.3363
Sequences (33:35) Aligned. Score: 99.262
Sequences (33:36) Aligned. Score: 99.9263
Sequences (33:37) Aligned. Score: 99.262
Sequences (33:38) Aligned. Score: 99.1882
Sequences (33:39) Aligned. Score: 99.262
Sequences (33:40) Aligned. Score: 99.3363
Sequences (33:41) Aligned. Score: 99.2625
Sequences (33:42) Aligned. Score: 96.9004
Sequences (34:35) Aligned. Score: 98.8192
Sequences (34:36) Aligned. Score: 99.2625
Sequences (34:37) Aligned. Score: 98.8192
Sequences (34:38) Aligned. Score: 98.7454
Sequences (34:39) Aligned. Score: 98.8192
Sequences (34:40) Aligned. Score: 98.8938
Sequences (34:41) Aligned. Score: 99.7788
Sequences (34:42) Aligned. Score: 96.9742

```
Sequences (35:36) Aligned. Score: 99.3358
Sequences (35:37) Aligned. Score: 100
Sequences (35:38) Aligned. Score: 99.9262
Sequences (35:39) Aligned. Score: 100
Sequences (35:40) Aligned. Score: 99.1144
Sequences (35:41) Aligned. Score: 98.7454
Sequences (35:42) Aligned. Score: 97.2694
Sequences (36:37) Aligned. Score: 99.3358
Sequences (36:38) Aligned. Score: 99.262
Sequences (36:39) Aligned. Score: 99.3358
Sequences (36:40) Aligned. Score: 99.41
Sequences (36:41) Aligned. Score: 99.1888
Sequences (36:42) Aligned. Score: 96.9004
Sequences (37:38) Aligned. Score: 99.9262
Sequences (37:39) Aligned. Score: 100
Sequences (37:40) Aligned. Score: 99.1144
Sequences (37:41) Aligned. Score: 98.7454
Sequences (37:42) Aligned. Score: 97.2694
Sequences (38:39) Aligned. Score: 99.9262
Sequences (38:40) Aligned. Score: 99.0406
Sequences (38:41) Aligned. Score: 98.6716
Sequences (38:42) Aligned. Score: 97.1956
Sequences (39:40) Aligned. Score: 99.1144
Sequences (39:41) Aligned. Score: 98.7454
Sequences (39:42) Aligned. Score: 97.2694
Sequences (40:41) Aligned. Score: 98.8201
Sequences (40:42) Aligned. Score: 96.679
Sequences (41:42) Aligned. Score: 96.9004
Guide tree file created:   [clustalw.dnd]

There are 41 groups
Start of Multiple Alignment

Aligning...
Group 1: Sequences:   2      Score:22405
Group 2: Sequences:   2      Score:22399
Group 3: Sequences:   4      Score:22341
Group 4: Sequences:   2      Score:22390
Group 5: Sequences:   3      Score:22393
Group 6: Sequences:   4      Score:22394
Group 7: Sequences:   5      Score:22395
Group 8: Sequences:   6      Score:22395
Group 9: Sequences:   7      Score:22395
Group 10: Sequences:   8      Score:22396
Group 11: Sequences:   9      Score:22396
Group 12: Sequences:  10      Score:22396
Group 13: Sequences:  11      Score:22396
Group 14: Sequences:  12      Score:22396
Group 15: Sequences:  13      Score:22396
Group 16: Sequences:  14      Score:22396
Group 17: Sequences:   2      Score:22374
Group 18: Sequences:  16      Score:22320
Group 19: Sequences:   2      Score:22384
Group 20: Sequences:   3      Score:22383
Group 21: Sequences:   4      Score:22390
Group 22: Sequences:   5      Score:22392
```

```
Group 23: Sequences:    6      Score:22393
Group 24: Sequences:    7      Score:22393
Group 25: Sequences:    8      Score:22394
Group 26: Sequences:   24      Score:22377
Group 27: Sequences:   25      Score:22369
Group 28: Sequences:    2      Score:22336
Group 29: Sequences:   27      Score:22268
Group 30: Sequences:   28      Score:22274
Group 31: Sequences:   32      Score:22280
Group 32: Sequences:    2      Score:22388
Group 33: Sequences:    3      Score:22388
Group 34: Sequences:    4      Score:22376
Group 35: Sequences:   36      Score:22152
Group 36: Sequences:    2      Score:22381
Group 37: Sequences:    3      Score:22304
Group 38: Sequences:    4      Score:22305
Group 39: Sequences:    2      Score:22376
Group 40: Sequences:    6      Score:22271
Group 41: Sequences:   42      Score:21909
Alignment Score 7138012

CLUSTAL-Alignment file created  [clustalw.aln]
```

---

clustalw.aln

```
CLUSTAL 2.1 multiple sequence alignment


NC_005831.2      MKLFLILLVLPLASCFFTCNSNANLSMLQLGVPDNSSTIVTGLLPTHWFCANQSTSVYSA
JX504050.1       MKLFLILLVLPLASCFFTCNSNANLSMLQLGVPDNSSTIVTGLLPTHWFCANQSTSVYSA
KY829118.1       MKLFLILLVLPLASCFFTCNSNANLSMLQLGVPDNSSTIVTGLLPTHWICANQSTSVYSA
KF530105.1       MKLFLILLVLPLASCFFTCNSNANLSMLQLGVPDNSSTIVTGLLPTHWICANQSTSVYSA
KM055634.1       MKLFLILLVLPLASCFFTCNSNANLSMLQLGVPDNSSTIVTGLLPTHWICANQSTSVYSA
KM055648.1       MKLFLILLVLPLASCFFTCNSNANLSMLQLGVPDNSSTIVTGLLPTHWICANQSTSVYSA
KM055649.1       MKLFLILLVLPLASCFFTCNSNANLSMLQLGVPDNSSTIVTGLLPTHWICANQSTSVYSA
KM055650.1       MKLFLILLVLPLASCFFTCNSNANLSMLQLGVPDNSSTIVTGLLPTHWICANQSTSVYSA
MG428701.1       MKLFLILLVLPLASCFFTCNSNANLSMLQLGVPDNSSTIVTGLLPTHWICANQSTSVYSA
KM055632.1       MKLFLILLVLPLASCFFTCNSNANLSMLQLGVPDNSSTIVTGLLPTHWICANQSTSVYSA
KM055636.1       MKLFLILLVLPLASCFFTCNSNANLSMLQLGVPDNSSTIVTGLLPTHWICANQSTSVYSA
KM055637.1       MKLFLILLVLPLASCFFTCNSNANLSMLQLGVPDNSSTIVTGLLPTHWICANQSTSVYSA
KM055635.1       MKLFLILLVLPLASCFFTCNSNANLSMLQLGVPDNSSTIVTGLLPTHWICANQSTSVYSA
KM055633.1       MKLFLILLVLPLASCFFTCNSNANLSMLQLGVPDNSSTIVTGLLPTHWICANQSTSVYSA
JX524171.1       MKLFLILLVLPLASCFFTCNSNANLSMLQLGVPDNSSTIVTGLLPTHWICANQSTSVYSA
MG428702.1       MKLFLILLVLPLASCFFTCNSNANLSMLQLGVPDNSSTIVTGLLPTHWICANQSTSVYSA
MG428700.1       MKLFLILLVLPLASCFFTCNSNANLSMLQLGVPDNSSTIVTGLLPTHWICANQSTSVYSA
MG428699.1       MKLFLILLVLPLASCFFTCNSNANLSMLQLGVPDNSSTIVTGLLPTHWICANQSTSVYSA
KM055643.1       MKLFLILLVLPLASCFFTCNSNANLSMLQLGVPDNSSTIVTGLLPTHWICANQSTSVYSA
KM055646.1       MKLFLILLVLPLASCFFTCNSNANLSMLQLGVPDNSSTIVTGLLPTHWICANQSTSVYSA
KM055638.1       MKLFLILLVLPLASCFFTCNSNANLSMLQLGVPDNSSTIVTGLLPTHWICANQSTSVYSA
KM055644.1       MKLFLILLVLPLASCFFTCNSNANLSMLQLGVPDNSSTIVTGLLPTHWICANQSTSVYSA
KM055642.1       MKLFLILLVLPLASCFFTCNSNANLSMLQLGVPDNSSTIVTGLLPTHWICANQSTSVYSA
KM055639.1       MKLFLILLVLPLASCFFTCNSNANLSMLQLGVPDNSSTIVTGLLPTHWICANQSTSVYSA
KM055640.1       MKLFLILLVLPLASCFFTCNSNANLSMLQLGVPDNSSTIVTGLLPTHWICANQSTSVYSA
KM055641.1       MKLFLILLVLPLASCFFTCNSNANLSMLQLGVPDNSSTIVTGLLPTHWICANQSTSVYSA
```

```
KM055645.1      MKLFLILLVLPLASCFFTCNSNANLSMLQLGVPDNSSTIVTGLLPTHWICANQSTSVYSA
KM055647.1      MKLFLILLVLPLASCFFTCNSNANLSMLQLGVPDNSSTIVTGLLPTHWICANQSTSVYSA
KX179500.1      MKLFLILLVLPLASCFFTCNSNANLSMLQLGVPDNSSTIVTGLLPTHWICANQSTSVYSA
MN306040.1      MKLFLILLVLPLASCFFTCNSNANLSMLQLGVPDNSSTIVTGLLPTHWICANQSTSVYSA
MK334044.1      MKLFLILLVLPLASCFSTCNSNANLSMLQLGVPDNSSTIVTGLLPTHWICANQSTSVYSA
MK334045.1      MKLFLILLVLPLASCFSTCNSNANLSMLQLGVPDNSSTIVTGLLPTHWICANQSTSVYSA
KF530104.1      MKLFLILLVLPLASCFSTCNSNANISMLQLGVPDNSSTIVTGLLPTHWICANQSTSVYSA
KF530106.1      MKLFLILLVLPLASCFSTCNSNANISMLQLGVPDNSSTIVTGLLPTHWICANQSTSVYSA
KF530108.1      MKLFLILLVLPLASCFSTCNSNANISMLQLGVPDNSSTIVTGLLPTHWICANQSTSVYSA
KF530107.1      MKLFLILLVLPLASCFSTCNSNANISMLQLGVPDNSSTIVTGLLPTHWICANQSTSVYSA
LC488388.1      MKLFLILLILPLVSCFSTCNSNASISMLQLGVPDNSSTIVTGLLPVHWICANQSTSTYPA
MK334046.1      MKLFLILLILPLVSCFSTCNSNASISMLQLGVPDNSSTIVTGLLPVHWICANQSTSTYPA
MK334047.1      MKLFLILLILPLVSCFSTCNSNASISMLQLGVPDNSSTIVTGLLPVHWICANQSTSTYPA
JQ765563.1      MKLFLILLILPLVSCFSTCNSNASISMLQLGVPDNSSTIVTGLLPVHWICANQSTSSYPA
MN026166.1      MKLFLILLILPLVSCFSTCNSNASISMLQLGVPDNSSTIVTGLLPVHWICANQSTSTYPA
MG772808.1      MKLFLILLILPLVSCFSTCNSNASISMLQLGVPDNSSTIVTGLLPVHWICANQSTSTYPA
                ********:***.*** ******.:*******************.**:******* *.*

NC_005831.2     NGFFYIDVGNHRSAFALHTGYYDANQYYIYVTNEIGLNASVTLKICKFSRNTTFDFLSNA
JX504050.1      NGFFYIDVGNHRSAFALHTGYYDANQYYIYVTNEIGLNASVTLKICKFSRNTTFDFLSNA
KY829118.1      NGFFYIDVGNHRSAFALHTGYYDVNQYYIYVTNEIGLNASVTLKICKFGTNTTFDFLSNS
KF530105.1      NGFFYIDVGNHRSAFALHTGYYDVNQYYIYVTNEIGLNASVTLKICKFGTNTTFDFLSNA
KM055634.1      NGFFYIDVGNHRSAFALHTGYYDVNQYYIYVTNEIGLNASVTLKICKFGINTTFDFLSNS
KM055648.1      NGFFYIDVGNHRSAFALHTGYYDVNQYYIYVTNEIGLNASVTLKICKFGINTTFDFLSNS
KM055649.1      NGFFYIDVGNHRSAFALHTGYYDVNQYYIYVTNEIGLNASVTLKICKFGINTTFDFLSNS
KM055650.1      NGFFYIDVGNHRSAFALHTGYYDVNQYYIYVTNEIGLNASVTLKICKFGINTTFDFLSNS
MG428701.1      NGFFYIDVGNHRSAFALHTGYYDVNQYYIYVTNEIGLNASVTLKICKFGINTTFDFLSNS
KM055632.1      NGFFYIDVGNHRSAFALHTGYYDVNQYYIYVTNEIGLNASVTLKICKFGINTTFDFLSNS
KM055636.1      NGFFYIDVGNHRSAFALHTGYYDVNQYYIYVTNEIGLNASVTLKICKFGINTTFDFLSNS
KM055637.1      NGFFYIDVGNHRSAFALHTGYYDVNQYYIYVTNEIGLNASVTLKICKFGINTTFDFLSNS
KM055635.1      NGFFYIDVGNHRSAFALHTGYYDVNQYYIYVTNEIGLNASVTLKICKFGINTTFDFLSNS
KM055633.1      NGFFYIDVGNHRSAFALHTGYYDVNQYYIYVTNEIGLNASVTLKICKFGINTTFDFLSNS
JX524171.1      NGFFYIDVGNHRSAFALHTGYYDVNQYYIYVTNEIGLNASVTLKICKFGINTTFDFLSNS
MG428702.1      NGFFYIDVGNHRSAFALHTGYYDVNQYYIYVTNEIGLNASVTLKICKFGINTTFDFLSNS
MG428700.1      NGFFYIDVGNHRSAFALHTGYYDVNQYYIYVTNEIGLNASVTLKICKFGINTTFDFLSNS
MG428699.1      NGFFYIDVGNHRSAFALHTGYYDVNQYYIYVTNEIGLNASVTLKICKFGINTTFDFLSNS
KM055643.1      NGFFYIDVGNHRSAFALHTGYYDVNQYYIYVTNEIGLNASVTLKICKFGINTTFDFLSNS
KM055646.1      NGFFYIDVGNHRSAFALHTGYYDVNQYYIYVTNEIGLNASVTLKICKFGINTTFDFLSNS
KM055638.1      NGFFYIDVGNHRSAFALHTGYYDVNQYYIYVTNEIGLNASVTLKICKFGINTTFDFLSNS
KM055644.1      NGFFYIDVGNHRSAFALHTGYYDVNQYYIYVTNEIGLNASVTLKICKFGINTTFDFLSNS
KM055642.1      NGFFYIDVGNHRSAFALHTGYYDVNQYYIYVTNEIGLNASVTLKICKFGINTTFDFLSNS
KM055639.1      NGFFYIDVGNHRSAFALHTGYYDVNQYYIYVTNEIGLNASVTLKICKFGINTTFDFLSNS
KM055640.1      NGFFYIDVGNHRSAFALHTGYYDVNQYYIYVTNEIGLNASVTLKICKFGINTTFDFLSNS
KM055641.1      NGFFYIDVGNHRSAFALHTGYYDVNQYYIYVTNEIGLNASVTLKICKFGINTTFDFLSNS
KM055645.1      NGFFYIDVGNHRSAFALHTGYYDVNQYYIYVTNEIGLNASVTLKICKFGINTTFDFLSNS
KM055647.1      NGFFYIDVGNHRSAFALHTGYYDVNQYYIYVTNEIGLNASVTLKICKFGINTTFDFLSNS
KX179500.1      NGFFYIDVGNHRSAFALHTGYYDVNQYYIYVTNEIGLNASVTLKICKFGINTTFDFLSNS
MN306040.1      NGFFFIDVGNHRSAFALHTGYYDVNQYYIYVTNEIGLNASVTLKICKFGN-TTFDFLSNS
MK334044.1      NGFFYIDVGNHRSAFALHTGYYDVNQYYIYVTNEIGLNASVTLKICKFGN-TTFDFLSNS
MK334045.1      NGFFYIDVGNHRSAFALHTGYYDVNQYYIYVTNEIGLNASVTLKICKFGINTTFDFLSNS
KF530104.1      KGFFYIDVGNHRSAFALHTGYYDANQYYIYVTNEIGLNASVTLKICKFRN-TTFDFLSNA
KF530106.1      KGFFYIDVGNHRSAFALHTGYYDANQYYIYVTNEIGLNASVTLKICKFRN-TTFDFLSNA
KF530108.1      KGFFYIDVGNHRSAFALHTGYYDANQYYIYVTNEIGLNASVTLKICKFRN-TTFDFLSNA
KF530107.1      KGFFYIDVGNHRSAFALHTGYYDANQYYIYVTNEIGLNASVTLKICKFRN-TTFDFLSNA
LC488388.1      NGFFYIDVGKHRSAFALHSGYYDANQYYIYLTNNISLNAPVTLKICKFGN-TSFDFLSNV
MK334046.1      NGFFYIDVGKHRSAFALHSGYYDANQYYIYLTNNISLNAPVTLKICKFGN-TSFDFLSNV
```

```
MK334047.1      NGFFYIDVGKHRSAFALHSGYYDANQYYIYLTNNISLNAPVTLKICKFGN-TSFACLSNV
JQ765563.1      NGFFYIDVGKHRSAFALHSGYYDANQYYIYLTNKIHLNAPVTLKICKFGN-TSFDFLSNV
MN026166.1      NGFFYIDVGKHRSAFALHSGYYDANQYYIYLTNQIRLNASVTLRICKFGN-TSFDFLSNV
MG772808.1      NGFFYIDVGKHRSAFALHSGYYDANQYYIYLTNQIRLNASVTLRICKFGN-TSFDFLSNV
                :***:****:********:****.******:**:* ***.***:****   *:*  ***

NC_005831.2     SSSFDCIVNLLFTEQLGAPLGITISGETVRLHLYNVTRTFYVPAAYKLTKLSVKCYFNYS
JX504050.1      SSSFDCIVNLLFTEQLGAPLGITISGETVRLHLYNVTRTFYVPAAYKLTKLSVKCYFNYS
KY829118.1      SSSFDCIVNLLFTEQLGAPLGITISGETVRLHLYNVTRTFYVPAAYKLTKLSVKCYFNYS
KF530105.1      SSSFDCIVNLLFTEQLGAPLGITISGETVRLHLYNVTRTFYVPAAYKLTKLSVKCYFNYS
KM055634.1      SSSFDCIVNLLFTEQLGAPLGITISGETVRLHLYNVTRTFYVPAAYKLTKLSVKCYFNYS
KM055648.1      SSSFDCIVNLLFTEQLGAPLGITISGETVRLHLYNVTRTFYVPAAYKLTKLSVKCYFNYS
KM055649.1      SSSFDCIVNLLFTEQLGAPLGITISGETVRLHLYNVTRTFYVPAAYKLTKLSVKCYFNYS
KM055650.1      SSSFDCIVNLLFTEQLGAPLGITISGETVRLHLYNVTRTFYVPAAYKLTKLSVKCYFNYS
MG428701.1      SSSFDCIVNLLFTEQLGAPLGITISGETVRLHLYNVTRTFYVPAAYKLTKLSVKCYFNYS
KM055632.1      SSSFDCIVNLLFTEQLGAPLGITISGETVRLHLYNVTRTFYVPAAYKLTKLSVKCYFNYS
KM055636.1      SSSFDCIVNLLFTEQLGAPLGITISGETVRLHLYNVTRTFYVPAAYKLTKLSVKCYFNYS
KM055637.1      SSSFDCIVNLLFTEQLGAPLGITISGETVRLHLYNVTRTFYVPAAYKLTKLSVKCYFNYS
KM055635.1      SSSFDCIVNLLFTEQLGAPLGITISGETVRLHLYNVTRTFYVPAAYKLTKLSVKCYFNYS
KM055633.1      SSSFDCIVNLLFTEQLGAPLGITISGETVRLHLYNVTRTFYVPAAYKLTKLSVKCYFNYS
JX524171.1      SSSFDCIVNLLFTEQLGAPLGITISGETVRLHLYNVTRTFYVPAAYKLTKLSVKCYFNYS
MG428702.1      SSSFDCIVNLLFTEQLGAPLGITISGETVRLHLYNVTRTFYVPAAYKLTKLSVKCYFNYS
MG428700.1      SSSFDCIVNLLFTEQLGAPLGITISGETVRLHLYNVTRTFYVPAAYKLTKLSVKCYFNYS
MG428699.1      SSSFDCIVNLLFTEQLGAPLGITISGETVRLHLYNVTRTFYVPAAYKLTKLSVKCYFNYS
KM055643.1      SSSFDCIVNLLFTEQLGAPLGITISGETVRLHLYNVTRTFYVPAAYKLTKLSVKCYFSES
KM055646.1      SSSFDCIVNLLFTEQLGAPLGITISGETVRLHLYNVTRTFYVPAAYKLTKLSVKCYFSES
KM055638.1      SSSFDCIVNLLFTEQLGAPLGITISGETVRLHLYNVTRTFYVPAAYKLTKLSVKCYFNYS
KM055644.1      SSSFDCIVNLLFTEQLGAPLGITISGETVRLHLYNVTRTFYVPAAYKLTKLSVKCYFNYS
KM055642.1      SSSFDCIVNLLFTEQLGAPLGITISGETVRLHLYNVTRTFYVPAAYKLTKLSVKCYFNYS
KM055639.1      SSSFDCIVNLLFTEQLGAPLGITISGETVRLHLYNVTRTFYVPAAYKLTKLSVKCYFNYS
KM055640.1      SSSFDCIVNLLFTEQLGAPLGITISGETVRLHLYNVTRTFYVPAAYKLTKLSVKCYFNYS
KM055641.1      SSSFDCIVNLLFTEQLGAPLGITISGETVRLHLYNVTRTFYVPAAYKLTKLSVKCYFNYS
KM055645.1      SSSFDCIVNLLFTEQLGAPLGITISGETVRLHLYNVTRTFYVPAAYKLTKLSVKCYFNYS
KM055647.1      SSSFDCIVNLLFTEQLGAPLGITISGETVRLHLYNVTRTFYVPAAYKLTKLSVKCYFNYS
KX179500.1      SSSFDCIVNLLFTEQLGAPLGITISGETVRLHLYNVTRTFYVPAAYKLTKLSVKCYFNYS
MN306040.1      SSSFDCIVNLLFTEQLGAPLGITISGETVRLHLYNVTRTFYVPAAYKLTKLSVKCYFNYS
MK334044.1      SSSFDCIVNLLFTEQLGAPLGITISGETVRLHLYNVTRTFYVPAAYKLTKLSVKCYFNYS
MK334045.1      SSSFDCIVNLLFTEQLGAPLGITISGETARLHLYNVTRTFYVPAAYKLTKLSVKCYFNYS
KF530104.1      SSSFDCIVNLLFTEQLGAPLGITISGETVRLHLYNVTRTFYVPAAYKLTKLSVKCYFNYS
KF530106.1      SSSFDCIVNLLFTEQLGAPLGITISGETVRLHLYNVTRTFYVPAAYKLTKLSVKCYFNYS
KF530108.1      SSSFDCIVNLLFTEQLGAPLGITISGETVRLHLYNVTRTFYVPAAYKLTKLSVKCYFNYS
KF530107.1      SSSFDCIVNLLFTEQLGAPLGITISGETVRLHLYNVTRTFYVPAAYKLTKLSVKCYFNYS
LC488388.1      STSHHCIVNSSFTEQLGVPLGITISGETVRLHLYNATRTFYVPAAYKLTKLSVKCYFSES
MK334046.1      STSHHCIVNSSFTEQLGVPLGITISGETVRLHLYNATRTFYVPAAYKLTKLSVKCYFSES
MK334047.1      STSHHCIVNSSFTEQLGVPLGITISGETVRLHLYNATRTFYVPAAYKLTKLSVKCYFSES
JQ765563.1      STSHHCIVNSSFTEQLGVPLGITISGETVRLHLYNATRTFYVPAAYKLTKLSVKCYFSES
MN026166.1      STSHHCIVNSSFTEQLGVPLGITISGETVRLHLYNATRTFYVPAAYKLTKLSVKCYFSES
MG772808.1      STSHHCIVNSSFTEQLGVPLGITISGETVRLHLYNATRTFYVPAAYKLTKLSVKCYFSES
                *:*..****  ******.**********.******.******************. *

NC_005831.2     CVFSVVNATVTVNVTTHNGRVVNYTVCDDCNGYTDNIFSVQQDGRIPNGFPFNNWFLLTN
JX504050.1      CVFSVVNATVTVNVTTHNGRVVNYTVCDDCNGYTDNIFSVQQDGRIPNGFPFNNWFLLTN
KY829118.1      CVFSVVNATVTVNVTTHNGRVVNYTVCDDCNGYTDNIFSVQQDGRIPNGFPFNNWFLLTN
KF530105.1      CVFSVVNATVTVNVTTHNGRVVNYTVCDDCNGYTDNIFSVQQDGRIPNGFPFNNWFLLTN
KM055634.1      CVFSVVNTTVTVNVTTHNGRVVNYTVCDDCNGYTDNIFSVQQDGRIPNGFPFNNWFLLTN
KM055648.1      CVFSVVNATVTVNVTTHNGRVVNYTVCDDCNGYTDNIFSVQQDGRIPNGFPFNNWFLLTN
```

```
KM055649.1      CVFSVVNATVTVNVTTHNGRVVNYTVCDDCNGYTDNIFSVQQDGRIPNGFPFNNWFLLTN
KM055650.1      CVFSVVNATVTVNVTTHNGRVVNYTVCDDCNGYTDNIFSVQQDGRIPNGFPFNNWFLLTN
MG428701.1      CVFSVVNATVTVNVTTHNGRVVNYTVCDDCNGYTDNIFSVQQDGRIPNGFPFNNWFLLTN
KM055632.1      CVFSVVNATVTVNVTTHNGRVVNYTVCDDCNGYTDNIFSVQQDGRIPNGFPFNNWFLLTN
KM055636.1      CVFSVVNATVTVNVTTHNGRVVNYTVCDDCNGYTDNIFSVQQDGRIPNGFPFNNWFLLTN
KM055637.1      CVFSVVNATVTVNVTTHNGRVVNYTVCDDCNGYTDNIFSVQQDGRIPNGFPFNNWFLLTN
KM055635.1      CVFSVVNATVTVNVTTHNGRVVNYTVCDDCNGYTDNIFSVQQDGRIPNGFPFNNWFLLTN
KM055633.1      CVFSVVNATVTVNVTTHNGRVVNYTVCDDCNGYTDNIFSVQQDGRIPNGFPFNNWFLLTN
JX524171.1      CVFSVVNATVTVNVTTHNGRVVNYTVCDDCNGYTDNIFSVQQDGRIPNGFPFNNWFLLTN
MG428702.1      CVFSVVNATVTVNVTTHNGRVVNYTVCDDCNGYTDNIFSVQQDGRIPNGFPFNNWFLLTN
MG428700.1      CVFSVVNATVTVNVTTHNGRVVNYTVCDDCNGYTDNIFSVQQDGRIPNGFPFNNWFLLTN
MG428699.1      CVFSVVNATVTVNVTTHNGRVVNYTVCDDCNGYTDNIFSVQQDGRIPNGFPFNNWFLLTN
KM055643.1      CVFSVVNATVTVNVTTLNGRIVNYTVCDDCNGYTDNIFSVQQDGRIPNGFSFNNWFLLTN
KM055646.1      CVFSVVNATVTVNVTTLNGRIVNYTVCDDCNGYTDNIFSVQQDGRIPNGFSFNNWFLLTN
KM055638.1      CVFSVVNATVTVNVTTHNGRVVNYTVCDDCNGYTDNIFSVQQDGRIPNGFPFNNWFLLTN
KM055644.1      CVFSVVNATVTVNVTTHNGRVVNYTVCDDCNGYTDNIFSVQQDGRIPNGFPFNNWFLLTN
KM055642.1      CVFSVVNATVTVNVTTHNGRVVNYTVCDDCNGYTDNIFSVQQDGRIPNGFPFNNWFLLTN
KM055639.1      CVFSVVNATVTVNVTTHNGRVVNYTVCDDCNGYTDNIFSVQQDGRIPNGFPFNNWFLLTN
KM055640.1      CVFSVVNATVTVNVTTHNGRVVNYTVCDDCNGYTDNIFSVQQDGRIPNGFPFNNWFLLTN
KM055641.1      CVFSVVNATVTVNVTTHNGRVVNYTVCDDCNGYTDNIFSVQQDGRIPNGFPFNNWFLLTN
KM055645.1      CVFSVVNATVTVNVTTHNGRVVNYTVCDDCNGYTDNIFSVQQDGRIPNGFPFNNWFLLTN
KM055647.1      CVFSVVNATVTVNVTTHNGRVVNYTVCDDCNGYTDNIFSVQQDGRIPNGFPFNNWFLLTN
KX179500.1      CVFSVVNATVTVNVTTHNGRVVNYTVCDDCNGYTDNIFSVQQDGRIPNGFPFNNWFLLTN
MN306040.1      CVFSVVNATVTVNVTTHNGRVVNYTVCDDCNGYTDNIFSVQQDGRIPNGFPFNNWFLLTN
MK334044.1      CVFSVVNATVTVNVTTHNGRVVNYTVCDDCNGYTDNIFSVQQDGRIPNGFPFNNWFLLTN
MK334045.1      CVFSVVNATVTVNVTTHNGRVVNYTVCDDCNGYTDNIFSVQQDGRIPNGFPFNNWFLLTN
KF530104.1      CVFSVVNATVTVNVTTHNGRVVNYTVCDDCNGYTDNIFSVQQDGRIPNGFPFNNWFLLTN
KF530106.1      CVFSVVNATVTVNVTTHNGRVVNYTVCDDCNGYTDNIFSVQQDGRIPNGFPFNNWFLLTN
KF530108.1      CVFSVVNATVTVNVTTHNGRVVNYTVCDDCNGYTDNIFSVQQDGRIPNGFPFNNWFLLTN
KF530107.1      CVFSVVNATVTVNVTTHNGRVVNYTVCDDCNGYTDNIFSVQQDGRIPNGFPFNNWFLLTN
LC488388.1      CVFSVVNATVTVNVTTLNGRIVNYTVCDDCNGYTDNIFSVQQDGRIPNGFSFNNWFLLTN
MK334046.1      CVFSVVNATVTVNVTTLNGRIVNYTVCDDCNGYTDNIFSVQQDGRIPNGFSFNNWFLLTN
MK334047.1      CVFSVVNATVTVNVTTLNGRIVNYTVCDDCNGYTDNIFSVQQDGRIPNGFSFNNWFLLTN
JQ765563.1      CVFSVVNATVTVNVTTLNGRIVNYTVCDDCNGYTDNIFSVQQDGRIPNGFSFNNWFLLTN
MN026166.1      CVFSVVNATVTVNVTTLNGRIVNYTVCDDCNGYTDNIFSVQQDGRIPNGFSFNNWFLLTN
MG772808.1      CVFSVVNATVTVNVTTLNGRIVNYTVCDDCNGYTDNIFSVQQDGRIPNGFSFNNWFLLTN
                *******:******** ***:*************************.*********

NC_005831.2     GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHNSVVDVMRYNL
JX504050.1      GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHNSVVDVMRYNL
KY829118.1      GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHNSVADVMRYNL
KF530105.1      GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHNSVADVMRYNL
KM055634.1      GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHNSVADVMRYNL
KM055648.1      GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHNSVADVMRYNL
KM055649.1      GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHNSVADVMRYNL
KM055650.1      GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHNSVADVMRYNL
MG428701.1      GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHNSVADVMRYNL
KM055632.1      GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHNSVADVMRYNL
KM055636.1      GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHNSVADVMRYNL
KM055637.1      GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHNSVADVMRYNL
KM055635.1      GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHNSVADVMRYNL
KM055633.1      GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHNSVADVMRYNL
JX524171.1      GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHNSVADVMRYNL
MG428702.1      GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHNSVADVMRYNL
MG428700.1      GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHNSVADVMRYNL
MG428699.1      GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHNSVADVMRYNL
```

```
KM055643.1      GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHHSVADVMRYNL
KM055646.1      GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHHSVADVMRYNL
KM055638.1      GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHNSVADVMRYNL
KM055644.1      GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHNSVADVMRYNL
KM055642.1      GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHNSVADVMRYNL
KM055639.1      GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHNSVADVMRYNL
KM055640.1      GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHNSVADVMRYNL
KM055641.1      GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHNSVADVMRYNL
KM055645.1      GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHNSVADVMRYNL
KM055647.1      GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHNSVADVMRYNL
KX179500.1      GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHNSVADVMRYNL
MN306040.1      GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHNSVADVMRYNL
MK334044.1      GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHNSVADVMRYNL
MK334045.1      GSTLVDGVSRRYQPLRLTCLWPVSGLKSSTGFVYFNATGSDVNCNGYQHNSVADVMRYNL
KF530104.1      GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHNSVADVMRYNL
KF530106.1      GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHNSVADVMRYNL
KF530108.1      GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHNSVADVMRYNL
KF530107.1      GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHNSVADVMRYNL
LC488388.1      GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHHSVADVMRYNL
MK334046.1      GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHHSVADVMRYNL
MK334047.1      GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHHSVADVMRYNL
JQ765563.1      GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHHSVADVMRYNL
MN026166.1      GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHHSVADVMRYNL
MG772808.1      GSTLVDGVSRLYQPLRLTCLWPVPGLKSSTGFVYFNATGSDVNCNGYQHHSVADVMRYNF
                ********** ************.************************:**.******:

NC_005831.2     NFSANSLDNLKSGVIVFKTLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
JX504050.1      NFSANSLDNLKSGVIVFKTLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
KY829118.1      NFSANSVDNLKSGVIVFKTLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
KF530105.1      NFSANSVDNLKSGVIVFKTLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
KM055634.1      NFSANSVDNLKSGVIVFKTLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
KM055648.1      NFSANSVDNLKSGVIVFKTLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
KM055649.1      NFSANSVDNLKSGVIVFKTLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
KM055650.1      NFSANSVDNLKSGVIVFKTLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
MG428701.1      NFSANSVDNLKSGVIVFKTLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
KM055632.1      NFSANSVDNLKSGVIVFKTLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
KM055636.1      NFSANSVDNLKSGVIVFKTLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
KM055637.1      NFSANSVDNLKSGVIVFKTLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
KM055635.1      NFSANSVDNLKSGVIVFKTLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
KM055633.1      NFSANSVDNLKSGVIVFKTLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
JX524171.1      NFSANSVDNLKSGVIVFKTLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
MG428702.1      NFSANSVDNLKSGVIVFKTLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
MG428700.1      NFSANSVDNLKSGVIVFKTLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
MG428699.1      NFSANSVDNLKSGVIVFKTLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
KM055643.1      NFSSNSVDNLKSGVIVFKTLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
KM055646.1      NFSSNSVDNLKSGVIVFKTLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
KM055638.1      NFSANSVDNLKSGVIVFKTLQYDVLFYCSNSSSGALDTTIPFGPSSQPYYCFINSTINTT
KM055644.1      NFSANSVDNLKSGVIVFKTLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
KM055642.1      NFSANSVDNLKSGVIVFKTLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
KM055639.1      NFSANSVDNLKSGVIVFKTLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
KM055640.1      NFSANSVDNLKSGVIVFKTLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
KM055641.1      NFSANSVDNLKSGVIVFKTLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
KM055645.1      NFSANSVDNLKSGVIVFKTLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
KM055647.1      NFSANSVDNLKSGVIVFKTLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
KX179500.1      NFSANSVDNLKSGVIVFKTLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
MN306040.1      NFSANSVDNLKSGVIVFKTLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
```

```
MK334044.1      NFSANSVDNLKSGVIVFKTLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
MK334045.1      NFSANSVDNLKSGVIVFKNLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
KF530104.1      NFSANSVDNLKSGVIVFKTLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
KF530106.1      NFSANSVDNLKSGVIVFKTLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
KF530108.1      NFSANSVDNLKSGVIVFKTLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
KF530107.1      NFSANSVDNLKSGVIVFKTLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
LC488388.1      NFSSNSVDNLKSGVIVFKTLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
MK334046.1      NFSSNSVDNLKSGVIVFKTLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
MK334047.1      NFSSNSVDNLKSGVIVFKTLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
JQ765563.1      NFSSNSVDNLKSGVIVFKTLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
MN026166.1      NFSSNSVDNLKSGVIVFKTLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
MG772808.1      NFSSNSVDNLKSGVIVFKTLQYDVLFYCSNSSSGVLDTTIPFGPSSQPYYCFINSTINTT
                ***:**:**********.**************.************************

NC_005831.2     HVSTFVGILPPTVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
JX504050.1      HVSTFVGILPPTVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
KY829118.1      HVSTFVGILPPTVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
KF530105.1      HVSTFVGILPPTVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
KM055634.1      HVSTFVGVLPPTVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
KM055648.1      HVSTFVGVLPPTVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
KM055649.1      HVSTFVGVLPPTVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
KM055650.1      HVSTFVGVLPPTVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
MG428701.1      HVSTFVGVLPPTVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
KM055632.1      HVSTFVGVLPPTVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
KM055636.1      HVSTFVGVLPPTVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
KM055637.1      HVSTFVGVLPPTVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
KM055635.1      HVSTFVGVLPPTVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
KM055633.1      HVSTFVGVLPPTVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
JX524171.1      HVSTFVGVLPPTVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
MG428702.1      HVSTFVGVLPPTVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
MG428700.1      HVSTFVGVLPPTVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
MG428699.1      HVSTFVGVLPPTVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
KM055643.1      HVSTFVGVLPPTVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
KM055646.1      HVSTFVGVLPPIVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
KM055638.1      HVSTFVGVLPPTVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
KM055644.1      HVSTFVGVLPPTVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
KM055642.1      HVSTFVGVLPPTVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
KM055639.1      HVSTFVGVLPPTVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
KM055640.1      HVSTFVGVLPPTVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
KM055641.1      HVSTFVGVLPPTVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
KM055645.1      HVSTFVGVLPPTVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
KM055647.1      HVSTFVGVLPPTVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
KX179500.1      HVSTFVGVLPPTVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
MN306040.1      HVSTFVGVLPPTVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
MK334044.1      HVSTFVGVLPPTVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
MK334045.1      HVSTFVGVLPPTVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTPASATDFWTVAFATF
KF530104.1      HVSTFVGILPPTVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
KF530106.1      HVSTFVGILPPTVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
KF530108.1      HVSTFVGILPPTVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
KF530107.1      HVSTFVGILPPTVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
LC488388.1      HVSTFVGVLPPIVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
MK334046.1      HVSTFVGVLPPIVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
MK334047.1      HVSTFVGVLPPIVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
JQ765563.1      HVSTFVGVLPPIVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
MN026166.1      HVSTFVGVLPPTVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
MG772808.1      HVSTFVGVLPPTVREIVVARTGQFYINGFKYFDLGFIEAVNFNVTTASATDFWTVAFATF
```

```
                ******:*** ******************************.**********

NC_005831.2     VDVLVNVSATNIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPETYVALPIYY
JX504050.1      VDVLVNVSATNIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPETYVALPIYY
KY829118.1      VDVLVNVSATNIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPETYVALPIYY
KF530105.1      VDVLVNVSATNIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPETYVALPIYY
KM055634.1      VDVLVNVSATKIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPETYVALPIYY
KM055648.1      VDVLVNVSATKIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPETYVALPIYY
KM055649.1      VDVLVNVSATKIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPETYVALPIYY
KM055650.1      VDVLVNVSATKIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPETYVALPIYY
MG428701.1      VDVLVNVSATKIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPETYVALPIYY
KM055632.1      VDVLVNVSATKIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPETYVALPIYY
KM055636.1      VDVLVNVSATKIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPETYVALPIYY
KM055637.1      VDVLVNVSATKIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPETYVALPIYY
KM055635.1      VDVLVNVSATKIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPETYVALPIYY
KM055633.1      VDVLVNVSATKIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPETYVALPIYY
JX524171.1      VDVLVNVSATKIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPETYVALPIYY
MG428702.1      VDVLVNVSATKIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPETYVALPIYY
MG428700.1      VDVLVNVSATKIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPETYVALPIYY
MG428699.1      VDVLVNVSATKIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPETYVALPIYY
KM055643.1      VDVLVNVSATKIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPETYVALPIYY
KM055646.1      VDVLVNVSATKIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPETYVALPIYY
KM055638.1      VDVLVNVSATKIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPETYVALPIYY
KM055644.1      VDVLVNVSATKIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPETYVALPIYY
KM055642.1      VDVLVNVSATKIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPETYVALPIYY
KM055639.1      VDVLVNVSATKIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPETYVALPIYY
KM055640.1      VDVLVNVSATKIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPETYVALPIYY
KM055641.1      VDVLVNVSATKIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPETYVALPIYY
KM055645.1      VDVLVNVSATKIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPETYVALPIYY
KM055647.1      VDVLVNVSATKIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPETYVALPIYY
KX179500.1      VDVLVNVSATKIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPETYVALPIYY
MN306040.1      VDVLVNVSATKIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPETYVALPIYY
MK334044.1      VDVLVNVSATKIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPETYVALPIYY
MK334045.1      VDVLVNVSATKIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPETYVALPIYY
KF530104.1      VDVLVNVSATNIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPETYVALPIYY
KF530106.1      VDVLVNVSATNIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPETYVALPIYY
KF530108.1      VDVLVNVSATNIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPETYVALPIYY
KF530107.1      VDVLVNVSATNIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPETYVALPIYY
LC488388.1      VDVLVNVSATNIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPDTYVALPIYY
MK334046.1      VDVLVNVSATNIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPDTYVALPIYY
MK334047.1      VDVLVNVSATNIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPDTYVALPIYY
JQ765563.1      VDVLVNVSATNIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPDTYVALPIYY
MN026166.1      VDVLVNVSATNIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPDTYVALPVYY
MG772808.1      VDVLVNVSATNIQNLLYCDSPFEKLQCEHLQFGLQDGFYSANFLDDNVLPDTYVALPVYY
                **********:************************************:******:**

NC_005831.2     QHTDINFTATASFGGSCYVCKPHQVNISLNGNTSVCVRTSHFSIRYIYNRVKSGSPGDSS
JX504050.1      QHTDINFTATASFGGSCYVCKPHQVNISLNGNTSVCVRTSHFSIRYIYNRVKSGSPGDSS
KY829118.1      QHTDINFTATASFGGSCYVCKPRQVNISLNGNTSVCVRTSHFSIRYIYNRVKSGSPGDSS
KF530105.1      QHTDINFTATASFGGSCYVCKPRQVNISLNGNTSVCVRTSHFSIRYIYNRVKSGSPGDSS
KM055634.1      QHTDINFTATASFGGSCYVCKPHQVNISLNGNTSVCVRTSHFSIRYIYNRVKSGSPGDSS
KM055648.1      QHTDINFTATASFGGSCYVCKPHQVNISLNGNTSVCVRTSHFSIRYIYNRVKSGSPGDSS
KM055649.1      QHTDINFTATASFGGSCYVCKPHQVNISLNGNTSVCVRTSHFSIRYIYNRVKSGSPGDSS
KM055650.1      QHTDINFTATASFGGSCYVCKPHQVNISLNGNTSVCVRTSHFSIRYIYNRVKSGSPGDSS
MG428701.1      QHTDINFTATASFGGSCYVCKPHQVNISLNGNTSVCVRTSHFSIRYIYNRVKSGSPGDSS
KM055632.1      QHTDINFTATASFGGSCYVCKPHQVNISLNGNTSVCVRTSHFSIRYIYNRVKSGSPGDSS
```

```
KM055636.1      QHTDINFTATASFGGSCYVCKPHQVNISLNGNTSVCVRTSHFSIRYIYNRVKSGSPGDSS
KM055637.1      QHTDINFTATASFGGSCYVCKPHQVNISLNGNTSVCVRTSHFSIRYIYNRVKSGSPGDSS
KM055635.1      QHTDINFTATASFGGSCYVCKPHQVNISLNGNTSVCVRTSHFSIRYIYNRVKSGSPGDSS
KM055633.1      QHTDINFTATASFGGSCYVCKPHQVNISLNGNTSVCVRTSHFSIRYIYNRVKSGSPGDSS
JX524171.1      QHTDINFTATASFGGSCYVCKPHQVNISLNGNTSVCVRTSHFSIRYIYNRVKSGSPGDSS
MG428702.1      QHTDINFTATASFGGSCYVCKPHQVNISLNGNTSVCVRTSHFSIRYIYNRVKSGSPGDSS
MG428700.1      QHTDINFTATASFGGSCYVCKPHQVNISLNGNTSVCVRTSHFSIRYIYNRVKSGSPGDSS
MG428699.1      QHTDINFTATASFGGSCYVCKPHQVNISLNGNTSVCVRTSHFSIRYIYNRVKSGSPGDSS
KM055643.1      QHTDINFTATASFGGSCYVCKPHQVNISLNGNTSVCVRTSHFSIRYIYNRVKSGSPGDSS
KM055646.1      QHTDINFTATASFGGSCYVCKPHQVNISLNGNTSVCVRTSHFSIRYIYNRVKSGSPGDSS
KM055638.1      QHTDINFTATASFGGSCYVCKPHQVNISLNGNTSVCVRTSHFSIRYIYNRVKSGSPGDSS
KM055644.1      QHTDINFTATASFGGSCYVCKPHQVNISLNGNTSVCVRTSHFSIRYIYNRVKSGSPGDSS
KM055642.1      QHTDINFTATASFGGSCYVCKPHQVNISLNGNTSVCVRTSHFSIRYIYNRVKSGSPGDSS
KM055639.1      QHTDINFTATASFGGSCYVCKPHQVNISLNGNTSVCVRTSHFSIRYIYNRVKSGSPGDSS
KM055640.1      QHTDINFTATASFGGSCYVCKPHQVNISLNGNTSVCVRTSHFSIRYIYNRVKSGSPGDSS
KM055641.1      QHTDINFTATASFGGSCYVCKPHQVNISLNGNTSVCVRTSHFSIRYIYNRVKSGSPGDSS
KM055645.1      QHTDINFTATASFGGSCYVCKPHQVNISLNGNTSVCVRTSHFSIRYIYNRVKSGSPGDSS
KM055647.1      QHTDINFTATASFGGSCYVCKPHQVNISLNGNTSVCVRTSHFSIRYIYNRVKSGSPGDSS
KX179500.1      QHTDINFTATASFGGSCYVCKPHQVNISLNGNTSVCVRTSHFSIRYIYNRVKSGSPGDSS
MN306040.1      QHTDINFTATASFGGSCYVCKPHQVNLSLNGNTSVCVRTSHFSIRYIYNRVKSGSPGDSS
MK334044.1      QHTDINFTATASFGGSCYVCKPHQVNLSLNGNTSVCVRTSHFSIRYIYNRVKSGSPGDSS
MK334045.1      QHTDINFTATASFGGSCYVCKPHQVNLSLNGNTSVCVRTSHFSIRYIYNRVKSGSPGDSS
KF530104.1      QHTDINFTATASFGGSCYVCKPRQVNISLNGNTSVCVRTSHFSIRYIYNRVKSGSPGDSS
KF530106.1      QHTDINFTATASFGGSCYVCKPRQVNISLNGNTSVCVRTSHFSIRYIYNRVKSGSPGDSS
KF530108.1      QHTDINFTATASFGGSCYVCKPRQVNISLNGNTSVCVRTSHFSIRYIYNRVKSGSPGDSS
KF530107.1      QHTDINFTATASFGGSCYVCKPRQVNISLNGNTSVCVRTSHFSIRYIYNRVKSGSPGDSS
LC488388.1      QHTDINFTATASFGGSCYVCKPHQVNISLNGNTSVCVRTSHFSIRYIYNRVKSGSPGDSS
MK334046.1      QHTDINFTATASFGGSCYVCKPHQVNISLNGNTSVCVRTSHFSIRYIYNRVKSGSPGDSS
MK334047.1      QHTDINFTATASFGGSCYVCKPHQVNISLNGNTSVCVRTSHFSIRYIYNRVKSGSPGDSS
JQ765563.1      QHTDINFTATASFGGSCYVCKPHQVNISLNGNTSVCVRTSHFSIRYIYNRVKSGSPGDSS
MN026166.1      QHTDINFTATASFGGSCYVCKPHQVNISLNGNTSVCVRTSHFSIRYIYNRVKSVSPGDSS
MG772808.1      QHTDINFTATASFGGSCYVCKPHQVNISLNGNTSVCVRTSHFSIRYIYNRVKSVSPGDSS
                ********************:***:************************ ******

NC_005831.2     WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVEVPGSCNFPLEATWHYTSYTIVGALYVTW
JX504050.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVEVPGSCNFPLEATWHYTSYTIVGALYVTW
KY829118.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVEVPGSCNFPLEATWHYTSYTIVGALYVTW
KF530105.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVEVPGSCNFPLEATWHYTSYTIVGALYVTW
KM055634.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVAVPGSCNFPLEATWHYTSYTIVGALYVTW
KM055648.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVAVPGSCNFPLEATWHYTSYTIVGALYVTW
KM055649.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVAVPGSCNFPLEATWHYTSYTIVGALYVTW
KM055650.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVAVPGSCNFPLEATWHYTSYTIVGALYVTW
MG428701.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVAVPGSCNFPLEATWHYTSYTIVGALYVTW
KM055632.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVAVPGSCNFPLEATWHYTSYTIVGALYVTW
KM055636.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVAVPGSCNFPLEATWHYTSYTIVGALYVTW
KM055637.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVAVPGSCNFPLEATWHYTSYTIVGALYVTW
KM055635.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVAVPGSCNFPLEATWHYTSYTIVGALYVTW
KM055633.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVAVPGSCNFPLEATWHYTSYTIVGALYVTW
JX524171.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVAVPGSCNFPLEATWHYTSYTIVGALYVTW
MG428702.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVAVPGSCNFPLEATWHYTSYTIVGALYVTW
MG428700.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVAVPGSCNFPLEATWHYTSYTIVGALYVTW
MG428699.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVAVPGSCNFPLEATWHYTSYTIVGALYVTW
KM055643.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVAVPGSCNFPLEATWHYTSYTIVGALYVTW
KM055646.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVAVPGSCNFPLEATWHYTSYTIVGALYVTW
KM055638.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVAVPGSCNFPLEATWHYTSYTIVGALYVTW
KM055644.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVAVPGSCNFPLEATWHYTSYTIVGALYVTW
```

```
KM055642.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVAVPGSCNFPLEATWHYTSYTIVGALYVTW
KM055639.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVAVPGSCNFPLEATWHYTSYTIVGALYVTW
KM055640.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVAVPGSCNFPLEATWHYTSYTIVGALYVTW
KM055641.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVAVPGSCNFPLEATWHYTSYTIVGALYVTW
KM055645.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVAVPGSCNFPLEATWHYTSYTIVGALYVTW
KM055647.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVAVPGSCNFPLEATWHYTSYTIVGALYVTW
KX179500.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVAVPGSCNFPLEATWHYTSYTIVGALYVTW
MN306040.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVAVPGSCNFPLEATWHYTSYTIVGALYVTW
MK334044.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVAVPGSCNFPLEATWHYTSYTIVGALYVTW
MK334045.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVEVPGSCNFPLEATWHYTSYTIVGALYVTW
KF530104.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVEVPGSCNFPLEATWHYTSYTIVGALYVTW
KF530106.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVEVPGSCNFPLEATWHYTSYTIVGALYVTW
KF530108.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVEVPGSCNFPLEATWHYTSYTIVGALYVTW
KF530107.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVEVPGSCNFPLEATWHYTSYTIVGALYVTW
LC488388.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVAVPGSCNFPLEATWHYTSYTIVGALYVTW
MK334046.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVAVPGSCNFPLEATWHYTSYTIVGALYVTW
MK334047.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVAVPGSCNFPLEATWHYTSYTIVGALYVTW
JQ765563.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVVVPGSCNFPLEATWHYTSYTIVGALYVTW
MN026166.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVEVPGSCNFPLEATWHYTSYTIVGALYVTW
MG772808.1      WHIYLKSGTCPFSFSKLNNFQKFKTICFSTVEVPGSCNFPLEATWHYTSYTIVGALYVTW
                **************************** ****************************

NC_005831.2     SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
JX504050.1      SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
KY829118.1      SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
KF530105.1      SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
KM055634.1      SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
KM055648.1      SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
KM055649.1      SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
KM055650.1      SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
MG428701.1      SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
KM055632.1      SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
KM055636.1      SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
KM055637.1      SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
KM055635.1      SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
KM055633.1      SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
JX524171.1      SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
MG428702.1      SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
MG428700.1      SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
MG428699.1      SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
KM055643.1      SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
KM055646.1      SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
KM055638.1      SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
KM055644.1      SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
KM055642.1      SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
KM055639.1      SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
KM055640.1      SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
KM055641.1      SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
KM055645.1      SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
KM055647.1      SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
KX179500.1      SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
MN306040.1      SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTXIIRSSNQSLAGGITYVSNSGN
MK334044.1      SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
MK334045.1      SEGNSITGVPYPVSGIREFSNLVLNBCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
KF530104.1      SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
KF530106.1      SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
```

```
KF530108.1      SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
KF530107.1      SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
LC488388.1      SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
MK334046.1      SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
MK334047.1      SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
JQ765563.1      SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
MN026166.1      SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
MG772808.1      SEGNSITGVPYPVSGIREFSNLVLNNCTKYNIYDYVGTGIIRSSNQSLAGGITYVSNSGN
                ********************** *********** ******************

NC_005831.2     LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
JX504050.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
KY829118.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
KF530105.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
KM055634.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
KM055648.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
KM055649.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
KM055650.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
MG428701.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
KM055632.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
KM055636.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
KM055637.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
KM055635.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
KM055633.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
JX524171.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
MG428702.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
MG428700.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
MG428699.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
KM055643.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
KM055646.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
KM055638.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
KM055644.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
KM055642.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
KM055639.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
KM055640.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
KM055641.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
KM055645.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
KM055647.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
KX179500.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
MN306040.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
MK334044.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
MK334045.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
KF530104.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
KF530106.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
KF530108.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
KF530107.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
LC488388.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
MK334046.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
MK334047.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
JQ765563.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
MN026166.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
MG772808.1      LLGFKNVSTGNIFIVTPCNQPDQVAVYQQSIIGAMTAVNESRYGLQNLLQLPNFYYVSNG
                ************************************************************

NC_005831.2     GNNCTTAVMTYSNFGICADGSLIPVRPRNSSDNGISAIITANLSIPSNWTTSVQVEYLQI
JX504050.1      GNNCTTAVMTYSNFGICADGSLIPVRPRNSSDNGISAIITANLSIPSNWTTSVQVEYLQI
```

```
KY829118.1      GNNCTTAVMTYSNFGICADGSLIPVRPRNSSDNGISAIITANLSIPSNWTTSVQVEYLQI
KF530105.1      GNNCTTAVMTYSNFGICADGSLIPVRPRNSSDNGISAIITANLSIPSNWTTSVQVEYLQI
KM055634.1      SNNCTTAVMTYSNFGICADGSLIPVRLRNSSDNGISAIITANLSIPSNWTTSVQVEYLQI
KM055648.1      SNNCTTAVMTYSNFGICADGSLIPVRLRNSSDNGISAIITANLSIPSNWTTSVQVEYLQI
KM055649.1      SNNCTTAVMTYSNFGICADGSLIPVRLRNSSDNGISAIITANLSIPSNWTTSVQVEYLQI
KM055650.1      SNNCTTAVMTYSNFGICADGSLIPVRLRNSSDNGISAIITANLSIPSNWTTSVQVEYLQI
MG428701.1      SNNCTTAVMTYSNFGICADGSLIPVRLRNSSDNGISAIITANLSIPSNWTTSVQVEYLQI
KM055632.1      SNNCTTAVMTYSNFGICADGSLIPVRLRNSSDNGISAIITANLSIPSNWTTSVQVEYLQI
KM055636.1      SNNCTTAVMTYSNFGICADGSLIPVRLRNSSDNGISAIITANLSIPSNWTTSVQVEYLQI
KM055637.1      SNNCTTAVMTYSNFGICADGSLIPVRLRNSSDNGISAIITANLSIPSNWTTSVQVEYLQI
KM055635.1      SNNCTTAVMTYSNFGICADGSLIPVRLRNSSDNGISAIITANLSIPSNWTTSVQVEYLQI
KM055633.1      SNNCTTAVMTYSNFGICADGSLIPVRLRNSSDNGISAIITANLSIPSNWTTSVQVEYLQI
JX524171.1      SNNCTTAVMTYSNFGICADGSLIPVRLRNSSDNGISAIITANLSIPSNWTTSVQVEYLQI
MG428702.1      SNNCTTAVMTYSNFGICADGSLIPVRLRNSSDNGISAIITANLSIPSNWTTSVQVEYLQI
MG428700.1      SNNCTTAVMTYSNFGICADGSLIPVRLRNSSDNGISAIITANLSIPSNWTTSVQVEYLQI
MG428699.1      SNNCTTAVMTYSNFGICADGSLIPVRLRNSSDNGISAIITANLSIPSNWTTSVQVEYLQI
KM055643.1      SNNCTTAVMTYSNFGICADGSLIPVRLRNSSDNGISAIITANLSIPSNWTTSVQVEYLQI
KM055646.1      SNNCTTAVMTYSNFGICADGSLIPVRLRNSSDNGISAIITANLSIPSNWTTSVQVEYLQI
KM055638.1      SNNCTTAVMTYSNFGICADGSLIPVRLRNSSDNGISAIITANLSIPSNWTTSVQVEYLQI
KM055644.1      SNNCTTAVMTYSNFGICADGSLIPVRLRNSSDNGISAIITANLSIPSNWTTSVQVEYLQI
KM055642.1      SNNCTTAVMTYSNFGICADGSLIPVRLRNSSDDGISAIITANLSIPSNWTTSVQVEYLQI
KM055639.1      SNNCTTAVMTYSNFGICADGSLIPVRLRNSSDNGISAIITANLSIPSNWTTSVQVEYLQI
KM055640.1      SNNCTTAVMTYSNFGICADGSLIPVRLRNSSDNGISAIITANLSIPSNWTTSVQVEYLQI
KM055641.1      SNNCTTAVMTYSNFGICADGSLIPVRLRNSSDNGISAIITANLSIPSNWTTSVQVEYLQI
KM055645.1      SNNCTTAVMTYSNFGICADGSLIPVRLRNSSDNGISAIITANLSIPSNWTTSVQVEYLQI
KM055647.1      SNNCTTAVMTYSNFGICADGSLIPVRLRNSSDNGISAIITANLSIPSNWTTSVQVEYLQI
KX179500.1      GNNCTTAVMTYSNFGICADGSLIPVRLRNSSDNGISAIITANLSIPSNWTTSVQVEYLQI
MN306040.1      SNNCTTAVMTYSNFGICADGSLIPVRLRNSSDNGISAIITANLSIPSNWTTSVQVEYLQI
MK334044.1      SNNCTTAVMTYSNFGICADGSLIPVRLRNSSDNGISAIITANLSIPSNWTTSVQVEYLQI
MK334045.1      GNNCTTAVMTYSNFGICADGSLIPVRPRNSSDNGISAIITANLSIPSNWTTSVQVEYLQI
KF530104.1      GNNCTTAVMTYSNFGICADGSLIPVRPRNSSDNGISAIITANLSIPSNWTTSVQVEYLQI
KF530106.1      GNNCTTAVMTYSNFGICADGSLIPVRPRNSSDNGISAIITANLSIPSNWTTSVQVEYLQI
KF530108.1      GNNCTTAVMTYSNFGICADGSLIPVRPRNSSDNGISAIITANLSIPSNWTTSVQVEYLQI
KF530107.1      GNNCTTAVMTYSNFGICADGSLIPVRPRNSSDNGISAIITANLSIPSNWTTSVQVEYLQI
LC488388.1      GNNCTTAVMTYSNFGICADGSLIPVRPRNSSDNGISAIITANLSIPSNWTTSVQVEYLQI
MK334046.1      GNNCTTAVMTYSNFGICADGSLIPVRPRNSSDNGISAIITANLSIPSNWTTSVQVEYLQI
MK334047.1      GNNCTTAVMTYSNFGICADGSLIPVRPRNSSDNGISAIITANLSIPSNWTTSVQVEYLQI
JQ765563.1      GNNCTTAVMTYSNFGICADGSLIPVRPRNSSDNGISAIVTANLSIPSNWTTSVQVEYLQI
MN026166.1      GNNCTTAVMTYSNFGICADGSLIPVRPRNSSDNGISAIITANLSIPSNWTTSVQVEYLQI
MG772808.1      GNNCTTAVMTYSNFGICADGSLIPVRPRNSSDNGISAIITANLSIPSNWTTSVQVEYLQI
                .********************** *****:*****:********************

NC_005831.2     TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
JX504050.1      TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
KY829118.1      TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
KF530105.1      TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
KM055634.1      TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
KM055648.1      TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
KM055649.1      TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
KM055650.1      TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
MG428701.1      TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
KM055632.1      TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
KM055636.1      TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
KM055637.1      TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
KM055635.1      TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
KM055633.1      TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
```

```
JX524171.1      TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
MG428702.1      TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
MG428700.1      TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
MG428699.1      TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
KM055643.1      TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
KM055646.1      TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
KM055638.1      TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
KM055644.1      TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
KM055642.1      TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
KM055639.1      TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
KM055640.1      TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
KM055641.1      TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
KM055645.1      TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
KM055647.1      TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
KX179500.1      TSIPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
MN306040.1      TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
MK334044.1      TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
MK334045.1      TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
KF530104.1      TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
KF530106.1      TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
KF530108.1      TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
KF530107.1      TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
LC488388.1      TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
MK334046.1      TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
MK334047.1      TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
JQ765563.1      TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
MN026166.1      TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
MG772808.1      TSTPIVVDCATYVCNGNPRCKNLLKQYTSACKTIEDALRLSAHLETNDVSSMLTFDSNAF
                ** **************************************************

NC_005831.2     SLANVTSFGDYNLSSVLPQRNIRSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
JX504050.1      SLANVTSFGDYNLSSVLPQRNIRSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
KY829118.1      SLANVTSFGDYNLSSVLPQRNIRSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
KF530105.1      SLANVTSFGDYNLSSVLPQRNIRSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
KM055634.1      SLANVTSFGDYNLSSVLPQRNIHSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
KM055648.1      SLANVTSFGDYNLSSVLPQRNIHSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
KM055649.1      SLANVTSFGDYNLSSVLPQRNIHSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
KM055650.1      SLANVTSFGDYNLSSVLPQRNIHSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
MG428701.1      SLANVTSFGDYNLSSVLPQRNIHSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
KM055632.1      SLANVTSFGDYNLSSVLPQRNIHSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
KM055636.1      SLANVTSFGDYNLSSVLPQRNIHSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
KM055637.1      SLANVTSFGDYNLSSVLPQRNIHSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
KM055635.1      SLANVTSFGDYNLSSVLPQRNIHSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
KM055633.1      SLANVTSFGDYNLSSVLPQRNIHSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
JX524171.1      SLANVTSFGDYNLSSVLPQRNIHSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
MG428702.1      SLANVTSFGDYNLSSVLPQRNIHSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
MG428700.1      SLANVTSFGDYNLSSVLPQRNIHSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
MG428699.1      SLANVTSFGDYNLSSVLPQRNIHSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
KM055643.1      SLANVTSFGDYNLSSVLPQRNIHSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
KM055646.1      SLANVTSFGDYNLSSVLPQRNIHSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
KM055638.1      SLANVTSFGDYNLSSVLPQRNIHSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
KM055644.1      SLANVTSFGDYNLSSVLPQRNIHSSRMAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
KM055642.1      SLANVTSFGDYNLSSVLPQRNIHSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
KM055639.1      SLANVTSFGDYNLSSVLPQRNIHSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
KM055640.1      SLANVTSFGDYNLSSVLPQRNIHSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
KM055641.1      SLANVTSFGDYNLSSVLPQRNIHSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
```

```
KM055645.1      SLANVTSFGDYNLSSVLPQRNIHSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
KM055647.1      SLANVTSFGDYNLSSVLPQRNIHSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
KX179500.1      SLANVTSFGDYNLSSVLPQRNIHSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
MN306040.1      SLANVTSFGDYNLSSVLPQRNIHSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
MK334044.1      SLANVTSFGDYNLSSVLPQRNIHSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
MK334045.1      SLANVTSFGDYNLSSVLPQRNIHSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
KF530104.1      SLANVTSFGDYNLSSVLPQRNIHSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
KF530106.1      SLANVTSFGDYNLSSVLPQRNIHSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
KF530108.1      SLANVTSFGDYNLSSVLPQRNIHSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
KF530107.1      SLANVTSFGDYNLSSVLPQRNIHSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
LC488388.1      SLANVTSFGDYNLSSVLPQRNIRSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
MK334046.1      SLANVTSFGDYNLSSVLPQRNIRSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
MK334047.1      SLANVTSFGDYNLSSVLPQRNIRSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
JQ765563.1      SLANVTSFGDYNLSSVLPQRNIHSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
MN026166.1      SLANVTSFGDYNLSSVLPQRNIRSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
MG772808.1      SLANVTSFGDYNLSSVLPQRNIRSSRIAGRSALEDLLFSKVVTSGLGTVDVDYKSCTKGL
                **********************:***:********************************

NC_005831.2     SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
JX504050.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
KY829118.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
KF530105.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
KM055634.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
KM055648.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
KM055649.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
KM055650.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
MG428701.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
KM055632.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
KM055636.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
KM055637.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
KM055635.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
KM055633.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
JX524171.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
MG428702.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
MG428700.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
MG428699.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
KM055643.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
KM055646.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
KM055638.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
KM055644.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
KM055642.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
KM055639.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
KM055640.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
KM055641.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
KM055645.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
KM055647.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
KX179500.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
MN306040.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
MK334044.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
MK334045.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
KF530104.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
KF530106.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
KF530108.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
KF530107.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
LC488388.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
MK334046.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
```

```
MK334047.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
JQ765563.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
MN026166.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
MG772808.1      SIADLACAQYYNGIMVLPGVADAERMAMYTGSLIGGMVLGGLTSAAAIPFSLALQARLNY
                ************************************************************

NC_005831.2     VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
JX504050.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
KY829118.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
KF530105.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
KM055634.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
KM055648.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
KM055649.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
KM055650.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
MG428701.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
KM055632.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
KM055636.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
KM055637.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
KM055635.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
KM055633.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
JX524171.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
MG428702.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
MG428700.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
MG428699.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
KM055643.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
KM055646.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
KM055638.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
KM055644.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
KM055642.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
KM055639.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
KM055640.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
KM055641.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
KM055645.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
KM055647.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
KX179500.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
MN306040.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
MK334044.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
MK334045.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITRTAEAIHTVTIALNKIQDVVNQ
KF530104.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
KF530106.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
KF530108.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
KF530107.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
LC488388.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
MK334046.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
MK334047.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
JQ765563.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
MN026166.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
MG772808.1      VALQTDVLQENQKILAASFNKAINNIVASFSSVNDAITQTAEAIHTVTIALNKIQDVVNQ
                ************************************:***********************

NC_005831.2     QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
JX504050.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
KY829118.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
KF530105.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
KM055634.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
KM055648.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
```

```
KM055649.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
KM055650.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
MG428701.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
KM055632.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
KM055636.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
KM055637.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
KM055635.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
KM055633.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
JX524171.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
MG428702.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
MG428700.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
MG428699.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
KM055643.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
KM055646.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
KM055638.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
KM055644.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
KM055642.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
KM055639.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
KM055640.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
KM055641.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
KM055645.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
KM055647.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
KX179500.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
MN306040.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
MK334044.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
MK334045.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
KF530104.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
KF530106.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
KF530108.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
KF530107.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
LC488388.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
MK334046.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
MK334047.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
JQ765563.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
MN026166.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
MG772808.1      QGSALNHLTSQLRHNFQAISNSIQAIYDRLDSIQADQQVDRLITGRLAALNAFVSQVLNK
                ************************************************************

NC_005831.2     YTEVRGSRRLAQQKINECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
JX504050.1      YTEVRGSRRLAQQKINECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
KY829118.1      YTEVRGSRRLAQQKINECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
KF530105.1      YTEVRGSRRLAQQKINECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
KM055634.1      YTEVRSSRRLAQQKVNECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
KM055648.1      YTEVRSSRRLAQQKVNECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
KM055649.1      YTEVRSSRRLAQQKVNECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
KM055650.1      YTEVRSSRRLAQQKVNECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
MG428701.1      YTEVRSSRRLAQQKVNECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
KM055632.1      YTEVRSSRRLAQQKVNECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
KM055636.1      YTEVRSSRRLAQQKVNECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
KM055637.1      YTEVRSSRRLAQQKVNECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
KM055635.1      YTEVRSSRRLAQQKVNECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
KM055633.1      YTEVRSSRRLAQQKVNECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
JX524171.1      YTEVRSSRRLAQQKVNECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
MG428702.1      YTEVRSSRRLAQQKVNECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
MG428700.1      YTEVRSSRRLAQQKVNECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
MG428699.1      YTEVRSSRRLAQQKVNECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
```

```
KM055643.1      YTEVRSSRRLAQQKVNECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
KM055646.1      YTEVRSSRRLAQQKVNECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
KM055638.1      YTEVRSSRRLAQQKINECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
KM055644.1      YTEVRSSRRLAQQKINECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
KM055642.1      YTEVRSSRRLAQQKINECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
KM055639.1      YTEVRSSRRLAQQKINECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
KM055640.1      YTEVRSSRRLAQQKINECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
KM055641.1      YTEVRSSRRLAQQKINECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
KM055645.1      YTEVRSSRRLAQQKINECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
KM055647.1      YTEVRSSRRLAQQKINECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
KX179500.1      YTEVRSSRRLAQQKINECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
MN306040.1      YTEVRSSRRLAQQKINECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
MK334044.1      YTEVRSSRRLAQQKINECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
MK334045.1      YTEVRSSRRLAQQKINECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
KF530104.1      YTEVRGSRRLAQQKINECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
KF530106.1      YTEVRGSRRLAQQKINECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
KF530108.1      YTEVRGSRRLAQQKINECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
KF530107.1      YTEVRGSRRLAQQKINECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
LC488388.1      YTEVRSSRRLAQQKINECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
MK334046.1      YTEVRSSRRLAQQKINECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
MK334047.1      YTEVRSSRRLAQQKINECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
JQ765563.1      YTEVRSSRRLAQQKINECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
MN026166.1      YTEVRSSRRLAQQKINECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
MG772808.1      YTEVRSSRRLAQQKINECVKSQSNRYGFCGNGTHIFSIVNSAPDGLLFLHTVLLPTDYKN
                *****.********:****************************************

NC_005831.2     VKAWSGICVDGIYGYVLRQPNLVLYSDNGVFRVTSRVMFQPRLPVLSDFVQIYNCNVTFV
JX504050.1      VKAWSGICVDGIYGYVLRQPNLVLYSDNGVFRVTSRIMFQPRLPVLSDFVQIYNCNVTFV
KY829118.1      VKAWSGICVDGIYGYVLRQPNLVLYSDNGVFRVTSRVMFQPRLPVLSDFVQIYNCNVTFV
KF530105.1      VKAWSGICVDGIYGYVLRQPNLVLYSDNGVFRVTSRVMFQPRLPVLSDFVQIYNCNVTFV
KM055634.1      VKAWSGICVDGIYGYVLRQPNLVLYSDNGVFRVTSRVMFQPRLPVLSDFVQIYNCNVTFV
KM055648.1      VKAWSGICVDGIYGYVLRQPNLVLYSDNGVFRVTSRVMFQPRLPVLSDFVQIYNCNVTFV
KM055649.1      VKAWSGICVDGIYGYVLRQPNLVLYSDNGVFRVTSRVMFQPRLPVLSDFVQIYNCNVTFV
KM055650.1      VKAWSGICVDGIYGYVLRQPNLVLYSDNGVFRVTSRVMFQPRLPVLSDFVQIYNCNVTFV
MG428701.1      VKAWSGICVDGIYGYVLRQPNLVLYSDNGVFRVTSRVMFQPRLPVLSDFVQIYNCNVTFV
KM055632.1      VKAWSGICVDGIYGYVLRQPNLVLYSDNGVFRVTSRVMFQPRLPVLSDFVQIYNCNVTFV
KM055636.1      VKAWSGICVDGIYGYVLRQPNLVLYSDNGVFRVTSRVMFQPRLPVLSDFVQIYNCNVTFV
KM055637.1      VKAWSGICVDGIYGYVLRQPNLVLYSDNGVFRVTSRVMFQPRLPVLSDFVQIYNCNVTFV
KM055635.1      VKAWSGICVDGIYGYVLRQPNLVLYSDNGVFRVTSRVMFQPRLPVLSDFVQIYNCNVTFV
KM055633.1      VKAWSGICVDGIYGYVLRQPNLVLYSDNGVFRVTSRVMFQPRLPVLSDFVQIYNCNVTFV
JX524171.1      VKAWSGICVDGIYGYVLRQPNLVLYSDNGVFRVTSRVMFQPRLPVLSDFVQIYNCNVTFV
MG428702.1      VKAWSGICVDGIYGYVLRQPNLVLYSDNGVFRVTSRVMFQPRLPVLSDFVQIYNCNVTFV
MG428700.1      VKAWSGICVDGIYGYVLRQPNLVLYSDNGVFRVTSRVMFQPRLPVLSDFVQIYNCNVTFV
MG428699.1      VKAWSGICVDGIYGYVLRQPNLVLYSDNGVFRVTSRVMFQPRLPVLSDFVQIYNCNVTFV
KM055643.1      VKAWSGICVDGIYGYVLRQPNLVLYSDNGVFRVTSRVMFQPRLPVLSDFVQIYNCNVTFV
KM055646.1      VKAWSGICVDGIYGYVLRQPNLVLYSDNGVFRVTSRVMFQPRLPVLSDFVQIYNCNVTFV
KM055638.1      VKAWSGICVDGIYGYVLRQPNLVLYSDNGVFRVTSRVMFQPRLPVLSDFVQIYNCNVTFV
KM055644.1      VKAWSGICVDGIYGYVLRQPNLVLYSDNGVFRVTSRVMFQPRLPVLSDFVQIYNCNVTFV
KM055642.1      VKAWSGICVDGIYGYVLRQPNLVLYSDNGVFRVTSRVMFQPRLPVLSDFVQIYNCNVTFV
KM055639.1      VKAWSGICVDGIYGYVLRQPNLVLYSDNGVFRVTSRVMFQPRLPVLSDFVQIYNCNVTFV
KM055640.1      VKAWSGICVDGIYGYVLRQPNLVLYSDNGVFRVTSRVMFQPRLPVLSDFVQIYNCNVTFV
KM055641.1      VKAWSGICVDGIYGYVLRQPNLVLYSDNGVFRVTSRVMFQPRLPVLSDFVQIYNCNVTFV
KM055645.1      VKAWSGICVDGIYGYVLRQPNLVLYSDNGVFRVTSRVMFQPRLPVLSDFVQIYNCNVTFV
KM055647.1      VKAWSGICVDGIYGYVLRQPNLVLYSDNGVFRVTSRVMFQPRLPVLSDFVQIYNCNVTFV
KX179500.1      VKAWSGICVDGIYGYVLRQPNLVLYSDNGVFRVTSRVMFQPRLPVLSDFVQIYNCNVTFV
MN306040.1      VKAWSGICVDGIYGYVLRQPNLVLYSDNGVFRVTSRVMFQPRLPVLSDFVQIYNCNVTFV
```

```
MK334044.1      VKAWSGICVDDIYGYVLRQPNLVLYSDNGVFRVTSRVMFQPRLPVLSDFVQIYNCNVTFV
MK334045.1      VKAWSGICVDGIYGYVLRQPNLVLYSDNGVFRVTSRVMFQPRLPVLSDFVQIYNCNVTFV
KF530104.1      VKAWSGICVDGIYGYVLRQPNLVLYSDNGVFRVTSRVMFQPRLPVLSDFVQIYNCNVTFV
KF530106.1      VKAWSGICVDGIYGYVLRQPNLVLYSDNGVFRVTSRVMFQPRLPVLSDFVQIYNCNVTFV
KF530108.1      VKAWSGICVDGIYGYVLRQPNLVLYSDNGVFRVTSRVMFQPRLPVLSDFVQIYNCNVTFV
KF530107.1      VKAWSGICVDDIYGYVLRQPNLVLYSDNGVFRVTSRVMFQPRLPVLSDFVQIYNCNVTFV
LC488388.1      VKAWSGICVDGIYGYVLRQPNLVLYSDNGVFRITSRVMFQPRLPVLSDFVQIYNCNVTFV
MK334046.1      VKAWSGICVDGIYGYVLRQPNLVLYSDNGVFRVTSRVMFQPRLPVLSDFVQIYNCNVTFV
MK334047.1      VKAWSGICVDGIYGYVLRQPNLVLYSDNGVFRVTSRVMFQPRLPVLSDFVQIYNCNVTFV
JQ765563.1      VKAWSGICVDGIYGYVLRQPNLVLYSDNGVFRVTSRVMFQPRLPVLSDFVQIYNCNVTFV
MN026166.1      VKAWSGICVDGIYGYVLRQPNLVLYSDNGVFRVTSRVMFQPRLPVLSDFVQIYNCNVTFV
MG772808.1      VKAWSGICVDGIYGYVLRQPNLVLYSDNGVFRVTSRVMFQPRLPVLSDFVQIYNCNVTFV
                **********.********************:***:**********************

NC_005831.2     NISRVELHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
JX504050.1      NISRVELHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
KY829118.1      NISRVELHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
KF530105.1      NISRVELHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
KM055634.1      NISRVELHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
KM055648.1      NISRVELHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
KM055649.1      NISRVELHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
KM055650.1      NISRVELHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
MG428701.1      NISRVELHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
KM055632.1      NISRVELHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
KM055636.1      NISRVELHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
KM055637.1      NISRVELHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
KM055635.1      NISRVELHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
KM055633.1      NISRVELHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
JX524171.1      NISRVELHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
MG428702.1      NISRVELHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
MG428700.1      NISRVELHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
MG428699.1      NISRVELHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
KM055643.1      NISRVELHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
KM055646.1      NISRVELHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
KM055638.1      NISRVELHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
KM055644.1      NISRVELHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
KM055642.1      NISRVELHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
KM055639.1      NISRVELHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
KM055640.1      NISRVELHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
KM055641.1      NISRVELHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
KM055645.1      NISRVELHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
KM055647.1      NISRVELHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
KX179500.1      NISRVELHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
MN306040.1      NISRVELHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
MK334044.1      NISRVELHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
MK334045.1      NISRVELHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
KF530104.1      NISRVELHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
KF530106.1      NISRVELHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
KF530108.1      NISRVELHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
KF530107.1      NISRVELHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
LC488388.1      NISRVKLHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
MK334046.1      NISRVKLHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
MK334047.1      NISRVKLHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNFSFELLQLRTQTA
JQ765563.1      NISRVELHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
MN026166.1      NISRVELHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
MG772808.1      NISRVELHTVIPDYVDVNKTLQEFAQNLPKYVKPNFDLTPFNLTYLNLSSELKQLEAKTA
```

```
                  *****:************************************:* ** **.::**

NC_005831.2       SLFQTTVELQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
JX504050.1        SLFQTTVELQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
KY829118.1        SLFQTTVELQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
KF530105.1        SLFQTTVELQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
KM055634.1        SLFQTTVELQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
KM055648.1        SLFQTTVELQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
KM055649.1        SLFQTTVELQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
KM055650.1        SLFQTTVELQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
MG428701.1        SLFQTTVELQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
KM055632.1        SLFQTTVELQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
KM055636.1        SLFQTTVELQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
KM055637.1        SLFQTTVELQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
KM055635.1        SLFQTTVELQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
KM055633.1        SLFQTTVELQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
JX524171.1        SLFQTTVELQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
MG428702.1        SLFQTTVELQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
MG428700.1        SLFQTTVELQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
MG428699.1        SLFQTTVELQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
KM055643.1        SLFQTTVELQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
KM055646.1        SLFQTTVELQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
KM055638.1        SLFQTTVELQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
KM055644.1        SLFQTTVELQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
KM055642.1        SLFQTTVELQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
KM055639.1        SLFQTTVELQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
KM055640.1        SLFQTTVELQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
KM055641.1        SLFQTTVELQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
KM055645.1        SLFQTTVELQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
KM055647.1        SLFQTTVELQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
KX179500.1        SLFQTTVELQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
MN306040.1        SLFQTTVELQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
MK334044.1        SLFQTTVELQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
MK334045.1        SLFQTTVELQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
KF530104.1        SLFQTTVELQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
KF530106.1        SLFQTTVELQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
KF530108.1        SLFQTTVELQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
KF530107.1        SLFQTTVELQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
LC488388.1        SLFQTTVELQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
MK334046.1        SLFQTTVELQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
MK334047.1        SLFQTTVELQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
JQ765563.1        SLFQTTVELQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
MN026166.1        SLFQTTVKLQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
MG772808.1        SLFQTTVKLQGLIDQINSTYVDLKLLNRFENYIKWPWWVWLIISVVFVVLLSLLVFCCLS
                  *******:**************************************************

NC_005831.2       TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
JX504050.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
KY829118.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
KF530105.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
KM055634.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
KM055648.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
KM055649.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
KM055650.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
MG428701.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
KM055632.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
```

```
KM055636.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
KM055637.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
KM055635.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
KM055633.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
JX524171.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
MG428702.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
MG428700.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
MG428699.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
KM055643.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
KM055646.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
KM055638.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
KM055644.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
KM055642.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
KM055639.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
KM055640.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
KM055641.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
KM055645.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
KM055647.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
KX179500.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
MN306040.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
MK334044.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
MK334045.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
KF530104.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
KF530106.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
KF530108.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
KF530107.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
LC488388.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
MK334046.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
MK334047.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
JQ765563.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
MN026166.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
MG772808.1        TGCCGCCNCLTSSMRGCCDCGSTKLPYYEFEKVHVQ
                  **********************************
```

---

clustalw.dnd

```
(
(
(
(
(
(
(
(
(
(
(
(
(
(
(
NC_005831.2:0.00000,
JX504050.1:0.00074)
:0.00439,
(
```

KY829118.1:0.00000,
KF530105.1:0.00069)
:0.00077)
:0.00084,
(
(
(
(
(
LC488388.1:0.00074,
MK334046.1:0.00000)
:0.00000,
MK334047.1:0.00590)
:0.00257,
JQ765563.1:0.00259)
:0.00090,
(
MN026166.1:0.00000,
MG772808.1:0.00074)
:0.00464)
:0.01935,
(
(
(
KF530104.1:0.00000,
KF530106.1:0.00000)
:0.00000,
KF530108.1:0.00000)
:0.00000,
KF530107.1:0.00072)
:0.00445)
:0.00183)
:0.00277,
MK334045.1:0.00641)
:0.00114,
(
MN306040.1:0.00152,
MK334044.1:0.00143)
:0.00170)
:0.00093,
KX179500.1:0.00112)
:0.00036,
(
(
(
(
(
(
(
KM055638.1:0.00074,
KM055644.1:0.00074)
:0.00000,
KM055642.1:0.00074)
:0.00000,
KM055639.1:0.00000)
:0.00000,

```
KM055640.1:0.00000)
:0.00000,
KM055641.1:0.00000)
:0.00000,
KM055645.1:0.00000)
:0.00000,
KM055647.1:0.00000)
:0.00000)
:0.00065,
(
KM055643.1:0.00000,
KM055646.1:0.00073)
:0.00508)
:0.00000,
MG428699.1:0.00000)
:0.00000,
MG428700.1:0.00000)
:0.00000,
MG428702.1:0.00000)
:0.00000,
JX524171.1:0.00000)
:0.00000,
KM055633.1:0.00000)
:0.00000,
KM055635.1:0.00000)
:0.00000,
(
(
KM055632.1:0.00000,
(
(
(
(
KM055634.1:0.00074,
KM055648.1:0.00000)
:0.00000,
KM055649.1:0.00000)
:0.00000,
KM055650.1:0.00000)
:0.00000,
MG428701.1:0.00000)
:0.00000)
:0.00000,
KM055636.1:0.00000)
:0.00000,
KM055637.1:0.00000);
```

Select tree menu ▼ Exec

CLUSTALW Result

Supplementary Material 6
Sequence Alignment of
MERS-CoV Isolates

[clustalw.aln][clustalw.dnd][readme]
Select tree menu ▼ Exec

```
 CLUSTAL 2.1 Multiple Sequence Alignments


Sequence type explicitly set to Protein
Sequence format is Pearson
Sequence 1: JX869059    1353 aa
Sequence 2: MN481964.1  1353 aa
Sequence 3: MN481979.1  1353 aa
Sequence 4: MN723542.1  1353 aa
Sequence 5: MN723544.1  1353 aa
Sequence 6: MN735679.1  1353 aa
Sequence 7: MK967708.1  1353 aa
Sequence 8: MN403102.1  1353 aa
Sequence 9: MN365232.1  1353 aa
Sequence 10: MN120513.1  1353 aa
Sequence 11: MK858157.1  1353 aa
Sequence 12: MH029552.1  1353 aa
Sequence 13: MK462243.1  1353 aa
Sequence 14: MK462247.1  1353 aa
Sequence 15: MH978886.1  1353 aa
Sequence 16: MH978887.1  1353 aa
Sequence 17: MG757598.1  1353 aa
Sequence 18: MG757604.1  1353 aa
Sequence 19: MK357908.1  1353 aa
Sequence 20: MK280984.2  1353 aa
Sequence 21: MK052676.1  1353 aa
Sequence 22: MG546331.1  1353 aa
Sequence 23: MH822886.1  1353 aa
Sequence 24: MH371127.1  1353 aa
Sequence 25: MH454272.1  1353 aa
Sequence 26: KY673148.1  1353 aa
Sequence 27: KY581684.1  1353 aa
Sequence 28: MG011351.2  1353 aa
Sequence 29: KX034094.1  1353 aa
Sequence 30: KX034095.1  1353 aa
Sequence 31: KX034100.1  1353 aa
Sequence 32: KT182957.1  1353 aa
Sequence 33: KU233362.1  1353 aa
Sequence 34: KT868868.1  1353 aa
Start of Pairwise alignments
Aligning...


Sequences (1:2) Aligned. Score: 99.8522
```

Sequences (1:3) Aligned. Score: 99.9261
Sequences (1:4) Aligned. Score: 99.8522
Sequences (1:5) Aligned. Score: 99.7783
Sequences (1:6) Aligned. Score: 99.8522
Sequences (1:7) Aligned. Score: 99.3348
Sequences (1:8) Aligned. Score: 99.7044
Sequences (1:9) Aligned. Score: 99.7044
Sequences (1:10) Aligned. Score: 99.7044
Sequences (1:11) Aligned. Score: 99.8522
Sequences (1:12) Aligned. Score: 99.9261
Sequences (1:13) Aligned. Score: 99.8522
Sequences (1:14) Aligned. Score: 99.7044
Sequences (1:15) Aligned. Score: 99.8522
Sequences (1:16) Aligned. Score: 99.8522
Sequences (1:17) Aligned. Score: 99.9261
Sequences (1:18) Aligned. Score: 99.8522
Sequences (1:19) Aligned. Score: 99.2609
Sequences (1:20) Aligned. Score: 99.8522
Sequences (1:21) Aligned. Score: 99.8522
Sequences (1:22) Aligned. Score: 99.8522
Sequences (1:23) Aligned. Score: 99.8522
Sequences (1:24) Aligned. Score: 99.9261
Sequences (1:25) Aligned. Score: 99.7044
Sequences (1:26) Aligned. Score: 99.7044
Sequences (1:27) Aligned. Score: 99.7783
Sequences (1:28) Aligned. Score: 99.8522
Sequences (1:29) Aligned. Score: 99.8522
Sequences (1:30) Aligned. Score: 99.8522
Sequences (1:31) Aligned. Score: 99.8522
Sequences (1:32) Aligned. Score: 99.7783
Sequences (1:33) Aligned. Score: 99.9261
Sequences (1:34) Aligned. Score: 99.8522
Sequences (2:3) Aligned. Score: 99.9261
Sequences (2:4) Aligned. Score: 99.8522
Sequences (2:5) Aligned. Score: 99.7783
Sequences (2:6) Aligned. Score: 99.8522
Sequences (2:7) Aligned. Score: 99.187
Sequences (2:8) Aligned. Score: 99.7044
Sequences (2:9) Aligned. Score: 99.7044
Sequences (2:10) Aligned. Score: 99.7044
Sequences (2:11) Aligned. Score: 99.8522
Sequences (2:12) Aligned. Score: 99.9261
Sequences (2:13) Aligned. Score: 99.8522
Sequences (2:14) Aligned. Score: 99.7044
Sequences (2:15) Aligned. Score: 99.8522
Sequences (2:16) Aligned. Score: 99.8522
Sequences (2:17) Aligned. Score: 99.9261
Sequences (2:18) Aligned. Score: 99.8522
Sequences (2:19) Aligned. Score: 99.1131
Sequences (2:20) Aligned. Score: 99.8522
Sequences (2:21) Aligned. Score: 99.8522
Sequences (2:22) Aligned. Score: 99.8522
Sequences (2:23) Aligned. Score: 99.8522
Sequences (2:24) Aligned. Score: 99.9261
Sequences (2:25) Aligned. Score: 99.7044
Sequences (2:26) Aligned. Score: 99.7044

Sequences (2:27) Aligned. Score: 99.7783
Sequences (2:28) Aligned. Score: 99.8522
Sequences (2:29) Aligned. Score: 99.8522
Sequences (2:30) Aligned. Score: 99.8522
Sequences (2:31) Aligned. Score: 99.8522
Sequences (2:32) Aligned. Score: 99.7783
Sequences (2:33) Aligned. Score: 99.9261
Sequences (2:34) Aligned. Score: 99.8522
Sequences (3:4) Aligned. Score: 99.9261
Sequences (3:5) Aligned. Score: 99.8522
Sequences (3:6) Aligned. Score: 99.9261
Sequences (3:7) Aligned. Score: 99.2609
Sequences (3:8) Aligned. Score: 99.7783
Sequences (3:9) Aligned. Score: 99.7783
Sequences (3:10) Aligned. Score: 99.7783
Sequences (3:11) Aligned. Score: 99.9261
Sequences (3:12) Aligned. Score: 100
Sequences (3:13) Aligned. Score: 99.9261
Sequences (3:14) Aligned. Score: 99.7783
Sequences (3:15) Aligned. Score: 99.9261
Sequences (3:16) Aligned. Score: 99.9261
Sequences (3:17) Aligned. Score: 100
Sequences (3:18) Aligned. Score: 99.9261
Sequences (3:19) Aligned. Score: 99.187
Sequences (3:20) Aligned. Score: 99.9261
Sequences (3:21) Aligned. Score: 99.9261
Sequences (3:22) Aligned. Score: 99.9261
Sequences (3:23) Aligned. Score: 99.9261
Sequences (3:24) Aligned. Score: 100
Sequences (3:25) Aligned. Score: 99.7783
Sequences (3:26) Aligned. Score: 99.7783
Sequences (3:27) Aligned. Score: 99.8522
Sequences (3:28) Aligned. Score: 99.9261
Sequences (3:29) Aligned. Score: 99.9261
Sequences (3:30) Aligned. Score: 99.9261
Sequences (3:31) Aligned. Score: 99.9261
Sequences (3:32) Aligned. Score: 99.8522
Sequences (3:33) Aligned. Score: 100
Sequences (3:34) Aligned. Score: 99.9261
Sequences (4:5) Aligned. Score: 99.7783
Sequences (4:6) Aligned. Score: 99.8522
Sequences (4:7) Aligned. Score: 99.187
Sequences (4:8) Aligned. Score: 99.7044
Sequences (4:9) Aligned. Score: 99.7044
Sequences (4:10) Aligned. Score: 99.7044
Sequences (4:11) Aligned. Score: 99.8522
Sequences (4:12) Aligned. Score: 99.9261
Sequences (4:13) Aligned. Score: 100
Sequences (4:14) Aligned. Score: 99.7044
Sequences (4:15) Aligned. Score: 99.8522
Sequences (4:16) Aligned. Score: 99.8522
Sequences (4:17) Aligned. Score: 99.9261
Sequences (4:18) Aligned. Score: 99.8522
Sequences (4:19) Aligned. Score: 99.1131
Sequences (4:20) Aligned. Score: 99.8522
Sequences (4:21) Aligned. Score: 99.8522

Sequences (4:22) Aligned. Score: 99.8522
Sequences (4:23) Aligned. Score: 99.8522
Sequences (4:24) Aligned. Score: 99.9261
Sequences (4:25) Aligned. Score: 99.7044
Sequences (4:26) Aligned. Score: 99.7044
Sequences (4:27) Aligned. Score: 99.7783
Sequences (4:28) Aligned. Score: 99.8522
Sequences (4:29) Aligned. Score: 99.8522
Sequences (4:30) Aligned. Score: 99.8522
Sequences (4:31) Aligned. Score: 99.8522
Sequences (4:32) Aligned. Score: 99.7783
Sequences (4:33) Aligned. Score: 99.9261
Sequences (4:34) Aligned. Score: 99.8522
Sequences (5:6) Aligned. Score: 99.7783
Sequences (5:7) Aligned. Score: 99.187
Sequences (5:8) Aligned. Score: 99.6305
Sequences (5:9) Aligned. Score: 99.7783
Sequences (5:10) Aligned. Score: 99.7783
Sequences (5:11) Aligned. Score: 99.7783
Sequences (5:12) Aligned. Score: 99.8522
Sequences (5:13) Aligned. Score: 99.7783
Sequences (5:14) Aligned. Score: 99.6305
Sequences (5:15) Aligned. Score: 99.7783
Sequences (5:16) Aligned. Score: 99.7783
Sequences (5:17) Aligned. Score: 99.8522
Sequences (5:18) Aligned. Score: 99.7783
Sequences (5:19) Aligned. Score: 99.1131
Sequences (5:20) Aligned. Score: 99.7783
Sequences (5:21) Aligned. Score: 99.7783
Sequences (5:22) Aligned. Score: 99.7783
Sequences (5:23) Aligned. Score: 99.7783
Sequences (5:24) Aligned. Score: 99.8522
Sequences (5:25) Aligned. Score: 99.6305
Sequences (5:26) Aligned. Score: 99.7044
Sequences (5:27) Aligned. Score: 99.7044
Sequences (5:28) Aligned. Score: 99.7783
Sequences (5:29) Aligned. Score: 99.7783
Sequences (5:30) Aligned. Score: 99.7783
Sequences (5:31) Aligned. Score: 99.7783
Sequences (5:32) Aligned. Score: 99.7044
Sequences (5:33) Aligned. Score: 99.8522
Sequences (5:34) Aligned. Score: 99.7783
Sequences (6:7) Aligned. Score: 99.187
Sequences (6:8) Aligned. Score: 99.7044
Sequences (6:9) Aligned. Score: 99.7044
Sequences (6:10) Aligned. Score: 99.7044
Sequences (6:11) Aligned. Score: 99.8522
Sequences (6:12) Aligned. Score: 99.9261
Sequences (6:13) Aligned. Score: 99.8522
Sequences (6:14) Aligned. Score: 99.7044
Sequences (6:15) Aligned. Score: 99.8522
Sequences (6:16) Aligned. Score: 99.8522
Sequences (6:17) Aligned. Score: 99.9261
Sequences (6:18) Aligned. Score: 99.8522
Sequences (6:19) Aligned. Score: 99.1131
Sequences (6:20) Aligned. Score: 99.8522

Sequences (6:21) Aligned. Score: 99.8522
Sequences (6:22) Aligned. Score: 99.8522
Sequences (6:23) Aligned. Score: 99.8522
Sequences (6:24) Aligned. Score: 99.9261
Sequences (6:25) Aligned. Score: 99.7044
Sequences (6:26) Aligned. Score: 99.7044
Sequences (6:27) Aligned. Score: 99.7783
Sequences (6:28) Aligned. Score: 99.8522
Sequences (6:29) Aligned. Score: 99.8522
Sequences (6:30) Aligned. Score: 99.8522
Sequences (6:31) Aligned. Score: 99.8522
Sequences (6:32) Aligned. Score: 99.7783
Sequences (6:33) Aligned. Score: 99.9261
Sequences (6:34) Aligned. Score: 99.8522
Sequences (7:8) Aligned. Score: 99.0392
Sequences (7:9) Aligned. Score: 99.1131
Sequences (7:10) Aligned. Score: 99.1131
Sequences (7:11) Aligned. Score: 99.187
Sequences (7:12) Aligned. Score: 99.2609
Sequences (7:13) Aligned. Score: 99.187
Sequences (7:14) Aligned. Score: 99.0392
Sequences (7:15) Aligned. Score: 99.187
Sequences (7:16) Aligned. Score: 99.187
Sequences (7:17) Aligned. Score: 99.2609
Sequences (7:18) Aligned. Score: 99.187
Sequences (7:19) Aligned. Score: 99.187
Sequences (7:20) Aligned. Score: 99.187
Sequences (7:21) Aligned. Score: 99.187
Sequences (7:22) Aligned. Score: 99.187
Sequences (7:23) Aligned. Score: 99.187
Sequences (7:24) Aligned. Score: 99.2609
Sequences (7:25) Aligned. Score: 99.0392
Sequences (7:26) Aligned. Score: 99.1131
Sequences (7:27) Aligned. Score: 99.1131
Sequences (7:28) Aligned. Score: 99.187
Sequences (7:29) Aligned. Score: 99.187
Sequences (7:30) Aligned. Score: 99.187
Sequences (7:31) Aligned. Score: 99.187
Sequences (7:32) Aligned. Score: 99.1131
Sequences (7:33) Aligned. Score: 99.2609
Sequences (7:34) Aligned. Score: 99.187
Sequences (8:9) Aligned. Score: 99.5565
Sequences (8:10) Aligned. Score: 99.5565
Sequences (8:11) Aligned. Score: 99.7044
Sequences (8:12) Aligned. Score: 99.7783
Sequences (8:13) Aligned. Score: 99.7044
Sequences (8:14) Aligned. Score: 99.5565
Sequences (8:15) Aligned. Score: 99.7044
Sequences (8:16) Aligned. Score: 99.7044
Sequences (8:17) Aligned. Score: 99.7783
Sequences (8:18) Aligned. Score: 99.7044
Sequences (8:19) Aligned. Score: 98.9653
Sequences (8:20) Aligned. Score: 99.7044
Sequences (8:21) Aligned. Score: 99.7044
Sequences (8:22) Aligned. Score: 99.7044
Sequences (8:23) Aligned. Score: 99.7044

Sequences (8:24) Aligned. Score: 99.7783
Sequences (8:25) Aligned. Score: 99.5565
Sequences (8:26) Aligned. Score: 99.5565
Sequences (8:27) Aligned. Score: 99.6305
Sequences (8:28) Aligned. Score: 99.7044
Sequences (8:29) Aligned. Score: 99.7044
Sequences (8:30) Aligned. Score: 99.7044
Sequences (8:31) Aligned. Score: 99.7044
Sequences (8:32) Aligned. Score: 99.6305
Sequences (8:33) Aligned. Score: 99.7783
Sequences (8:34) Aligned. Score: 99.7044
Sequences (9:10) Aligned. Score: 99.7044
Sequences (9:11) Aligned. Score: 99.7044
Sequences (9:12) Aligned. Score: 99.7783
Sequences (9:13) Aligned. Score: 99.7044
Sequences (9:14) Aligned. Score: 99.5565
Sequences (9:15) Aligned. Score: 99.7044
Sequences (9:16) Aligned. Score: 99.7044
Sequences (9:17) Aligned. Score: 99.7783
Sequences (9:18) Aligned. Score: 99.7044
Sequences (9:19) Aligned. Score: 99.0392
Sequences (9:20) Aligned. Score: 99.7044
Sequences (9:21) Aligned. Score: 99.7044
Sequences (9:22) Aligned. Score: 99.7044
Sequences (9:23) Aligned. Score: 99.7044
Sequences (9:24) Aligned. Score: 99.7783
Sequences (9:25) Aligned. Score: 99.5565
Sequences (9:26) Aligned. Score: 99.6305
Sequences (9:27) Aligned. Score: 99.6305
Sequences (9:28) Aligned. Score: 99.7044
Sequences (9:29) Aligned. Score: 99.7044
Sequences (9:30) Aligned. Score: 99.7044
Sequences (9:31) Aligned. Score: 99.7044
Sequences (9:32) Aligned. Score: 99.6305
Sequences (9:33) Aligned. Score: 99.7783
Sequences (9:34) Aligned. Score: 99.7044
Sequences (10:11) Aligned. Score: 99.7044
Sequences (10:12) Aligned. Score: 99.7783
Sequences (10:13) Aligned. Score: 99.7044
Sequences (10:14) Aligned. Score: 99.5565
Sequences (10:15) Aligned. Score: 99.7044
Sequences (10:16) Aligned. Score: 99.7044
Sequences (10:17) Aligned. Score: 99.7783
Sequences (10:18) Aligned. Score: 99.7044
Sequences (10:19) Aligned. Score: 99.0392
Sequences (10:20) Aligned. Score: 99.7044
Sequences (10:21) Aligned. Score: 99.7044
Sequences (10:22) Aligned. Score: 99.7044
Sequences (10:23) Aligned. Score: 99.7044
Sequences (10:24) Aligned. Score: 99.7783
Sequences (10:25) Aligned. Score: 99.5565
Sequences (10:26) Aligned. Score: 99.6305
Sequences (10:27) Aligned. Score: 99.6305
Sequences (10:28) Aligned. Score: 99.7044
Sequences (10:29) Aligned. Score: 99.7044
Sequences (10:30) Aligned. Score: 99.7044

Sequences (10:31) Aligned. Score: 99.7044
Sequences (10:32) Aligned. Score: 99.6305
Sequences (10:33) Aligned. Score: 99.7783
Sequences (10:34) Aligned. Score: 99.7044
Sequences (11:12) Aligned. Score: 99.9261
Sequences (11:13) Aligned. Score: 99.8522
Sequences (11:14) Aligned. Score: 99.7044
Sequences (11:15) Aligned. Score: 99.8522
Sequences (11:16) Aligned. Score: 99.8522
Sequences (11:17) Aligned. Score: 99.9261
Sequences (11:18) Aligned. Score: 99.8522
Sequences (11:19) Aligned. Score: 99.1131
Sequences (11:20) Aligned. Score: 99.8522
Sequences (11:21) Aligned. Score: 99.8522
Sequences (11:22) Aligned. Score: 99.8522
Sequences (11:23) Aligned. Score: 99.8522
Sequences (11:24) Aligned. Score: 99.9261
Sequences (11:25) Aligned. Score: 99.8522
Sequences (11:26) Aligned. Score: 99.7044
Sequences (11:27) Aligned. Score: 99.7783
Sequences (11:28) Aligned. Score: 99.8522
Sequences (11:29) Aligned. Score: 99.8522
Sequences (11:30) Aligned. Score: 99.8522
Sequences (11:31) Aligned. Score: 99.8522
Sequences (11:32) Aligned. Score: 99.7783
Sequences (11:33) Aligned. Score: 99.9261
Sequences (11:34) Aligned. Score: 99.8522
Sequences (12:13) Aligned. Score: 99.9261
Sequences (12:14) Aligned. Score: 99.7783
Sequences (12:15) Aligned. Score: 99.9261
Sequences (12:16) Aligned. Score: 99.9261
Sequences (12:17) Aligned. Score: 100
Sequences (12:18) Aligned. Score: 99.9261
Sequences (12:19) Aligned. Score: 99.187
Sequences (12:20) Aligned. Score: 99.9261
Sequences (12:21) Aligned. Score: 99.9261
Sequences (12:22) Aligned. Score: 99.9261
Sequences (12:23) Aligned. Score: 99.9261
Sequences (12:24) Aligned. Score: 100
Sequences (12:25) Aligned. Score: 99.7783
Sequences (12:26) Aligned. Score: 99.7783
Sequences (12:27) Aligned. Score: 99.8522
Sequences (12:28) Aligned. Score: 99.9261
Sequences (12:29) Aligned. Score: 99.9261
Sequences (12:30) Aligned. Score: 99.9261
Sequences (12:31) Aligned. Score: 99.9261
Sequences (12:32) Aligned. Score: 99.8522
Sequences (12:33) Aligned. Score: 100
Sequences (12:34) Aligned. Score: 99.9261
Sequences (13:14) Aligned. Score: 99.7044
Sequences (13:15) Aligned. Score: 99.8522
Sequences (13:16) Aligned. Score: 99.8522
Sequences (13:17) Aligned. Score: 99.9261
Sequences (13:18) Aligned. Score: 99.8522
Sequences (13:19) Aligned. Score: 99.1131
Sequences (13:20) Aligned. Score: 99.8522

Sequences (13:21) Aligned. Score: 99.8522
Sequences (13:22) Aligned. Score: 99.8522
Sequences (13:23) Aligned. Score: 99.8522
Sequences (13:24) Aligned. Score: 99.9261
Sequences (13:25) Aligned. Score: 99.7044
Sequences (13:26) Aligned. Score: 99.7044
Sequences (13:27) Aligned. Score: 99.7783
Sequences (13:28) Aligned. Score: 99.8522
Sequences (13:29) Aligned. Score: 99.8522
Sequences (13:30) Aligned. Score: 99.8522
Sequences (13:31) Aligned. Score: 99.8522
Sequences (13:32) Aligned. Score: 99.7783
Sequences (13:33) Aligned. Score: 99.9261
Sequences (13:34) Aligned. Score: 99.8522
Sequences (14:15) Aligned. Score: 99.7044
Sequences (14:16) Aligned. Score: 99.7044
Sequences (14:17) Aligned. Score: 99.7783
Sequences (14:18) Aligned. Score: 99.7044
Sequences (14:19) Aligned. Score: 98.9653
Sequences (14:20) Aligned. Score: 99.7044
Sequences (14:21) Aligned. Score: 99.7044
Sequences (14:22) Aligned. Score: 99.7044
Sequences (14:23) Aligned. Score: 99.8522
Sequences (14:24) Aligned. Score: 99.7783
Sequences (14:25) Aligned. Score: 99.5565
Sequences (14:26) Aligned. Score: 99.5565
Sequences (14:27) Aligned. Score: 99.6305
Sequences (14:28) Aligned. Score: 99.7044
Sequences (14:29) Aligned. Score: 99.7044
Sequences (14:30) Aligned. Score: 99.7044
Sequences (14:31) Aligned. Score: 99.7044
Sequences (14:32) Aligned. Score: 99.6305
Sequences (14:33) Aligned. Score: 99.7783
Sequences (14:34) Aligned. Score: 99.7044
Sequences (15:16) Aligned. Score: 100
Sequences (15:17) Aligned. Score: 99.9261
Sequences (15:18) Aligned. Score: 99.8522
Sequences (15:19) Aligned. Score: 99.1131
Sequences (15:20) Aligned. Score: 99.8522
Sequences (15:21) Aligned. Score: 99.8522
Sequences (15:22) Aligned. Score: 99.8522
Sequences (15:23) Aligned. Score: 99.8522
Sequences (15:24) Aligned. Score: 99.9261
Sequences (15:25) Aligned. Score: 99.7044
Sequences (15:26) Aligned. Score: 99.7044
Sequences (15:27) Aligned. Score: 99.7783
Sequences (15:28) Aligned. Score: 99.8522
Sequences (15:29) Aligned. Score: 99.8522
Sequences (15:30) Aligned. Score: 99.8522
Sequences (15:31) Aligned. Score: 99.8522
Sequences (15:32) Aligned. Score: 99.7783
Sequences (15:33) Aligned. Score: 99.9261
Sequences (15:34) Aligned. Score: 99.8522
Sequences (16:17) Aligned. Score: 99.9261
Sequences (16:18) Aligned. Score: 99.8522
Sequences (16:19) Aligned. Score: 99.1131

Sequences (16:20) Aligned. Score: 99.8522
Sequences (16:21) Aligned. Score: 99.8522
Sequences (16:22) Aligned. Score: 99.8522
Sequences (16:23) Aligned. Score: 99.8522
Sequences (16:24) Aligned. Score: 99.9261
Sequences (16:25) Aligned. Score: 99.7044
Sequences (16:26) Aligned. Score: 99.7044
Sequences (16:27) Aligned. Score: 99.7783
Sequences (16:28) Aligned. Score: 99.8522
Sequences (16:29) Aligned. Score: 99.8522
Sequences (16:30) Aligned. Score: 99.8522
Sequences (16:31) Aligned. Score: 99.8522
Sequences (16:32) Aligned. Score: 99.7783
Sequences (16:33) Aligned. Score: 99.9261
Sequences (16:34) Aligned. Score: 99.8522
Sequences (17:18) Aligned. Score: 99.9261
Sequences (17:19) Aligned. Score: 99.187
Sequences (17:20) Aligned. Score: 99.9261
Sequences (17:21) Aligned. Score: 99.9261
Sequences (17:22) Aligned. Score: 99.9261
Sequences (17:23) Aligned. Score: 99.9261
Sequences (17:24) Aligned. Score: 100
Sequences (17:25) Aligned. Score: 99.7783
Sequences (17:26) Aligned. Score: 99.7783
Sequences (17:27) Aligned. Score: 99.8522
Sequences (17:28) Aligned. Score: 99.9261
Sequences (17:29) Aligned. Score: 99.9261
Sequences (17:30) Aligned. Score: 99.9261
Sequences (17:31) Aligned. Score: 99.9261
Sequences (17:32) Aligned. Score: 99.8522
Sequences (17:33) Aligned. Score: 100
Sequences (17:34) Aligned. Score: 99.9261
Sequences (18:19) Aligned. Score: 99.1131
Sequences (18:20) Aligned. Score: 99.8522
Sequences (18:21) Aligned. Score: 99.8522
Sequences (18:22) Aligned. Score: 99.8522
Sequences (18:23) Aligned. Score: 99.8522
Sequences (18:24) Aligned. Score: 99.9261
Sequences (18:25) Aligned. Score: 99.7044
Sequences (18:26) Aligned. Score: 99.7044
Sequences (18:27) Aligned. Score: 99.7783
Sequences (18:28) Aligned. Score: 99.8522
Sequences (18:29) Aligned. Score: 99.8522
Sequences (18:30) Aligned. Score: 99.8522
Sequences (18:31) Aligned. Score: 99.8522
Sequences (18:32) Aligned. Score: 99.7783
Sequences (18:33) Aligned. Score: 99.9261
Sequences (18:34) Aligned. Score: 99.8522
Sequences (19:20) Aligned. Score: 99.1131
Sequences (19:21) Aligned. Score: 99.1131
Sequences (19:22) Aligned. Score: 99.1131
Sequences (19:23) Aligned. Score: 99.1131
Sequences (19:24) Aligned. Score: 99.187
Sequences (19:25) Aligned. Score: 98.9653
Sequences (19:26) Aligned. Score: 99.0392
Sequences (19:27) Aligned. Score: 99.0392

Sequences (19:28) Aligned. Score: 99.1131
Sequences (19:29) Aligned. Score: 99.1131
Sequences (19:30) Aligned. Score: 99.1131
Sequences (19:31) Aligned. Score: 99.1131
Sequences (19:32) Aligned. Score: 99.0392
Sequences (19:33) Aligned. Score: 99.187
Sequences (19:34) Aligned. Score: 99.1131
Sequences (20:21) Aligned. Score: 99.8522
Sequences (20:22) Aligned. Score: 99.8522
Sequences (20:23) Aligned. Score: 99.8522
Sequences (20:24) Aligned. Score: 99.9261
Sequences (20:25) Aligned. Score: 99.7044
Sequences (20:26) Aligned. Score: 99.7044
Sequences (20:27) Aligned. Score: 99.7783
Sequences (20:28) Aligned. Score: 99.9261
Sequences (20:29) Aligned. Score: 99.8522
Sequences (20:30) Aligned. Score: 99.8522
Sequences (20:31) Aligned. Score: 99.8522
Sequences (20:32) Aligned. Score: 99.7783
Sequences (20:33) Aligned. Score: 99.9261
Sequences (20:34) Aligned. Score: 99.8522
Sequences (21:22) Aligned. Score: 99.8522
Sequences (21:23) Aligned. Score: 99.8522
Sequences (21:24) Aligned. Score: 99.9261
Sequences (21:25) Aligned. Score: 99.7044
Sequences (21:26) Aligned. Score: 99.7044
Sequences (21:27) Aligned. Score: 99.7783
Sequences (21:28) Aligned. Score: 99.8522
Sequences (21:29) Aligned. Score: 99.8522
Sequences (21:30) Aligned. Score: 99.8522
Sequences (21:31) Aligned. Score: 99.8522
Sequences (21:32) Aligned. Score: 99.7783
Sequences (21:33) Aligned. Score: 99.9261
Sequences (21:34) Aligned. Score: 99.8522
Sequences (22:23) Aligned. Score: 99.8522
Sequences (22:24) Aligned. Score: 99.9261
Sequences (22:25) Aligned. Score: 99.7044
Sequences (22:26) Aligned. Score: 99.7044
Sequences (22:27) Aligned. Score: 99.7783
Sequences (22:28) Aligned. Score: 99.8522
Sequences (22:29) Aligned. Score: 99.8522
Sequences (22:30) Aligned. Score: 99.8522
Sequences (22:31) Aligned. Score: 99.8522
Sequences (22:32) Aligned. Score: 99.7783
Sequences (22:33) Aligned. Score: 99.9261
Sequences (22:34) Aligned. Score: 99.8522
Sequences (23:24) Aligned. Score: 99.9261
Sequences (23:25) Aligned. Score: 99.7044
Sequences (23:26) Aligned. Score: 99.7044
Sequences (23:27) Aligned. Score: 99.7783
Sequences (23:28) Aligned. Score: 99.8522
Sequences (23:29) Aligned. Score: 99.8522
Sequences (23:30) Aligned. Score: 99.8522
Sequences (23:31) Aligned. Score: 99.8522
Sequences (23:32) Aligned. Score: 99.7783
Sequences (23:33) Aligned. Score: 99.9261

Sequences (23:34) Aligned. Score: 99.8522
Sequences (24:25) Aligned. Score: 99.7783
Sequences (24:26) Aligned. Score: 99.7783
Sequences (24:27) Aligned. Score: 99.8522
Sequences (24:28) Aligned. Score: 99.9261
Sequences (24:29) Aligned. Score: 99.9261
Sequences (24:30) Aligned. Score: 99.9261
Sequences (24:31) Aligned. Score: 99.9261
Sequences (24:32) Aligned. Score: 99.8522
Sequences (24:33) Aligned. Score: 100
Sequences (24:34) Aligned. Score: 99.9261
Sequences (25:26) Aligned. Score: 99.5565
Sequences (25:27) Aligned. Score: 99.6305
Sequences (25:28) Aligned. Score: 99.7044
Sequences (25:29) Aligned. Score: 99.7044
Sequences (25:30) Aligned. Score: 99.7044
Sequences (25:31) Aligned. Score: 99.7044
Sequences (25:32) Aligned. Score: 99.6305
Sequences (25:33) Aligned. Score: 99.7783
Sequences (25:34) Aligned. Score: 99.7044
Sequences (26:27) Aligned. Score: 99.7783
Sequences (26:28) Aligned. Score: 99.7044
Sequences (26:29) Aligned. Score: 99.7044
Sequences (26:30) Aligned. Score: 99.7044
Sequences (26:31) Aligned. Score: 99.7044
Sequences (26:32) Aligned. Score: 99.6305
Sequences (26:33) Aligned. Score: 99.7783
Sequences (26:34) Aligned. Score: 99.7044
Sequences (27:28) Aligned. Score: 99.7783
Sequences (27:29) Aligned. Score: 99.7783
Sequences (27:30) Aligned. Score: 99.7783
Sequences (27:31) Aligned. Score: 99.7783
Sequences (27:32) Aligned. Score: 99.7044
Sequences (27:33) Aligned. Score: 99.8522
Sequences (27:34) Aligned. Score: 99.7783
Sequences (28:29) Aligned. Score: 99.8522
Sequences (28:30) Aligned. Score: 99.8522
Sequences (28:31) Aligned. Score: 99.8522
Sequences (28:32) Aligned. Score: 99.7783
Sequences (28:33) Aligned. Score: 99.9261
Sequences (28:34) Aligned. Score: 99.8522
Sequences (29:30) Aligned. Score: 100
Sequences (29:31) Aligned. Score: 99.8522
Sequences (29:32) Aligned. Score: 99.7783
Sequences (29:33) Aligned. Score: 99.9261
Sequences (29:34) Aligned. Score: 99.8522
Sequences (30:31) Aligned. Score: 99.8522
Sequences (30:32) Aligned. Score: 99.7783
Sequences (30:33) Aligned. Score: 99.9261
Sequences (30:34) Aligned. Score: 99.8522
Sequences (31:32) Aligned. Score: 99.9261
Sequences (31:33) Aligned. Score: 99.9261
Sequences (31:34) Aligned. Score: 100
Sequences (32:33) Aligned. Score: 99.8522
Sequences (32:34) Aligned. Score: 99.9261
Sequences (33:34) Aligned. Score: 99.9261

```
Guide tree file created:   [clustalw.dnd]

There are 33 groups
Start of Multiple Alignment

Aligning...
Group 1: Sequences:   2      Score:22442
Group 2: Sequences:   2      Score:22444
Group 3: Sequences:   4      Score:22423
Group 4: Sequences:   2      Score:22427
Group 5: Sequences:   6      Score:22425
Group 6: Sequences:   7      Score:22427
Group 7: Sequences:   2      Score:22431
Group 8: Sequences:   3      Score:22422
Group 9: Sequences:  10      Score:22422
Group 10: Sequences:   2      Score:22447
Group 11: Sequences:  12      Score:22427
Group 12: Sequences:  13      Score:22429
Group 13: Sequences:   2      Score:22444
Group 14: Sequences:   3      Score:22435
Group 15: Sequences:  16      Score:22421
Group 16: Sequences:   2      Score:22416
Group 17: Sequences:  18      Score:22410
Group 18: Sequences:   2      Score:22414
Group 19: Sequences:  20      Score:22406
Group 20: Sequences:   2      Score:22418
Group 21: Sequences:   3      Score:22430
Group 22: Sequences:   4      Score:22434
Group 23: Sequences:   5      Score:22436
Group 24: Sequences:   6      Score:22438
Group 25: Sequences:  26      Score:22423
Group 26: Sequences:   2      Score:22419
Group 27: Sequences:   3      Score:22416
Group 28: Sequences:   2      Score:22414
Group 29: Sequences:   5      Score:22409
Group 30: Sequences:  31      Score:22413
Group 31: Sequences:  32      Score:22423
Group 32: Sequences:   2      Score:22344
Group 33: Sequences:  34      Score:22336
Alignment Score 4714499

CLUSTAL-Alignment file created  [clustalw.aln]
```

---

clustalw.aln

```
CLUSTAL 2.1 multiple sequence alignment


KX034094.1      MIHSVFLLMFLLTPTESYVDVGPDSVKSACIEVDIQQTFFDKTWPRPIDVSKADGIIYPQ
KX034095.1      MIHSVFLLMFLLTPTESYVDVGPDSVKSACIEVDIQQTFFDKTWPRPIDVSKADGIIYPQ
MN723542.1      MIHSVFLLMFLLTPTESYVDVGPDSVKSACIEVDIQQTFFDKTWPRPIDVSKADGIIYPQ
MK462243.1      MIHSVFLLMFLLTPTESYVDVGPDSVKSACIEVDIQQTFFDKTWPRPIDVSKADGIIYPQ
MK052676.1      MIHSVFLLMFLLTPTESYVDVGPDSVKSACIEVDIQQTFFDKTWPRPIDVSKADGIIYPQ
MG546331.1      MIHSVFLLMFLLTPTESYVDVGPDSVKSACIEVDIQQTFFDKTWPRPIDVSKADGIIYPQ
```

```
MN481964.1      MIHSVFLLMFLLTPTESYVDVGPDSVKSACIEVDIQQTFFDKTWPRPIDVSKADGIIYPQ
MK280984.2      MIHSVFLLMFLLTPTESYVDVGPDSVKSACIEVDIQQTFFDKTWPRPIDVSKADGIIYPQ
MG011351.2      MIHSVFLLMFLLTPTESYVDVGPDSVKSACIEVDIQQTFFDKTWPRPIDVSKADGIIYPQ
MG757604.1      MIHSVFLLMFLLTPTESYVDVGPDSVKSACIEVDIQQTFFDKTWPRPIDVSKADGIIYPQ
MH978886.1      MIHSVFLLMFLLTPTESYVDVGPDSVKSACIEVDIQQTFFDKTWPRPIDVSKADGIIYPQ
MH978887.1      MIHSVFLLMFLLTPTESYVDVGPDSVKSACIEVDIQQTFFDKTWPRPIDVSKADGIIYPQ
MN735679.1      MIHSVFLLMFLLTPTESYVDVGPDSVKSACIEVDIQQTFFDKTWPRPIDVSKADGIIYPQ
KX034100.1      MIHSVFLLMFLLTPTESYVDVGPDSVKSACIEVDIQQTFFDKTWPRPIDVSKADGIIYPQ
KT868868.1      MIHSVFLLMFLLTPTESYVDVGPDSVKSACIEVDIQQTFFDKTWPRPIDVSKADGIIYPQ
KT182957.1      MIHSVFLLMFLLTPTESYVDVGPDSVKSACIEVDIQQTFFDKTWPRPIDVSKADGIIYPQ
MK462247.1      MIHSVFLLMFLLTPTESYVDVGPDSVKSACIEVDIQQTFFDKTWPRPIDVSKADGIIYPQ
MH822886.1      MIHSVFLLMFLLTPTESYVDVGPDSVKSACIEVDIQQTFFDKTWPRPIDVSKADGIIYPQ
MK858157.1      MIHSVFLLMFLLTPTESYVDVGPDSVKSACIEVDIQQTFFDKTWPRPIDVSKADGIIYPQ
MH454272.1      MIHSVFLLMFLLTPTESYVDVGPDSVKSACIEVDIQQTFFDKTWPRPIDVSKADGIIYPQ
MN481979.1      MIHSVFLLMFLLTPTESYVDVGPDSVKSACIEVDIQQTFFDKTWPRPIDVSKADGIIYPQ
MN403102.1      MIHSVFLLMFLLTPTESYVDVGPDSVKSACIEVDIQQTFFDKTWPRPIDVSKADGIIYPQ
MG757598.1      MIHSVFLLMFLLTPTESYVDVGPDSVKSACIEVDIQQTFFDKTWPRPIDVSKADGIIYPQ
MH029552.1      MIHSVFLLMFLLTPTESYVDVGPDSVKSACIEVDIQQTFFDKTWPRPIDVSKADGIIYPQ
MH371127.1      MIHSVFLLMFLLTPTESYVDVGPDSVKSACIEVDIQQTFFDKTWPRPIDVSKADGIIYPQ
KU233362.1      MIHSVFLLMFLLTPTESYVDVGPDSVKSACIEVDIQQTFFDKTWPRPIDVSKADGIIYPQ
MN723544.1      MIHSVFLLMFLLTPTESYVDVGPDSLKSACIEVDIQQTFFDKTWPRPIDVSKADGIIYPQ
MN365232.1      MIHSVFLLMFLLTPTESYVDVGPDSLKSACIEVDIQQTFFDKTWPRPIDVSKADGIIYPQ
MN120513.1      MIHSVFLLMFLLTPTESYVDVGPDSLKSACIEVDIQQTFFDKTWPRPIDVSKADGIIYPQ
KY673148.1      MIHSVFLLMFLLTPTESYVDVGPDSFKSACIEVDIQQTFFDKTWPRPIDVSKADGIIYPQ
KY581684.1      MIHSVFLLMFLLTPTESYVDVGPDSVKSACIEVDIQQTFFDKTWPRPIDVSKADGIIYPQ
JX869059        MIHSVFLLMFLLTPTESYVDVGPDSVKSACIEVDIQQTFFDKTWPRPIDVSKADGIIYPQ
MK967708.1      MIHSVFLLMFLLTPTESYVDVGPDSAKSACIEVDIQQTFFDKTWPRPIDVSKADGIIYPQ
MK357908.1      MIHSVFLLMFLLTPTESYVDVGPDSAKSVCIEVDIQQTFFDKTWPRPIDVSKADGIIYPQ
                ************************ **.*****************************

KX034094.1      GRTYSNITITYQGLFPYQGDHGDMYVYSAGHATGTTPQKLFVANYSQDVKQFANGFVVRI
KX034095.1      GRTYSNITITYQGLFPYQGDHGDMYVYSAGHATGTTPQKLFVANYSQDVKQFANGFVVRI
MN723542.1      GRTYSNITITYQGLFPYQGDHGDMYVYSAGHATGTTPQKLFVANYSQDVKQFANGFVVRI
MK462243.1      GRTYSNITITYQGLFPYQGDHGDMYVYSAGHATGTTPQKLFVANYSQDVKQFANGFVVRI
MK052676.1      GRTYSNITITYQGLFPYQGDHGDMYVYSAGHATGTTPQKLFVANYSQDVKQFANGFVVRI
MG546331.1      GRTYSNITITYQGLFPYQGDHGDMYVYSAGHATGTTPQKLFVANYSQDVKQFANGFVVRI
MN481964.1      GRTYSNITITYQGLFPYQGDHGDMYVYSAGHATGTTPQKLFVANYSQDVKQFANGFVVRI
MK280984.2      GRTYSNITITYQGLFPYQGDHGDMYVYSAGHATGSTPQKLFVANYSQDVKQFANGFVVRI
MG011351.2      GRTYSNITITYQGLFPYQGDHGDMYVYSAGHATGITPQKLFVANYSQDVKQFANGFVVRI
MG757604.1      GRTYSNITITYQGLFPYQGDHGDMYVYSAGHATGTTPQKLFVANYSQDVKQFANGFVVRI
MH978886.1      GRTYSNITITYQGLFPYQGDHGDMYVYSAGHATGTTPQKLFVANYSQDVKQFANGFVVRI
MH978887.1      GRTYSNITITYQGLFPYQGDHGDMYVYSAGHATGTTPQKLFVANYSQDVKQFANGFVVRI
MN735679.1      GRTYSNITITYQGLFPYQGDHGDMYVYSAGHATGTTPQKLFVANYSQDVKQFANGFVVRI
KX034100.1      GRTYSNITITYQGLFPYQGDHGDMYVYSAGHATGTTPQKLFVANYSQDVKQFANGFVVRI
KT868868.1      GRTYSNITITYQGLFPYQGDHGDMYVYSAGHATGTTPQKLFVANYSQDVKQFANGFVVRI
KT182957.1      GRTYSNITITYQGLFPYQGDHGDMYVYSAGHATGTTPQKLFVANYSQDVKQFANGFVVRI
MK462247.1      GRTYSNITITYQGLFPYQGDHGDMYVYSAGHATGTTPQKLFVANYSQDVKQFANGFVVRI
MH822886.1      GRTYSNITITYQGLFPYQGDHGDMYVYSAGHATGTTPQKLFVANYSQDVKQFANGFVVRI
MK858157.1      GRTYSNITITYQGLFPYQGDHGDMYVYSAGHATGTTPQKLFVANYSQDVKQFANGFVVRI
MH454272.1      GRTYSNITITYQGLFPYQGDHGDMYVYSAGHATGTTPQKLFVANYSQDVKQFANGFVVRI
MN481979.1      GRTYSNITITYQGLFPYQGDHGDMYVYSAGHATGTTPQKLFVANYSQDVKQFANGFVVRI
MN403102.1      GRTYSNITITYQGLFPYQGDHGDMYVYSAGHATGTTPQKLFVANYSQDVKQFANGFVVRI
MG757598.1      GRTYSNITITYQGLFPYQGDHGDMYVYSAGHATGTTPQKLFVANYSQDVKQFANGFVVRI
MH029552.1      GRTYSNITITYQGLFPYQGDHGDMYVYSAGHATGTTPQKLFVANYSQDVKQFANGFVVRI
MH371127.1      GRTYSNITITYQGLFPYQGDHGDMYVYSAGHATGTTPQKLFVANYSQDVKQFANGFVVRI
KU233362.1      GRTYSNITITYQGLFPYQGDHGDMYVYSAGHATGTTPQKLFVANYSQDVKQFANGFVVRI
```

```
MN723544.1      GRTYSNITITYQGLFPYQGDHGDMYVYSAGHATGTTPQKLFVANYSQDVKQFANGFVVRI
MN365232.1      GRTYSNITITYQGLFPYQGDHGDMYVYSAGHATGTTPQKLFVANYSQDVKQFANGFVVRI
MN120513.1      GRTYSNITITYQGLFPYQGDHGDMYVYSAGHATGTTPQKLFVANYSQDVKQFANGFVVRI
KY673148.1      GRTYSNITITYQGLFPYQGDHGDMYVYSAGHATGTTPQKLFVANYSQDVKQFANGFVVRI
KY581684.1      GRTYSNITITYQGLFPYQGDHGDMYVYSAGHATGTTPQKLFVANYSQDVKQFANGFVVRI
JX869059        GRTYSNITITYQGLFPYQGDHGDMYVYSAGHATGTTPQKLFVANYSQDVKQFANGFVVRI
MK967708.1      GRTYSNITITYQGLFPYQGDHGDMYVYSAGHATGTTPQKLFVANYSQDVKQFANGFVVRI
MK357908.1      GRTYSNITITYQGLFPYQGDHGDMYVYSAGHATGTTPQKLFVANYSQDVKQFANGFVVRI
                ******************************** ************************

KX034094.1      GAAANSTGTVIISPSTSATIRKIYPAFMLGSSVGNFSDGKMGRFFNHTLVLLPDGCGTLL
KX034095.1      GAAANSTGTVIISPSTSATIRKIYPAFMLGSSVGNFSDGKMGRFFNHTLVLLPDGCGTLL
MN723542.1      GAAANSTGTVIISPSTSATIRKIYPAFMLGSSVGNFSDGKMGRFFNHTLVLLPDGCGTLL
MK462243.1      GAAANSTGTVIISPSTSATIRKIYPAFMLGSSVGNFSDGKMGRFFNHTLVLLPDGCGTLL
MK052676.1      GAAANSTGTVIISPSTSATIRKIYPAFMLGSSVGNFSDGKMGRFFNHTLVLLPDGCGTLL
MG546331.1      GAAANSTGTVIISPSTSATIRKIYPAFMLGSSVGNFSDGKMGRFFNHTLVLLPDGCGTLL
MN481964.1      GAAANSTGTVIISPSTSATIRKIYPAFMLGSSVGNFSDGKMGRFFNHTLVLLPDGCGTLL
MK280984.2      GAAANSTGTVIISPSTSATIRKIYPAFMLGSSVGNFSDGKMGRFFNHTLVLLPDGCGTLL
MG011351.2      GAAANSTGTVIISPSTSATIRKIYPAFMLGSSVGNFSDGKMGRFFNHTLVLLPDGCGTLL
MG757604.1      GAAANSTGTVIISPSTSATIRKIYPAFMLGSSVGNFSDGKMGLFFNHTLVLLPDGCGTLL
MH978886.1      GAAANSTGTVIISPSTSATIRKIYPAFMLGSSVGNFSDGKMGRFFNHTLVLLPDGCGTLL
MH978887.1      GAAANSTGTVIISPSTSATIRKIYPAFMLGSSVGNFSDGKMGRFFNHTLVLLPDGCGTLL
MN735679.1      GAAANATGTVIISPSTSATIRKIYPAFMLGSSVGNFSDGKMGRFFNHTLVLLPDGCGTLL
KX034100.1      GAAANSTGTVIISPSTSATIRKIYPAFMLGSSVGNFSDGKMGRFFNHTLVLLPDGCGTLL
KT868868.1      GAAANSTGTVIISPSTSATIRKIYPAFMLGSSVGNFSDGKMGRFFNHTLVLLPDGCGTLL
KT182957.1      GAAANSTGTVIISPSTSATIRKIYPAFMLGSSVGNFSDGKMGRFFNHTLVLLPDGCGTLL
MK462247.1      GAAANSTGTVIISPSTSATIRKIYPAFMLGSSVGNFSDGKMGRFFNHTLVLLPDGCGTLL
MH822886.1      GAAANSTGTVIISPSTSATIRKIYPAFMLGSSVGNFSDGKMGRFFNHTLVLLPDGCGTLL
MK858157.1      GAAANSTGTVIISPSTSATIRKIYPAFMLGSSVGNFSDGKMGRFFNHTLVLLPDGCGTLL
MH454272.1      GAAANSTGTVIISPSTSATIRKIYPAFMLGSSVGNFSDGKMGRFFNHTLVLLPDGCGTLL
MN481979.1      GAAANSTGTVIISPSTSATIRKIYPAFMLGSSVGNFSDGKMGRFFNHTLVLLPDGCGTLL
MN403102.1      GAAANSTGTVIISPSTSATIRKIYPAFMLGCSVGNFSDGKMGRFFNHTLVLLPDGCGTLL
MG757598.1      GAAANSTGTVIISPSTSATIRKIYPAFMLGSSVGNFSDGKMGRFFNHTLVLLPDGCGTLL
MH029552.1      GAAANSTGTVIISPSTSATIRKIYPAFMLGSSVGNFSDGKMGRFFNHTLVLLPDGCGTLL
MH371127.1      GAAANSTGTVIISPSTSATIRKIYPAFMLGSSVGNFSDGKMGRFFNHTLVLLPDGCGTLL
KU233362.1      GAAANSTGTVIISPSTSATIRKIYPAFMLGSSVGNFSDGKMGRFFNHTLVLLPDGCGTLL
MN723544.1      GAAANSTGTVIISPSTSATIRKIYPAFMLGSSVGNFSDGKMGRFFNHTLVLLPDGCGTLL
MN365232.1      GAAANSTGTVIISPSTSATIRKIYPAFMLGSSVGNFSDGKMGRFFNHTLVLLPDGCGTLL
MN120513.1      GAAANSTGTVIISPSTSATIRKIYPAFMLGSSVGNFSDGKMGRFFNHTLVLLPDGCGTLL
KY673148.1      GAAANSTGTVIISPSTSATIRKIYPAFMLGSSVGNFSDGKMGRFFNHTLVLLPDGCGTLL
KY581684.1      GAAANSTGTVIISPSTSATIRKIYPAFMLGSSVGNFSDGKMGRFFNHTLVLLPDGCGTLL
JX869059        GAAANSTGTVIISPSTSATIRKIYPAFMLGSSVGNFSDGKMGRFFNHTLVLLPDGCGTLL
MK967708.1      GAAANSTGTVIISPSTSATIRKIYPAFMLGSSVSNFSYGKMGRFFNHTLVLLPDGCGTLL
MK357908.1      GAAANSTGTVIISPSTSATIRKIYPAFMLGSSVGNFSYGKMGRFFNHTLVLLPDGCGTLL
                *****:**********************.**.*** **** ****************

KX034094.1      RAFYCILEPRSGNHCPAGNSYTSFATYHTPATDCSDGNYNRNASLNSFKEYFNLRNCTFM
KX034095.1      RAFYCILEPRSGNHCPAGNSYTSFATYHTPATDCSDGNYNRNASLNSFKEYFNLRNCTFM
MN723542.1      RAFYCILEPRSGNHCPAGNSYTSFATYHTPATDCSDGNYNRNASLNSFKEYFNLRNCTFM
MK462243.1      RAFYCILEPRSGNHCPAGNSYTSFATYHTPATDCSDGNYNRNASLNSFKEYFNLRNCTFM
MK052676.1      RAFYCILEPRSGNHCPAGNSYTSFATYHTPATDCSDGNYNRNASLNSFKEYFNLRNCTFM
MG546331.1      RAFYCILEPRSGNHCPAGNSYTSFATYHTPATDCSDGNYNRNASLNSFKEYFNLRNCTFM
MN481964.1      RAFYCILEPRSGNHCPAGNSYTSFATYHTPATDCSDGNYNRNASLNSFKEYFNLRNCTFM
MK280984.2      RAFYCILEPRSGNHCPAGNSYTSFATYHTPATDCSDGNYNRNASLNSFKEYFNLRNCTFM
MG011351.2      RAFYCILEPRSGNHCPAGNSYTSFATYHTPATDCSDGNYNRNASLNSFKEYFNLRNCTFM
MG757604.1      RAFYCILEPRSGNHCPAGNSYTSFATYHTPATDCSDGNYNRNASLNSFKEYFNLRNCTFM
```

```
MH978886.1      RAFYCILEPRSGNHCPAGNSYTSFATYHTPATDCSDGNYNRNASLNSFKEYFNLRNCTFM
MH978887.1      RAFYCILEPRSGNHCPAGNSYTSFATYHTPATDCSDGNYNRNASLNSFKEYFNLRNCTFM
MN735679.1      RAFYCILEPRSGNHCPAGNSYTSFATYHTPATDCSDGNYNRNASLNSFKEYFNLRNCTFM
KX034100.1      RAFYCILEPRSGNHCPAGNSYTSFATYHTPATDCSDGNYNRNASLNSFKEYFNLRNCTFM
KT868868.1      RAFYCILEPRSGNHCPAGNSYTSFATYHTPATDCSDGNYNRNASLNSFKEYFNLRNCTFM
KT182957.1      RAFYCILEPRSGNHCPAGNSYTSFATYHTPATDCSDGNYNRNASLNSFKEYFNLRNCTFM
MK462247.1      RAFYCILEPRSGNHCPAGNSYTSFATYHTPATDCSDGNYNRNASLNSFKEYFNLRNCTFM
MH822886.1      RAFYCILEPRSGNHCPAGNSYTSFATYHTPATDCSDGNYNRNASLNSFKEYFNLRNCTFM
MK858157.1      RAFYCILEPRSGNHCPAGNSYTSFATYHTPATDCSDGNYNRNASLNSFKEYFNLRNCTFM
MH454272.1      RAFYCILEPRSGNHCPAGNSYTSFATYHTPATDCSDGNYNRNASLNSFKEYFNLRNCTFM
MN481979.1      RAFYCILEPRSGNHCPAGNSYTSFATYHTPATDCSDGNYNRNASLNSFKEYFNLRNCTFM
MN403102.1      RAFYCILEPRSGNHCPAGNSYTSFATYHTPATDCSDGNYNRNASLNSFKEYFNLRNCTFM
MG757598.1      RAFYCILEPRSGNHCPAGNSYTSFATYHTPATDCSDGNYNRNASLNSFKEYFNLRNCTFM
MH029552.1      RAFYCILEPRSGNHCPAGNSYTSFATYHTPATDCSDGNYNRNASLNSFKEYFNLRNCTFM
MH371127.1      RAFYCILEPRSGNHCPAGNSYTSFATYHTPATDCSDGNYNRNASLNSFKEYFNLRNCTFM
KU233362.1      RAFYCILEPRSGNHCPAGNSYTSFATYHTPATDCSDGNYNRNASLNSFKEYFNLRNCTFM
MN723544.1      RAFYCILEPRSGNHCPAGNSYTSFATYHTPATDCSDGNYNRNASLNSFKEYFNLRNCTFM
MN365232.1      RAFYCILEPRSGNHCPAGNSYTSFATYHTPATDCSDGNYNRNASLNSFKEYFNLRNCTFM
MN120513.1      RAFYCILEPRPGNHCPAGNSYTSFATYHTPATDCSDGNYNRNASLNSFKEYFNLRNCTFM
KY673148.1      RAFYCILEPRSGNHCPAGNSYTSFATYHTPATDCSDGNYNRNASLNSFKEYFNLRNCTFM
KY581684.1      RAFYCILEPRSGNHCPAGNSYTSFATYHTPATDCSDGNYNRNASLNSFKEYFNLRNCTFM
JX869059        RAFYCILEPRSGNHCPAGNSYTSFATYHTPATDCSDGNYNRNASLNSFKEYFNLRNCTFM
MK967708.1      RAFYCILEPRSGNYCPAGNSYTSFATYHTPATDCSDGNYNRNASLNSFKEYFNLRNCTFM
MK357908.1      RAFYCILEPRSGNYCPAGNSYTSFATYHTPATDCSDGNYNRNASLNSFKEYFNLRNCTFM
                **********.**:*****************************************

KX034094.1      YTYNITEDEILEWFGITQTAQGVHLFSSRYVDLYGGNMFQFATLPVYDTIKYYSIIPHSI
KX034095.1      YTYNITEDEILEWFGITQTAQGVHLFSSRYVDLYGGNMFQFATLPVYDTIKYYSIIPHSI
MN723542.1      YTYNITEDEILEWFGITQTAQGVHLFSSRYVDLYGGNMFQFATLPVYDTIKYYSIIPHSI
MK462243.1      YTYNITEDEILEWFGITQTAQGVHLFSSRYVDLYGGNMFQFATLPVYDTIKYYSIIPHSI
MK052676.1      YTYNITEDEILEWFGITQTAQGVHLFSSRYVDLYGGNMFQFATLPVYDTIKYYSIIPHSI
MG546331.1      YTYNITEDEILEWFGITQTAQGVHLFSSRYVDLYGGNMFQFATLPVYDTIKYYSIIPHSI
MN481964.1      YTYNITEDEILEWFGITQTAQGVHLFSSRYVDLYGGNMFQFATLPVYDTIKYYSIIPHSI
MK280984.2      YTYNITEDEILEWFGITQTAQGVHLFSSRYVDLYGGNMFQFATLPVYDTIKYYSIIPHSI
MG011351.2      YTYNITEDEILEWFGITQTAQGVHLFSSRYVDLYGGNMFQFATLPVYDTIKYYSIIPHSI
MG757604.1      YTYNITEDEILEWFGITQTAQGVHLFSSRYVDLYGGNMFQFATLPVYDTIKYYSIIPHSI
MH978886.1      YTYNITEDEILEWFGITQTAQGVHLFSSRYVDLYGGNMFQFATLPVYDTIKYYSIIPHSI
MH978887.1      YTYNITEDEILEWFGITQTAQGVHLFSSRYVDLYGGNMFQFATLPVYDTIKYYSIIPHSI
MN735679.1      YTYNITEDEILEWFGITQTAQGVHLFSSRYVDLYGGNMFQFATLPVYDTIKYYSIIPHSI
KX034100.1      YTYNITEDEILEWFGITQTAQGVHLFSSRYVDLYGGNMFQFATLPVYDTIKYYSIIPHSI
KT868868.1      YTYNITEDEILEWFGITQTAQGVHLFSSRYVDLYGGNMFQFATLPVYDTIKYYSIIPHSI
KT182957.1      YTYNITEDEILEWFGITQTAQGVHLFSSRYVDLYGGNMFQFATLPVYDTIKYYSIIPHSI
MK462247.1      YTYNITEDEILEWFGITQTAQGVHLFSSRYVDLYGGNMFQFATLPVYDTIKYYSIIPHSI
MH822886.1      YTYNITEDEILEWFGITQTAQGVHLFSSRYVDLYGGNMFQFATLPVYDTIKYYSIIPHSI
MK858157.1      YTYNITEDEILEWFGITQTAQGVHLFSSRYVDLYGGNMFQFATLPVYDTIKYYSIIPHSI
MH454272.1      YTYNITEDEILEWFGITQTAQGVHLFSSRYVDLYGGNMFQFATLPVYDTIKYYSIIPHSI
MN481979.1      YTYNITEDEILEWFGITQTAQGVHLFSSRYVDLYGGNMFQFATLPVYDTIKYYSIIPHSI
MN403102.1      YTYNITEDEILEWFGITQTAQGVHLFSSRYVDLYGGNMFQFATLPVYDTIKYYSIIPHSI
MG757598.1      YTYNITEDEILEWFGITQTAQGVHLFSSRYVDLYGGNMFQFATLPVYDTIKYYSIIPHSI
MH029552.1      YTYNITEDEILEWFGITQTAQGVHLFSSRYVDLYGGNMFQFATLPVYDTIKYYSIIPHSI
MH371127.1      YTYNITEDEILEWFGITQTAQGVHLFSSRYVDLYGGNMFQFATLPVYDTIKYYSIIPHSI
KU233362.1      YTYNITEDEILEWFGITQTAQGVHLFSSRYVDLYGGNMFQFATLPVYDTIKYYSIIPHSI
MN723544.1      YTYNITEDEILEWFGITQTAQGVHLFSSRYVDLYGGNMFQFATLPVYDTIKYYSIIPHSI
MN365232.1      YTYNITEDEILEWFGITQTAQGVHLFSSRYVDLYGGNMFQFATLPVYDTIKYYSIIPHSI
MN120513.1      YTYNITEDEILEWFGITQTAQGVHLFSSRYVDLYGGNMFQFATLPVYDTIKYYSIIPHSI
KY673148.1      YTYNITEDEILEWFGITQTAQGVHLFSSRYVDLYGGNMFQFATLPVYDTIKYYSIIPHSI
```

```
KY581684.1      YTYNITEDEILEWFGITQTAQGVHLFSSRYVDLYGGNMFQFATLPVYDTIKYYSIIPHSI
JX869059        YTYNITEDEILEWFGITQTAQGVHLFSSRYVDLYGGNMFQFATLPVYDTIKYYSIIPHSI
MK967708.1      YTYNITEDEILEWFGITQTAQGVHLFSSRYVDLYGGNMFQFATLPVYDTIKYYSIIPHSI
MK357908.1      YTYNITEDEILEWFGITQTAQGVHLFSSRYVDLYGGNMFQFATLPVYDTIKYYSIIPHSI
                ************************************************************

KX034094.1      RSIQSDRKAWAAFYVYKLQPLTFLLDFSVDGYIRRAIDCGFNDLSQLHCSYESFDVESGV
KX034095.1      RSIQSDRKAWAAFYVYKLQPLTFLLDFSVDGYIRRAIDCGFNDLSQLHCSYESFDVESGV
MN723542.1      RSIQSDRKAWAAFYVYKLQPLTFLLDFSVDGYIRRAIDCGFNDLSQLHCSYESFDVESGV
MK462243.1      RSIQSDRKAWAAFYVYKLQPLTFLLDFSVDGYIRRAIDCGFNDLSQLHCSYESFDVESGV
MK052676.1      RSIQSDRKAWAAFYVYKLQPLTFLLDFSVDGYIRRAIDCGFNDLSQLHCSYESFDVESGV
MG546331.1      RSIQSDRKAWAAFYVYKLQPLTFLLDFSVDGYIRRAIDCGFNDLSQLHCSYESFDVESGV
MN481964.1      RSIQSDRKAWAAFYVYKLQPLTFLLDFSVDGYIRRAIDCGFNDLSQLHCSYESFDVESGV
MK280984.2      RSIQSDRKAWAAFYVYKLQPLTFLLDFSVDGYIRRAIDCGFNDLSQLHCSYESFDVESGV
MG011351.2      RSIQSDRKAWAAFYVYKLQPLTFLLDFSVDGYIRRAIDCGFNDLSQLHCSYESFDVESGV
MG757604.1      RSIQSDRKAWAAFYVYKLQPLTFLLDFSVDGYIRRAIDCGFNDLSQLHCSYESFDVESGV
MH978886.1      RSIQSDRKAWAAFYVYKLQPLTFLLDFSVDGYIRRAIDCGFNDLSQLHCSYESFDVESGV
MH978887.1      RSIQSDRKAWAAFYVYKLQPLTFLLDFSVDGYIRRAIDCGFNDLSQLHCSYESFDVESGV
MN735679.1      RSIQSDRKAWAAFYVYKLQPLTFLLDFSVDGYIRRAIDCGFNDLSQLHCSYESFDVESGV
KX034100.1      RSIQSDRKAWAAFYVYKLQPLTFLLDFSVDGYIRRAIDCGFNDLSQLHCSYESFDVESGV
KT868868.1      RSIQSDRKAWAAFYVYKLQPLTFLLDFSVDGYIRRAIDCGFNDLSQLHCSYESFDVESGV
KT182957.1      RSIQSDRKAWAAFYVYKLQPLTFLLDFSVDGYIRRAIDCGFNDLSQLHCSYESFDVESGV
MK462247.1      LSIQSDRKAWAAFYVYKLQPLTFLLDFSVDGYIRRAIDCGFNDLSQLHCSYESFDVESGV
MH822886.1      RSIQSDRKAWAAFYVYKLQPLTFLLDFSVDGYIRRAIDCGFNDLSQLHCSYESFDVESGV
MK858157.1      RSIQSDRKAWAAFYVYKLQPLTFLLDFSVDGYIRRAIDCGFNDLSQLHCSYESFDVESGV
MH454272.1      RSIQSDRKAWAAFYVYKLQPLTFLLDFSVDGYIRRAIDCGFNDLSQLHCSYESFDVESGV
MN481979.1      RSIQSDRKAWAAFYVYKLQPLTFLLDFSVDGYIRRAIDCGFNDLSQLHCSYESFDVESGV
MN403102.1      RSIQSDRKAWAAFYVYKLQPLTFLLDFSVDGYIRRAIDCGFNDLSQLHCSYESFDVESGV
MG757598.1      RSIQSDRKAWAAFYVYKLQPLTFLLDFSVDGYIRRAIDCGFNDLSQLHCSYESFDVESGV
MH029552.1      RSIQSDRKAWAAFYVYKLQPLTFLLDFSVDGYIRRAIDCGFNDLSQLHCSYESFDVESGV
MH371127.1      RSIQSDRKAWAAFYVYKLQPLTFLLDFSVDGYIRRAIDCGFNDLSQLHCSYESFDVESGV
KU233362.1      RSIQSDRKAWAAFYVYKLQPLTFLLDFSVDGYIRRAIDCGFNDLSQLHCSYESFDVESGV
MN723544.1      RSIRSDRKAWAAFYVYKLQPLTFLLDFSVDGYIRRAIDCGFNDLSQLHCSYESFDVESGV
MN365232.1      RSIQSDRKAWAAFYVYKLQPLTFLLDFSVDGYIRRAIDCGFNDLSQLHCSYESFDVESGV
MN120513.1      RSIQSDRKAWAAFYVYKLQPLTFLLDFSVDGYIRRAIDCGFNDLSQLHCSYESFDVESGV
KY673148.1      RSIQSDRKAWAAFYVYKLQPLTFLLDFSVDGYIRRAIDCGFNDLSQLHCSYESFDVESGV
KY581684.1      RSIQSDRKAWAAFYVYKLQPLTFLLDFSVDGYIRRAIDCGFNDLSQLHCSYESFDVESGV
JX869059        RSIQSDRKAWAAFYVYKLQPLTFLLDFSVDGYIRRAIDCGFNDLSQLHCSYESFDVESGV
MK967708.1      RSIQSDRKAWAAFYVYKLQPLTFLLDFSVDGYIRRAIDCGFNDLSQLHCSYESFDVESGV
MK357908.1      RSIQSDRKAWAAFYVYKLQPLTFLLDFSVDGYIRRAIDCGFNDLSQLHCSYESFDVESGV
                 **:************************************************************

KX034094.1      YSVSSFEAKPSGSVVEQAEGVECDFSPLLSGTPPQVYNFKRLVFTNCNYNLTKLLSLFSV
KX034095.1      YSVSSFEAKPSGSVVEQAEGVECDFSPLLSGTPPQVYNFKRLVFTNCNYNLTKLLSLFSV
MN723542.1      YSVSSFEAKPSGSVVEQAEGVECDFSPLLSGTPPQVYNFKRLVFTNCNYNLTKLLSLFSV
MK462243.1      YSVSSFEAKPSGSVVEQAEGVECDFSPLLSGTPPQVYNFKRLVFTNCNYNLTKLLSLFSV
MK052676.1      YSVSSFEAKPSGSVVEQAEGVECDFSPLLSGTPPQVYNFKRLVFTNCNYNLTKLLSLFSV
MG546331.1      YSVSSFEAKPSGSVVEQAEGVECDFSPLLSGTPPQVYNFKRLVFTNCNYNLTKLLSLFSV
MN481964.1      YSVSSFEAKPSGSVVEQAEGVECDFSPLLSGTPPQVYNFKRLVFTNCNYNFTKLLSLFSV
MK280984.2      YSVSSFEAKPSGSVVEQAEGVECDFSPLLSGTPPQVYNFKRLVFTNCNYNLTKLLSLFSV
MG011351.2      YSVSSFEAKPSGSVVEQAEGVECDFSPLLSGTPPQVYNFKRLVFTNCNYNLTKLLSLFSV
MG757604.1      YSVSSFEAKPSGSVVEQAEGVECDFSPLLSGTPPQVYNFKRLVFTNCNYNLTKLLSLFSV
MH978886.1      YSVSSFEAKPSGSVVEQAEGVECDFSPLLSGTPPQVYNFKRLVFTNCNYNLTKLLSLFSV
MH978887.1      YSVSSFEAKPSGSVVEQAEGVECDFSPLLSGTPPQVYNFKRLVFTNCNYNLTKLLSLFSV
MN735679.1      YSVSSFEAKPSGSVVEQAEGVECDFSPLLSGTPPQVYNFKRLVFTNCNYNLTKLLSLFSV
KX034100.1      YSVSSFEAKPSGSVVEQAEGVECDFSPLLSGTPPQVYNFKRLVFTNCNYNLTKLLSLFSV
```

```
KT868868.1      YSVSSFEAKPSGSVVEQAEGVECDFSPLLSGTPPQVYNFKRLVFTNCNYNLTKLLSLFSV
KT182957.1      YSVSSFEAKPSGSVVEQAEGVECDFSPLLSGTPPQVYNFKRLVFTNCNYNLTKLLSLFSV
MK462247.1      YSVSSFEAKPSGSVVEQAEGVECDFSPLLSGTPPQVYNFKRLVFTNCNYNLTKLLSLFSV
MH822886.1      YSVSSFEAKPSGSVVEQAEGVECDFSPLLSGTPPQVYNFKRLVFTNCNYNLTKLLSLFSV
MK858157.1      YSVSSFEAKPSGSVVEQAEGVECDFSPLLSGTPPQVYNFKRLVFTNCNYNLTKLLSLFSV
MH454272.1      YSVSSFEAKPSGSVVEQAEGVECDFSPLLSGTPPQVYNFKRLVFTNCNYNLTKLLSLFSV
MN481979.1      YSVSSFEAKPSGSVVEQAEGVECDFSPLLSGTPPQVYNFKRLVFTNCNYNLTKLLSLFSV
MN403102.1      YSVSSFEAKPSGSVVEQAEGVECDFSPLLSGTPPQVYNFKRLVFTNCNYNLTKLLSLFSV
MG757598.1      YSVSSFEAKPSGSVVEQAEGVECDFSPLLSGTPPQVYNFKRLVFTNCNYNLTKLLSLFSV
MH029552.1      YSVSSFEAKPSGSVVEQAEGVECDFSPLLSGTPPQVYNFKRLVFTNCNYNLTKLLSLFSV
MH371127.1      YSVSSFEAKPSGSVVEQAEGVECDFSPLLSGTPPQVYNFKRLVFTNCNYNLTKLLSLFSV
KU233362.1      YSVSSFEAKPSGSVVEQAEGVECDFSPLLSGTPPQVYNFKRLVFTNCNYNLTKLLSLFSV
MN723544.1      YSVSSFEAKPSGSVVEQAEGVECDFSPLLSGTPPQVYNFKRLVFTNCNYNLTKLLSLFSV
MN365232.1      YSVSSFEAKPSGSVVEQAEGVECDFSPLLSGTPPQVYNFKRLVFTNCNYNLTKLLSLFSV
MN120513.1      YSVSSFEAKPSGSVVEQAEGVECDFSPLLSGTPPQVYNFKRLVFTNCNYNLTKLLSLFSV
KY673148.1      YSVSSFEAKPSGSVVEQAEGVECDFSPLLSGTPPQVYNFKRLVFTNCNYNLTKLLSLFSV
KY581684.1      YSVSSFEAKPSGSVVEQAEGFECDFSPLLSGTPPQVYNFKRLVFTNCNYNLTKLLSLFSV
JX869059        YSVSSFEAKPSGSVVEQAEGVECDFSPLLSGTPPQVYNFKRLVFTNCNYNLTKLLSLFSV
MK967708.1      YSVSSFEAKPSGSVVEQAEGVECDFSPLLSGTPPQVYNFKRLVFTNCNYNLTKLLSLFSV
MK357908.1      YSVSSFEAKPSGSVVEQAEGVECDFSPLLFGTPPQVYNFKRLVFTNCNYNLTKLLSLFSV
                ********************.******* ********************:*********

KX034094.1      NDFTCSQISPAAIASNCYSSLILDYFSYPLSMKSDLSVSSAGPISQFNYKQSFSNPTCLI
KX034095.1      NDFTCSQISPAAIASNCYSSLILDYFSYPLSMKSDLSVSSAGPISQFNYKQSFSNPTCLI
MN723542.1      NDFTCSQISPAAIASNCYSSLILDYFSYPLSMKSDLSVSSAGPISQFNYKQSFSNPTCLI
MK462243.1      NDFTCSQISPAAIASNCYSSLILDYFSYPLSMKSDLSVSSAGPISQFNYKQSFSNPTCLI
MK052676.1      NDFTCSQISPAAIASNCYSSLILDYFSYPLSMKSDLSVSSAGPISQFNYKQSFSNPTCLI
MG546331.1      NDFTCSQISPAAIASNCYSSLILDYFSYPLSMKSDLSVSSAGPISQFNYKQSFSNPTCLI
MN481964.1      NDFTCSQISPAAIASNCYSSLILDYFSYPLSMKSDLSVSSAGPISQFNYKQSFSNPTCLI
MK280984.2      NDFTCSQISPAAIASNCYSSLILDYFSYPLSMKSDLSVSSAGPISQFNYKQSFSNPTCLI
MG011351.2      NDFTCSQISPAAIASNCYSSLILDYFSYPLSMKSDLSVSSAGPISQFNYKQSFSNPTCLI
MG757604.1      NDFTCSQISPAAIASNCYSSLILDYFSYPLSMKSDLSVSSAGPISQFNYKQSFSNPTCLI
MH978886.1      NDFTCSQISPAAIASNCYSSLILDYFSYPLSMKSDLSVSSAGPISQFNYKQSFSNPTCLI
MH978887.1      NDFTCSQISPAAIASNCYSSLILDYFSYPLSMKSDLSVSSAGPISQFNYKQSFSNPTCLI
MN735679.1      NDFTCSQISPAAIASNCYSSLILDYFSYPLSMKSDLSVSSAGPISQFNYKQSFSNPTCLI
KX034100.1      NDFTCSQISPAAIASNCYSSLILDYFSYPLSMKSDLSVSSAGPISQFNYKQSFSNPTCLI
KT868868.1      NDFTCSQISPAAIASNCYSSLILDYFSYPLSMKSDLSVSSAGPISQFNYKQSFSNPTCLI
KT182957.1      NDFTCSQISPAAIASNCYSSLILDYFSYPLSMKSDLSVSSAGPISQFNYKQSFSNPTCLI
MK462247.1      NDFICSQISPAAIASNCYSSLILDYFSYPLSMKSDLSVSSAGPISQFNYKQSFSNPTCLI
MH822886.1      NDFICSQISPAAIASNCYSSLILDYFSYPLSMKSDLSVSSAGPISQFNYKQSFSNPTCLI
MK858157.1      NDFTCSQISPAAIASNCYSSLILDYFSYPLSMKSDLSVSSAGPISQFNYKQSFSNPTCLI
MH454272.1      NDFTCSQISPAAIASNCYSSLILDYFSYPLSMKSDLSVSSAGPISQFNYKQSFSNPTCLI
MN481979.1      NDFTCSQISPAAIASNCYSSLILDYFSYPLSMKSDLSVSSAGPISQFNYKQSFSNPTCLI
MN403102.1      NDFTCSQISPAAIASNCYSSLILDYFSYPLSMKSDLSVSSAGPISQFNYKQSFSNPTCLI
MG757598.1      NDFTCSQISPAAIASNCYSSLILDYFSYPLSMKSDLSVSSAGPISQFNYKQSFSNPTCLI
MH029552.1      NDFTCSQISPAAIASNCYSSLILDYFSYPLSMKSDLSVSSAGPISQFNYKQSFSNPTCLI
MH371127.1      NDFTCSQISPAAIASNCYSSLILDYFSYPLSMKSDLSVSSAGPISQFNYKQSFSNPTCLI
KU233362.1      NDFTCSQISPAAIASNCYSSLILDYFSYPLSMKSDLSVSSAGPISQFNYKQSFSNPTCLI
MN723544.1      NDFTCSQISPAAIASNCYSSLILDYFSYPLSMKSDLSVSSAGPISQFNYKQSFSNPTCLI
MN365232.1      NDFTCSQISPAAIASNCYSSLILDYFSYPLSMKSDLSVSSAGPISQFNYKQSFSNPTCLI
MN120513.1      NDFTCSQISPAAIASNCYSSLILDYFSYPLSMKSDLSVTSAGPISQFNYKQSFSNPTCLI
KY673148.1      NDFTCSQISPAAIASNCYSSLILDYFSYPLSMKSDLSVSSAGPISQFNYKQSFSNPTCLI
KY581684.1      NDFTCSQISPAAIASNCYSSLILDYFSYPLSMKSDLSVSSAGPISQFNYKQSFSNPTCLI
JX869059        NDFTCSQISPAAIASNCYSSLILDYFSYPLSMKSDLSVSSAGPISQFNYKQSFSNPTCLI
MK967708.1      NDFTCSQISPTAIASNCYSSLILDYFSYPLSMKSDLSVSSAGPISQFNYKQSFSNPTCLI
MK357908.1      NDFTCSQISPAAIASNCYSSLILDYFSYPLSMKSDLSVSSAGPISQFNYKQSFSNPTCLI
```

```
                  *** ******:************************:**********************

KX034094.1        LATVPHNLTTITKPLKYSYINKCSRLLSDGRTEVPQLVNANQYSPCVSIVPSTVWEDGDY
KX034095.1        LATVPHNLTTITKPLKYSYINKCSRLLSDGRTEVPQLVNANQYSPCVSIVPSTVWEDGDY
MN723542.1        LATVPHNLTTITKPLKYSYINKCSRLLSDDRTEVPQLVNANQYSPCVSIVPSTVWEDGDY
MK462243.1        LATVPHNLTTITKPLKYSYINKCSRLLSDDRTEVPQLVNANQYSPCVSIVPSTVWEDGDY
MK052676.1        LATVPHNLTTITKPLKYSYINKCSRLLSDDRTEVPQLVNANQYSPCVSIVPSTVWEDGDY
MG546331.1        LATVPHNLTTITKPLKYSYINKCSRLLSDDRTEVPQLVNANQYSPCVSIVPSTVWEDGDY
MN481964.1        LATVPHNLTTITKPLKYSYINKCSRLLSDDRTEVPQLVNANQYSPCVSIVPSTVWEDGDY
MK280984.2        LATVPHNLTTITKPLKYSYINKCSRLLSDDRTEVPQLVNANQYSPCVSIVPSTVWEDGDY
MG011351.2        LATVPHNLTTITKPLKYSYINKCSRLLSDDRTEVPQLVNANQYSPCVSIVPSTVWEDGDY
MG757604.1        LATVPHNLTTITKPLKYSYINKCSRLLSDDRTEVPQLVNANQYSPCVSIVPSTVWEDGDY
MH978886.1        LATVPHNLTTITKPLKYSYINKCSRLLSDDRTEVPQLVNANQYSPCVSIVPSTVWEDGDY
MH978887.1        LATVPHNLTTITKPLKYSYINKCSRLLSDDRTEVPQLVNANQYSPCVSIVPSTVWEDGDY
MN735679.1        LATVPHNLTTITKPLKYSYINKCSRLLSDDRTEVPQLVNANQYSPCVSIVPSTVWEDGDY
KX034100.1        LATVPHNLTTITKPLKYSYINKCSRLLSDDRTEVPQLVNANQYSPCVSTVPSTVWEDGDY
KT868868.1        LATVPHNLTTITKPLKYSYINKCSRLLSDDRTEVPQLVNANQYSPCVSTVPSTVWEDGDY
KT182957.1        LATVPHNLTTITKPLKYSYINKCSRLLSDDRTEVPQLVNANQYSPCVSTVPSTVWEDGDY
MK462247.1        LATVPHNLTTITKPLKYSYINKCSRLLSDDRTEVPQLVNANQYSPCVSIVPSTVWEDGDY
MH822886.1        LATVPHNLTTITKPLKYSYINKCSRLLSDDRTEVPQLVNANQYSPCVSIVPSTVWEDGDY
MK858157.1        LATVPHNLTTITKPLKYSYINKCSRLLSDDRTEVPQLVNANQYSPCVSIVPSTVWEDGDY
MH454272.1        LATVPHNLTTITKPLKYSYINKCSRLLSDDRTEVPQLVNANQYSPCVSIVPSTVWEDGDY
MN481979.1        LATVPHNLTTITKPLKYSYINKCSRLLSDDRTEVPQLVNANQYSPCVSIVPSTVWEDGDY
MN403102.1        LATVPHNLTTITKPLKYSYINKCSRLLSDDRTEVPQLVNANQYSPCVSIVPSTVWEDGDY
MG757598.1        LATVPHNLTTITKPLKYSYINKCSRLLSDDRTEVPQLVNANQYSPCVSIVPSTVWEDGDY
MH029552.1        LATVPHNLTTITKPLKYSYINKCSRLLSDDRTEVPQLVNANQYSPCVSIVPSTVWEDGDY
MH371127.1        LATVPHNLTTITKPLKYSYINKCSRLLSDDRTEVPQLVNANQYSPCVSIVPSTVWEDGDY
KU233362.1        LATVPHNLTTITKPLKYSYINKCSRLLSDDRTEVPQLVNANQYSPCVSIVPSTVWEDGDY
MN723544.1        LATVPHNLTTITKPLKYSYINKCSRLLSDDRTEVPQLVNANQYSPCVSIVPSTVWEDGDY
MN365232.1        LATVPHNLTTITKPLKYSYINKCSRLLSDDRTEVPQLVNANQYSPCVSIAPSTVWEDGDY
MN120513.1        LATVPHNLTTITKPLKYSYINKCSRLLSDDRTEVPQLVNANQYSPCVSIVPSTVWEDGDY
KY673148.1        LATVPHNLTTITKPLKYSYINKCSRLLSDDRTEVPQLVNANQYSPCVSIVPSTVWEDGDY
KY581684.1        LATVPHNLTTITKPLKYSYINKCSRLLSDDRTEVPQLVNANQYSPCVSIVPSTVWEDGDY
JX869059          LATVPHNLTTITKPLKYSYINKCSRLLSDDRTEVPQLVNANQYSPCVSIVPSTVWEDGDY
MK967708.1        LATVPHNLTTITKPLKYSYINKCSRLLSDDRTEVPQLVNANQYSPCVSIVPSTVWEDGDY
MK357908.1        LATVPHNLTTITKPLKYSYINKCSRLLSDDRTEVPQLVNANQYSPCVPIVPSTVWEDGDY
                  **************************.****************. .**********

KX034094.1        YRKQLSPLEGGGWLVASGSTVAMTEQLQMGFGITVQYGTDTNSVCPKLEFANDTKIASQL
KX034095.1        YRKQLSPLEGGGWLVASGSTVAMTEQLQMGFGITVQYGTDTNSVCPKLEFANDTKIASQL
MN723542.1        YRKQLSPLEGGGWLVASGSTVAMTEQLQMGFGITVQYGTDTNSVCPKLEFANDTKIASQL
MK462243.1        YRKQLSPLEGGGWLVASGSTVAMTEQLQMGFGITVQYGTDTNSVCPKLEFANDTKIASQL
MK052676.1        YRKQLSPLEGGGWLVASGSTVAMTEQLQMGFGITVQYGTDTNSVCPKLEFANDTKIASQL
MG546331.1        YRKQLSPLEGGGWLVASGSTVAMTEQLQMGFGITVQYGTDTNSVCPKLEFANDTKIASQL
MN481964.1        YRKQLSPLEGGGWLVASGSTVAMTEQLQMGFGITVQYGTDTNSVCPKLEFANDTKIASQL
MK280984.2        YRKQLSPLEGGGWLVASGSTVAMTEQLQMGFGITVQYGTDTNSVCPKLEFANDTKIASQL
MG011351.2        YRKQLSPLEGGGWLVASGSTVAMTEQLQMGFGITVQYGTDTNSVCPKLEFANDTKIASQL
MG757604.1        YRKQLSPLEGGGWLVASGSTVAMTEQLQMGFGITVQYGTDTNSVCPKLEFANDTKIASQL
MH978886.1        YRKQLSPLEGGGWLVASGSTVAMTEQLQMGFGITVQYGTDTNSVCPKLEFANDTKIASQL
MH978887.1        YRKQLSPLEGGGWLVASGSTVAMTEQLQMGFGITVQYGTDTNSVCPKLEFANDTKIASQL
MN735679.1        YRKQLSPLEGGGWLVASGSTVAMTEQLQMGFGITVQYGTDTNSVCPKLEFANDTKIASQL
KX034100.1        YRKQLSPLEGGGWLVASGSTVAMTEQLQMGFGITVQYGTDTNSVCPKLEFANDTKIASQL
KT868868.1        YRKQLSPLEGGGWLVASGSTVAMTEQLQMGFGITVQYGTDTNSVCPKLEFANDTKIASQL
KT182957.1        YRKQLSPLEGGGWLVASGSTVAMTEQLQMGFGITVQYGTDTNSVCPKLEFANDTKIASQL
MK462247.1        YRKQLSPLEGGGWLVASGSTVAMTEQLQMGFGITVQYGTDTNSVCPKLEFANDTKIASQL
MH822886.1        YRKQLSPLEGGGWLVASGSTVAMTEQLQMGFGITVQYGTDTNSVCPKLEFANDTKIASQL
```

```
MK858157.1      YRKQLSPLEGGGWLVASGSTVAMTEQLQMGFGITVQYGTDTNSVCPKLEFANDTKIASQL
MH454272.1      YRKQLSPLEGGGRLVASGSTVAMTEQLQMGFGITVQYGTDTNSVCPKLEFANDTKIASQL
MN481979.1      YRKQLSPLEGGGWLVASGSTVAMTEQLQMGFGITVQYGTDTNSVCPKLEFANDTKIASQL
MN403102.1      YRKQLSPLEGGGWLVASGSTVAMTEQLQMGFGITVQYGTDTNSVCPKLEFANDTKIASQL
MG757598.1      YRKQLSPLEGGGWLVASGSTVAMTEQLQMGFGITVQYGTDTNSVCPKLEFANDTKIASQL
MH029552.1      YRKQLSPLEGGGWLVASGSTVAMTEQLQMGFGITVQYGTDTNSVCPKLEFANDTKIASQL
MH371127.1      YRKQLSPLEGGGWLVASGSTVAMTEQLQMGFGITVQYGTDTNSVCPKLEFANDTKIASQL
KU233362.1      YRKQLSPLEGGGWLVASGSTVAMTEQLQMGFGITVQYGTDTNSVCPKLEFANDTKIASQL
MN723544.1      YRKQLSPLEGGGWLVASGSTVAMTEQLQMGFGITVQYGTDTNSVCPKLEFANDTKIASQL
MN365232.1      YRKQLSPLEGGGWLVASGSTVAMTEQLQMGFGITVQYGTDTNSVCPKLEFANDTKIASQL
MN120513.1      YRKQLSPLEGGGWLVASGSTVAMTEQLQMGFGITVQYGTDTNSVCPKLEFANDTKIASQL
KY673148.1      YRKQLSPLEGGGWLVASGSTVAMTEQLQMGFGITVQYGTDTNSVCPKLEFANDTKIASQL
KY581684.1      YRKQLSPLEGGGWLVASGSTVAMTEQLQMGFGITVQYGTDTNSVCPKLEFANDTKIASQL
JX869059        YRKQLSPLEGGGWLVASGSTVAMTEQLQMGFGITVQYGTDTNSVCPKLEFANDTKIASQL
MK967708.1      YRKQLSPLEGGGWLVASGSTVAMTEQLQMGFGITVQYGTDTNSVCPKLEFANDTKIASQL
MK357908.1      YRKQLSPLEGGGWLVASGSTVAMTEQLQMGFGITVQYGTDTNSVCPKLEFANDTKIVSQL
                *********** ****************************************.***

KX034094.1      GNCVEYSLYGVSGRGVFQNCTAVGVRQQRFVYDAYQNLVGYYSDDGNYYCLRACVSVPVS
KX034095.1      GNCVEYSLYGVSGRGVFQNCTAVGVRQQRFVYDAYQNLVGYYSDDGNYYCLRACVSVPVS
MN723542.1      GNCVEYSLYGVSGRGVFQNCTAVGVRQQRFVYDAYQNLVGYYSDDGNYYCLRACVSVPVS
MK462243.1      GNCVEYSLYGVSGRGVFQNCTAVGVRQQRFVYDAYQNLVGYYSDDGNYYCLRACVSVPVS
MK052676.1      GNCVEYSLYGVSGRGVFQNCTAVGVRQQRFVYDAYQNLVGYYSDDGNYYCLRACVSVPVS
MG546331.1      GNCVEYSLYGVSGRGVFQNCTAVGVRQRRFVYDAYQNLVGYYSDDGNYYCLRACVSVPVS
MN481964.1      GNCVEYSLYGVSGRGVFQNCTAVGVRQQRFVYDAYQNLVGYYSDDGNYYCLRACVSVPVS
MK280984.2      GNCVEYSLYGVSGRGVFQNCTAVGVRQQRFVYDAYQNLVGYYSDDGNYYCLRACVSVPVS
MG011351.2      GNCVEYSLYGVSGRGVFQNCTAVGVRQQRFVYDAYQNLVGYYSDDGNYYCLRACVSVPVS
MG757604.1      GNCVEYSLYGVSGRGVFQNCTAVGVRQQRFVYDAYQNLVGYYSDDGNYYCLRACVSVPVS
MH978886.1      GNCVEYSLYGVSGRGVFQNCTAVGVRQQRFVYDAYQNLVGYYSDDGNYYCLRACVSVPVS
MH978887.1      GNCVEYSLYGVSGRGVFQNCTAVGVRQQRFVYDAYQNLVGYYSDDGNYYCLRACVSVPVS
MN735679.1      GNCVEYSLYGVSGRGVFQNCTAVGVRQQRFVYDAYQNLVGYYSDDGNYYCLRACVSVPVS
KX034100.1      GNCVEYSLYGVSGRGVFQNCTAVGVRQQRFVYDAYQNLVGYYSDDGNYYCLRACVSVPVS
KT868868.1      GNCVEYSLYGVSGRGVFQNCTAVGVRQQRFVYDAYQNLVGYYSDDGNYYCLRACVSVPVS
KT182957.1      GNCVEYSLYGVSGRGVFQNCTAVGVRQQHFVYDAYQNLVGYYSDDGNYYCLRACVSVPVS
MK462247.1      GNCVEYSLYGVSGRGVFQNCTAVGVRQQRFVYDAYQNLVGYYSDDGNYYCLRACVSVPVS
MH822886.1      GNCVEYSLYGVSGRGVFQNCTAVGVRQQRFVYDAYQNLVGYYSDDGNYYCLRACVSVPVS
MK858157.1      GNCVEYSLYGVSGRGVFQNCTAVGVRQQRFVYDAYQNLVGYYSDDGNYYCLRACVSVPVS
MH454272.1      GNCVEYSLYGVSGRGVFQNCTAVGVRQQRFVYDAYQNLVGYYSDDGNYYCLRACVSVPVS
MN481979.1      GNCVEYSLYGVSGRGVFQNCTAVGVRQQRFVYDAYQNLVGYYSDDGNYYCLRACVSVPVS
MN403102.1      GNCVEYSLYGVSGRGVFQNCTAVGVRQQRFVYDAYQNLLGYYSDDGNYYCLRACVSVPVS
MG757598.1      GNCVEYSLYGVSGRGVFQNCTAVGVRQQRFVYDAYQNLVGYYSDDGNYYCLRACVSVPVS
MH029552.1      GNCVEYSLYGVSGRGVFQNCTAVGVRQQRFVYDAYQNLVGYYSDDGNYYCLRACVSVPVS
MH371127.1      GNCVEYSLYGVSGRGVFQNCTAVGVRQQRFVYDAYQNLVGYYSDDGNYYCLRACVSVPVS
KU233362.1      GNCVEYSLYGVSGRGVFQNCTAVGVRQQRFVYDAYQNLVGYYSDDGNYYCLRACVSVPVS
MN723544.1      GNCVEYSLYGVSGRGVFQNCTAVGVRQQRFVYDAYQNLVGYYSDDGNYYCLRACVSVPVS
MN365232.1      GNCVEYSLYGVSGRGVFQNCTAVGVRQQRFVYDAYQNLVGYYSDDGNYYCLRACVSVPVS
MN120513.1      GNCVEYSLYGVSGRGVFQNCTAVGVRQQRFVYDAYQNLVGYYSDDGNYYCLRACVSVPVS
KY673148.1      GNCVEYSLYGVLGRGVFQNCTAVGVRQQRFVYDAYQNLVGYYSDDGNYYCLRACVSVPVS
KY581684.1      GNCVEYSLYGVSGRGVFQNCTAVGVRQQRFVYDAYQNLVGYYSDDGNYYCLRACVSVPVS
JX869059        GNCVEYSLYGVSGRGVFQNCTAVGVRQQRFVYDAYQNLVGYYSDDGNYYCLRACVSVPVS
MK967708.1      GNCVEYSLYGVSGRGVFQNCTAVGVRQQRFVYDAYQNLVGYYSDDGNYYCLRACVSVPVS
MK357908.1      GNCVEYSLYGVSGRGVFQNCTAVGVPQQRFVYDAYQNLVGYYSDDGNYYCLRACVSVPVS
                *********** ************ *::*********:********************

KX034094.1      VIYDKETKTHATLFGSVACEHISSTMSQYSRSTRSMLKRRDSTYGPLQTPVGCVLGLVNS
KX034095.1      VIYDKETKTHATLFGSVACEHISSTMSQYSRSTRSMLKRRDSTYGPLQTPVGCVLGLVNS
```

```
MN723542.1      VIYDKETKTHATLFGSVACEHISSTMSQYSRSTRSMLKRRDSTYGPLQTPVGCVLGLVNS
MK462243.1      VIYDKETKTHATLFGSVACEHISSTMSQYSRSTRSMLKRRDSTYGPLQTPVGCVLGLVNS
MK052676.1      VIYDKETKTHATLFGSVACEHISSTMSQYSRSTRSMLKRRDSTYGPLQTPVGCVLGLVNS
MG546331.1      VIYDKETKTHATLFGSVACEHISSTMSQYSRSTRSMLKRRDSTYGPLQTPVGCVLGLVNS
MN481964.1      VIYDKETKTHATLFGSVACEHISSTMSQYSRSTRSMLKRRDSTYGPLQTPVGCVLGLVNS
MK280984.2      VIYDKETKTHATLFGSVACEHISSTMSQYSRSTRSMLKRRDSTYGPLQTPVGCVLGLVNS
MG011351.2      VIYDKETKTHATLFGSVACEHISSTMSQYSRSTRSMLKRRDSTYGPLQTPVGCVLGLVNS
MG757604.1      VIYDKETKTHATLFGSVACEHISSTMSQYSRSTRSMLKRRDSTYGPLQTPVGCVLGLVNS
MH978886.1      VIYDKETKTHATLFGSVACEHISSTMSQYSRSTRSMLKRRDSTYGPLQTPVGCVLGLVNS
MH978887.1      VIYDKETKTHATLFGSVACEHISSTMSQYSRSTRSMLKRRDSTYGPLQTPVGCVLGLVNS
MN735679.1      VIYDKETKTHATLFGSVACEHISSTMSQYSRSTRSMLKRRDSTYGPLQTPVGCVLGLVNS
KX034100.1      VIYDKETKTHATLFGSVACEHISSTMSQYSRSTRSMLKRRDSTYGPLQTPVGCVLGLVNS
KT868868.1      VIYDKETKTHATLFGSVACEHISSTMSQYSRSTRSMLKRRDSTYGPLQTPVGCVLGLVNS
KT182957.1      VIYDKETKTHATLFGSVACEHISSTMSQYSRSTRSMLKRRDSTYGPLQTPVGCVLGLVNS
MK462247.1      VIYDKETKTHATLFGSVACEHISSTMSQYSRSTRSMLKRRDSTYGPLQTPVGCVLGLVNS
MH822886.1      VIYDKETKTHATLFGSVACEHISSTMSQYSRSTRSMLKRRDSTYGPLQTPVGCVLGLVNS
MK858157.1      VIYDKETKTHATLFGSVACEHISSTMSQYSRSTRSMLKRLDSTYGPLQTPVGCVLGLVNS
MH454272.1      VIYDKETKTHATLFGSVACEHISSTMSQYSRSTRSMLKRLDSTYGPLQTPVGCVLGLVNS
MN481979.1      VIYDKETKTHATLFGSVACEHISSTMSQYSRSTRSMLKRRDSTYGPLQTPVGCVLGLVNS
MN403102.1      VIYDKETKTHATLFGSVACEHISSTMSQYSRSTRSMLKRRDSTYGPLQTPVGCVLGLVNS
MG757598.1      VIYDKETKTHATLFGSVACEHISSTMSQYSRSTRSMLKRRDSTYGPLQTPVGCVLGLVNS
MH029552.1      VIYDKETKTHATLFGSVACEHISSTMSQYSRSTRSMLKRRDSTYGPLQTPVGCVLGLVNS
MH371127.1      VIYDKETKTHATLFGSVACEHISSTMSQYSRSTRSMLKRRDSTYGPLQTPVGCVLGLVNS
KU233362.1      VIYDKETKTHATLFGSVACEHISSTMSQYSRSTRSMLKRRDSTYGPLQTPVGCVLGLVNS
MN723544.1      VIYDKETKTHATLFGSVACEHISSTMSQYSRSTRSMLKRRDSTYGPLQTPVGCVLGLVNS
MN365232.1      VIYDKETKTHATLFGSVACEHISSTMSQYSRSTRSMLKRRDSTYGPLQTPVGCVLGLVNS
MN120513.1      VIYDKETKTHATLFGSVACEHISSTMSQYSRSTRSMLKRRDSTYGPLQTPVGCVLGLVNS
KY673148.1      VIYDKETKTHATLFGSVACEHISSTMSQYSRSTRSMLKRRDSTYGPLQTPVGCVLGLVNS
KY581684.1      VIYDKETKTHATLFGSVACEHISSTMSQYSRSTRSMLKRRDSTYGPLQTPVGCVLGLVNS
JX869059        VIYDKETKTHATLFGSVACEHISSTMSQYSRSTRSMLKRRDSTYGPLQTPVGCVLGLVNS
MK967708.1      VIYDKETKTHATLFGSLACEHISSTMSQYSRSTRSMLKRRDSTYGPLQTPVGCVLGLVNS
MK357908.1      VIYDKETKTHATLFGSVACEHISSTMSQYSRSTRSMLKRRDSTYGPLQTPVGCVLGLVNS
                ****************:********************* ******************

KX034094.1      SLFVEDCKLPLGQSLCALPDTPSTLTPRSVRSVPGEMRLASIAFNHPIQVDQLNSSYFKL
KX034095.1      SLFVEDCKLPLGQSLCALPDTPSTLTPRSVRSVPGEMRLASIAFNHPIQVDQLNSSYFKL
MN723542.1      SLFVEDCKLPLGQSLCALPDTPSTLTPRSVRSVPGEMRLASIAFNHPIQVDQLNSSYFKL
MK462243.1      SLFVEDCKLPLGQSLCALPDTPSTLTPRSVRSVPGEMRLASIAFNHPIQVDQLNSSYFKL
MK052676.1      SLFVEDCKLPLGQSLCALPDTPSTLTPRSVRSVPGEMRLASIAFNHPIQVDQLNSSYFKL
MG546331.1      SLFVEDCKLPLGQSLCALPDTPSTLTPRSVRSVPGEMRLASIAFNHPIQVDQLNSSYFKL
MN481964.1      SLFVEDCKLPLGQSLCALPDTPSTLTPRSVRSVPGEMRLASIAFNHPIQVDQLNSSYFKL
MK280984.2      SLFVEDCKLPLGQSLCALPDTPSTLTPRSVRSVPGEMRLASIAFNHPIQVDQLNSSYFKL
MG011351.2      SLFVEDCKLPLGQSLCALPDTPSTLTPRSVRSVPGEMRLASIAFNHPIQVDQLNSSYFKL
MG757604.1      SLFVEDCKLPLGQSLCALPDTPSTLTPRSVRSVPGEMRLASIAFNHPIQVDQLNSSYFKL
MH978886.1      SLFVEDCKLPLGQSLCALPDTPSTLTPRSVRSVPGEMRLASIAFNHPIQVDQLNSSYFKL
MH978887.1      SLFVEDCKLPLGQSLCALPDTPSTLTPRSVRSVPGEMRLASIAFNHPIQVDQLNSSYFKL
MN735679.1      SLFVEDCKLPLGQSLCALPDTPSTLTPRSVRSVPGEMRLASIAFNHPIQVDQLNSSYFKL
KX034100.1      SLFVEDCKLPLGQSLCALPDTPSTLTPRSVRSVPGEMRLASIAFNHPIQVDQLNSSYFKL
KT868868.1      SLFVEDCKLPLGQSLCALPDTPSTLTPRSVRSVPGEMRLASIAFNHPIQVDQLNSSYFKL
KT182957.1      SLFVEDCKLPLGQSLCALPDTPSTLTPRSVRSVPGEMRLASIAFNHPIQVDQLNSSYFKL
MK462247.1      SLFVEDCKLPLGQSLCALPDTPSTLTPRSVRSVPGEMRLASIAFNHPIQVDQLNSSYFKL
MH822886.1      SLFVEDCKLPLGQSLCALPDTPSTLTPRSVRSVPGEMRLASIAFNHPIQVDQLNSSYFKL
MK858157.1      SLFVEDCKLPLGQSLCALPDTPSTLTPRSVRSVPGEMRLASIAFNHPIQVDQLNSSYFKL
MH454272.1      SLFVEDCKLPLGQSLCALPDTPSTLTPRSVRSVPGEMRLASIAFNHPIQVDQLNSSYFKL
MN481979.1      SLFVEDCKLPLGQSLCALPDTPSTLTPRSVRSVPGEMRLASIAFNHPIQVDQLNSSYFKL
MN403102.1      SLFVEDCKLPLGQSLCALPDTPSTLTPRSVRSVPGEMRLASIAFNHPIQVDQLNSSYFKL
```

```
MG757598.1      SLFVEDCKLPLGQSLCALPDTPSTLTPRSVRSVPGEMRLASIAFNHPIQVDQLNSSYFKL
MH029552.1      SLFVEDCKLPLGQSLCALPDTPSTLTPRSVRSVPGEMRLASIAFNHPIQVDQLNSSYFKL
MH371127.1      SLFVEDCKLPLGQSLCALPDTPSTLTPRSVRSVPGEMRLASIAFNHPIQVDQLNSSYFKL
KU233362.1      SLFVEDCKLPLGQSLCALPDTPSTLTPRSVRSVPGEMRLASIAFNHPIQVDQLNSSYFKL
MN723544.1      SLFVEDCKLPLGQSLCALPDTPSTLTPRSVRSVPGEMRLASIAFNHPIQVDQLNSSYFKL
MN365232.1      SLFVEDCKLPLGQSLCALPDTPSTLTPRSVRSVPGEMRLASIAFNHPIQVDQLNSSYFKL
MN120513.1      SLFVEDCKLPLGQSLCALPDTPSTLTPRSVRSVPGEMRLASIAFNHPIQVDQLNSSYFKL
KY673148.1      SLFVEDCKLPLGQSLCALPDTPSTLTPRSVRSVPGEMRLASIAFNHPIQVDQLNSSYFKL
KY581684.1      SLFVEDCKLPLGQSLCALPDTPSTLTPRSVRSVPGEMRLASIAFNHPIQVDQLNSSYFKL
JX869059        SLFVEDCKLPLGQSLCALPDTPSTLTPRSVRSVPGEMRLASIAFNHPIQVDQLNSSYFKL
MK967708.1      SLFVEDCKLPLGQSLCALPDTPSTLTPRSVRSVPGQMRLASIAFNHPIQVDQLNSSYFKL
MK357908.1      SLFVEDCKLPLGQSLCALPDTPSTLTPRSVRSVPGEMRLASIAFNHPIQVDQLNSSYFKL
                ********************************:***********************

KX034094.1      SIPTNFSFGVTQEYIQTTIQKVTVDCKQYVCNGFQKCEQLLREYGQFCSKINQALHGANL
KX034095.1      SIPTNFSFGVTQEYIQTTIQKVTVDCKQYVCNGFQKCEQLLREYGQFCSKINQALHGANL
MN723542.1      SIPTNFSFGVTQEYIQTTIQKVTVDCKQYVCNGFQKCEQLLREYGQFCSKINQALHGANL
MK462243.1      SIPTNFSFGVTQEYIQTTIQKVTVDCKQYVCNGFQKCEQLLREYGQFCSKINQALHGANL
MK052676.1      SIPTNFSFGVTQEYIQTTIQKVTVDCKQYVCNGFQKCEQLLREYGQFCSKINRALHGANL
MG546331.1      SIPTNFSFGVTQEYIQTTIQKVTVDCKQYVCNGFQKCEQLLREYGQFCSKINQALHGANL
MN481964.1      SIPTNFSFGVTQEYIQTTIQKVTVDCKQYVCNGFQKCEQLLREYGQFCSKINQALHGANL
MK280984.2      SIPTNFSFGVTQEYIQTTIQKVTVDCKQYVCNGFQKCEQLLREYGQFCSKINQALHGANL
MG011351.2      SIPTNFSFGVTQEYIQTTIQKVTVDCKQYVCNGFQKCEQLLREYGQFCSKINQALHGANL
MG757604.1      SIPTNFSFGVTQEYIQTTIQKVTVDCKQYVCNGFQKCEQLLREYGQFCSKINQALHGANL
MH978886.1      SIPTNFSFGVTQEYIQTTIQKVTVDCKQYVCNGFQKCEQLLREYGQFCSKINQALHGANL
MH978887.1      SIPTNFSFGVTQEYIQTTIQKVTVDCKQYVCNGFQKCEQLLREYGQFCSKINQALHGANL
MN735679.1      SIPTNFSFGVTQEYIQTTIQKVTVDCKQYVCNGFQKCEQLLREYGQFCSKINQALHGANL
KX034100.1      SIPTNFSFGVTQEYIQTTIQKVTVDCKQYVCNGFQKCEQLLREYGQFCSKINQALHGANL
KT868868.1      SIPTNFSFGVTQEYIQTTIQKVTVDCKQYVCNGFQKCEQLLREYGQFCSKINQALHGANL
KT182957.1      SIPTNFSFGVTQEYIQTTIQKVTVDCKQYVCNGFQKCEQLLREYGQFCSKINQALHGANL
MK462247.1      SIPTNFSFGVTQEYIQTTIQKVTVDCKQYVCNGFQKCEQLLREYGQFCSKINQALHGANL
MH822886.1      SIPTNFSFGVTQEYIQTTIQKVTVDCKQYVCNGFQKCEQLLREYGQFCSKINQALHGANL
MK858157.1      SIPTNFSFGVTQEYIQTTIQKVTVDCKQYVCNGFQKCEQLLREYGQFCSKINQALHGANL
MH454272.1      SIPTNFSFGVTQEYIQTTIQKVTVDCKQYVCNGFQKCEQLLREYGQFCSKINQALHGANL
MN481979.1      SIPTNFSFGVTQEYIQTTIQKVTVDCKQYVCNGFQKCEQLLREYGQFCSKINQALHGANL
MN403102.1      SIPTNFSFGVTQEYIQTTIQKVTVDCKQYVCNGFQKCEQLLREYGQFCSKINQALHGANL
MG757598.1      SIPTNFSFGVTQEYIQTTIQKVTVDCKQYVCNGFQKCEQLLREYGQFCSKINQALHGANL
MH029552.1      SIPTNFSFGVTQEYIQTTIQKVTVDCKQYVCNGFQKCEQLLREYGQFCSKINQALHGANL
MH371127.1      SIPTNFSFGVTQEYIQTTIQKVTVDCKQYVCNGFQKCEQLLREYGQFCSKINQALHGANL
KU233362.1      SIPTNFSFGVTQEYIQTTIQKVTVDCKQYVCNGFQKCEQLLREYGQFCSKINQALHGANL
MN723544.1      SIPTNFSFGVTQEYIQTTIQKVTVDCKQYVCNGFQKCEQLLREYGQFCSKINQALHGANL
MN365232.1      SIPTNFSFGVTQEYIQTTIQKVTVDCKQYVCNGFQKCEQLLREYGQFCSKINQALHGANL
MN120513.1      SIPTNFSFGVTQEYIQTTIQKVTVDCKQYVCNGFQKCEQLLREYGQFCSKINQALHGANL
KY673148.1      SIPTNFSFGVTQEYIQTTIQKVTVDCKQYVCNGFQKCEQLLREYGQFCSKINQALHGANL
KY581684.1      SIPTNFSFGVTQEYIQTTIQKVTVDCKQYVCNGFQKCEQLLREYGQFCSKINQALHGANL
JX869059        SIPTNFSFGVTQEYIQTTIQKVTVDCKQYVCNGFQKCEQLLREYGQFCSKINQALHGANL
MK967708.1      SIPTNFSFGVTQEYIQTTIQKVTVDCKQYVCNGFQKCEQLLREYGQFCSKINQALHGANL
MK357908.1      SIPTNFSFGVTQEYIQTTIQKVTVDCKQYVCNGFQKCEQLLLEYGQFCSKINQALHGANL
                ************************************ **********:*******

KX034094.1      RQDDSVRNLFASVKSSQSSPIIPGFGGDFNLTLLEPVSISTGSRSARSAIEDLLFDKVTI
KX034095.1      RQDDSVRNLFASVKSSQSSPIIPGFGGDFNLTLLEPVSISTGSRSARSAIEDLLFDKVTI
MN723542.1      RQDDSVRDLFASVKSSQSSPIIPGFGGDFNLTLLEPVSISTGSRSARSAIEDLLFDKVTI
MK462243.1      RQDDSVRDLFASVKSSQSSPIIPGFGGDFNLTLLEPVSISTGSRSARSAIEDLLFDKVTI
MK052676.1      RQDDSVRNLFASVKSSQSSPIIPGFGGDFNLTLLEPVSISTGSRSARSAIEDLLFDKVTI
MG546331.1      RQDDSVRNLFASVKSSQSSPIIPGFGGDFNLTLLEPVSISTGSRSARSAIEDLLFDKVTI
```

```
MN481964.1      RQDDSVRNLFASVKSSQSSPIIPGFGGDFNLTLLEPVSISTGSRSARSAIEDLLFDKVTI
MK280984.2      RQDDSVRNLFASVKSSQSSPIIPGFGGDFNLTLLEPVSISTGSRSARSAIEDLLFDKVTI
MG011351.2      RQDDSVRNLFASVKSSQSSPIIPGFGGDFNLTLLEPVSISTGSRSARSAIEDLLFDKVTI
MG757604.1      RQDDSVRNLFASVKSSQSSPIIPGFGGDFNLTLLEPVSISTGSRSARSAIEDLLFDKVTI
MH978886.1      RQDDSVRNLFASVKSSQSSPIIPGFGGDFNLTLLEPVSISTGSRSARSAIEDLLFDKVTI
MH978887.1      RQDDSVRNLFASVKSSQSSPIIPGFGGDFNLTLLEPVSISTGSRSARSAIEDLLFDKVTI
MN735679.1      RQDDSVRNLFASVKSSQSSPIIPGFGGDFNLTLLEPVSISTGSRSARSAIEDLLFDKVTI
KX034100.1      RQDDSVRNLFASVKSSQSSPIIPGFGGDFNLTLLEPVSISTGSRSARSAIEDLLFDKVTI
KT868868.1      RQDDSVRNLFASVKSSQSSPIIPGFGGDFNLTLLEPVSISTGSRSARSAIEDLLFDKVTI
KT182957.1      RQDDSVRNLFASVKSSQSSPIIPGFGGDFNLTLLEPVSISTGSRSARSAIEDLLFDKVTI
MK462247.1      RQDDSVRNLFASVKSSQSSPIIPGFGGDFNLTLLEPVSISTGSRSARSAIEDLLFDKVTI
MH822886.1      RQDDSVRNLFASVKSSQSSPIIPGFGGDFNLTLLEPVSISTGSRSARSAIEDLLFDKVTI
MK858157.1      RQDDSVRNLFASVKSSQSSPIIPGFGGDFNLTLLEPVSISTGSRSARSAIEDLLFDKVTI
MH454272.1      RQDDSVRNLFASVKSSQSSPIIPGFGGDFNLTLLEPVSISTGSRSARSAIEDLLFDKVTI
MN481979.1      RQDDSVRNLFASVKSSQSSPIIPGFGGDFNLTLLEPVSISTGSRSARSAIEDLLFDKVTI
MN403102.1      RQDDSVRNLFASVKSSQSSPIIPGFGGDFNLTLLEPVSISTGSRSARSAIEDLLFDKVTI
MG757598.1      RQDDSVRNLFASVKSSQSSPIIPGFGGDFNLTLLEPVSISTGSRSARSAIEDLLFDKVTI
MH029552.1      RQDDSVRNLFASVKSSQSSPIIPGFGGDFNLTLLEPVSISTGSRSARSAIEDLLFDKVTI
MH371127.1      RQDDSVRNLFASVKSSQSSPIIPGFGGDFNLTLLEPVSISTGSRSARSAIEDLLFDKVTI
KU233362.1      RQDDSVRNLFASVKSSQSSPIIPGFGGDFNLTLLEPVSISTGSRSARSAIEDLLFDKVTI
MN723544.1      RQDDSVRNLFASVKSSQSSPIIPGFGGDFNLTLLEPVSISTGSRSARSAIEDLLFDKVTI
MN365232.1      RQDDSVRNLFASVKSSQSSPIIPGFGGDFNLTLLEPVSISTGSRSARSAIEDLLFDKVTI
MN120513.1      RQDDSVRNLFASVKSSQSSPIIPGFGGDFNLTLLEPVSISTGSRSARSAIEDLLFDKVTI
KY673148.1      RQDDSVRNLFASVKSSQSSPIIPGFGGDFNLTLLEPVSISTGSRSARSAIEDLLFDKVTI
KY581684.1      RQDDSVRNLFASVKSSQSSPIIPGFGGDFNLTLLEPVSISTGSRSARSAIEDLLFDKVTI
JX869059        RQDDSVRNLFASVKSSQSSPIIPGFGGDFNLTLLEPVSISTGSRSARSAIEDLLFDKVTI
MK967708.1      RQDDSVRNLFASVKSYQSSPIIPGFGGDFNLTLLEPVSISTGSRSARSAIEDLLFDKVTI
MK357908.1      RQDDSVRNLFASVKSSQSSPIIPGFGGDFNLTLLEPVSISTGSRSARSAIEDLLFDKVTI
                *******:******* ****************************************

KX034094.1      ADPGYMQGYDDCMQQGPASARDLICAQYVAGYKVLPPLMDVNMEAAYTSSLLGSIAGVGW
KX034095.1      ADPGYMQGYDDCMQQGPASARDLICAQYVAGYKVLPPLMDVNMEAAYTSSLLGSIAGVGW
MN723542.1      ADPGYMQGYDDCMQQGPASARDLICAQYVAGYKVLPPLMDVNMEAAYTSSLLGSIAGVGW
MK462243.1      ADPGYMQGYDDCMQQGPASARDLICAQYVAGYKVLPPLMDVNMEAAYTSSLLGSIAGVGW
MK052676.1      ADPGYMQGYDDCMQQGPASARDLICAQYVAGYKVLPPLMDVNMEAAYTSSLLGSIAGVGW
MG546331.1      ADPGYMQGYDDCMQQGPASARDLICAQYVAGYKVLPPLMDVNMEAAYTSSLLGSIAGVGW
MN481964.1      ADPGYMQGYDDCMQQGPASARDLICAQYVAGYKVLPPLMDVNMEAAYTSSLLGSIAGVGW
MK280984.2      ADPGYMQGYDDCMQQGPASARDLICAQYVAGYKVLPPLMDVNMEAAYTSSLLGSIAGVGW
MG011351.2      ADPGYMQGYDDCMQQGPASARDLICAQYVAGYKVLPPLMDVNMEAAYTSSLLGSIAGVGW
MG757604.1      ADPGYMQGYDDCMQQGPASARDLICAQYVAGYKVLPPLMDVNMEAAYTSSLLGSIAGVGW
MH978886.1      ADPGYMQGYDDCMQQGPASARDLICAQYVAGYKVLPPLMDVNMEAAYTSSLLGSIAGVGW
MH978887.1      ADPGYMQGYDDCMQQGPASARDLICAQYVAGYKVLPPLMDVNMEAAYTSSLLGSIAGVGW
MN735679.1      ADPGYMQGYDDCMQQGPASARDLICAQYVAGYKVLPPLMDVNMEAAYTSSLLGSIAGVGW
KX034100.1      ADPGYMQGYDDCMQQGPASARDLICAQYVAGYKVLPPLMDVNMEAAYTSSLLGSIAGVGW
KT868868.1      ADPGYMQGYDDCMQQGPASARDLICAQYVAGYKVLPPLMDVNMEAAYTSSLLGSIAGVGW
KT182957.1      ADPGYMQGYDDCMQQGPASARDLICAQYVAGYKVLPPLMDVNMEAAYTSSLLGSIAGVGW
MK462247.1      ADPGYMQGYDDCMQQGPASARDLICAQYVAGYKVLPPLMDVNMEAAYTSSLLGSIAGVGW
MH822886.1      ADPGYMQGYDDCMQQGPASARDLICAQYVAGYKVLPPLMDVNMEAAYTSSLLGSIAGVGW
MK858157.1      ADPGYMQGYDDCMQQGPASARDLICAQYVAGYKVLPPLMDVNMEAAYTSSLLGSIAGVGW
MH454272.1      ADPGYMQGYDDCMQQGPASARDLICAQYVAGYKVLPPLMDVNMEAAYTSTLLGSIAGVGW
MN481979.1      ADPGYMQGYDDCMQQGPASARDLICAQYVAGYKVLPPLMDVNMEAAYTSSLLGSIAGVGW
MN403102.1      ADPGYMQGYDDCMQQGPASARDLICAQYVAGYKVLPPLMDVNMEAAYTSSLLGSIAGVGW
MG757598.1      ADPGYMQGYDDCMQQGPASARDLICAQYVAGYKVLPPLMDVNMEAAYTSSLLGSIAGVGW
MH029552.1      ADPGYMQGYDDCMQQGPASARDLICAQYVAGYKVLPPLMDVNMEAAYTSSLLGSIAGVGW
MH371127.1      ADPGYMQGYDDCMQQGPASARDLICAQYVAGYKVLPPLMDVNMEAAYTSSLLGSIAGVGW
KU233362.1      ADPGYMQGYDDCMQQGPASARDLICAQYVAGYKVLPPLMDVNMEAAYTSSLLGSIAGVGW
```

```
MN723544.1      ADPGYMQGYDDCMQQGPASARDLICAQYVAGYKVLPPLMDVNMEAAYTSSLLGSIAGVGW
MN365232.1      ADPGYMQGYDDCMKQGPASARDLICAQYVAGYKVLPPLMDVNMEAAYTSSLLGSIAGVGW
MN120513.1      ADPGYMQGYDDCMQQGPASARDLICAQYVAGYKVLPPLMDVNMEAAYTSSLLGSIAGVGW
KY673148.1      ADPGYMQGYDDCMQQGPASARDLICAQYVAGYKVLPPLMDVNMEAAYTSSLLGSIAGVGW
KY581684.1      ADPGYMQGYDDCMQQGPASARDLICAQYVAGYKVLPPLMDVNMEAAYTSSLLGSIAGVGW
JX869059        ADPGYMQGYDDCMQQGPASARDLICAQYVAGYKVLPPLMDVNMEAAYTSSLLGSIAGVGW
MK967708.1      ADPGYMQGYDDCMQQGPASARDLICAQYVAGYKVLPPLMDVNMEAAYTSSLLGSIAGVGW
MK357908.1      ADPGYMQGYDDCMQQGPASARDLICAQYVAGYKVLPPLMDVNMEAAYTSSLLGSIAGVGW
                ************:**********************************:**********

KX034094.1      TAGLSSFAAIPFAQSIFYRLNGVGITQQVLSENQKLIANKFNQALGAMQTGFTTTNEAFR
KX034095.1      TAGLSSFAAIPFAQSIFYRLNGVGITQQVLSENQKLIANKFNQALGAMQTGFTTTNEAFR
MN723542.1      TAGLSSFAAIPFAQSIFYRLNGVGITQQVLSENQKLIANKFNQALGAMQTGFTTTNEAFR
MK462243.1      TAGLSSFAAIPFAQSIFYRLNGVGITQQVLSENQKLIANKFNQALGAMQTGFTTTNEAFR
MK052676.1      TAGLSSFAAIPFAQSIFYRLNGVGITQQVLSENQKLIANKFNQALGAMQTGFTTTNEAFR
MG546331.1      TAGLSSFAAIPFAQSIFYRLNGVGITQQVLSENQKLIANKFNQALGAMQTGFTTTNEAFR
MN481964.1      TAGLSSFAAIPFAQSIFYRLNGVGITQQVLSENQKLIANKFNQALGAMQTGFTTTNEAFR
MK280984.2      TAGLSSFAAIPFAQSIFYRLNGVGITQQVLSENQKLIANKFNQALGAMQTGFTTTNEAFR
MG011351.2      TAGLSSFAAIPFAQSIFYRLNGVGITQQVLSENQKLIANKFNQALGAMQTGFTTTNEAFR
MG757604.1      TAGLSSFAAIPFAQSIFYRLNGVGITQQVLSENQKLIANKFNQALGAMQTGFTTTNEAFR
MH978886.1      TAGLSSFAAIPFAQSIFYRLNGVGITQQVLSENQKLIANKFNQALGAMQTGFTTTNEAFR
MH978887.1      TAGLSSFAAIPFAQSIFYRLNGVGITQQVLSENQKLIANKFNQALGAMQTGFTTTNEAFR
MN735679.1      TAGLSSFAAIPFAQSIFYRLNGVGITQQVLSENQKLIANKFNQALGAMQTGFTTTNEAFR
KX034100.1      TAGLSSFAAIPFAQSIFYRLNGVGITQQVLSENQKLIANKFNQALGAMQTGFTTTNEAFR
KT868868.1      TAGLSSFAAIPFAQSIFYRLNGVGITQQVLSENQKLIANKFNQALGAMQTGFTTTNEAFR
KT182957.1      TAGLSSFAAIPFAQSIFYRLNGVGITQQVLSENQKLIANKFNQALGAMQTGFTTTNEAFR
MK462247.1      TAGLSSFAAIPFAQSIFYRLNGVGITQQVLSENQKLIANKFNQALEAMQTGFTTTNEAFR
MH822886.1      TAGLSSFAAIPFAQSIFYRLNGVGITQQVLSENQKLIANKFNQALGAMQTGFTTTNEAFR
MK858157.1      TAGLSSFAAIPFAQSIFYRLNGVGITQQVLSENQKLIANKFNQALGAMQTGFTTTNEAFR
MH454272.1      TAGLSSFAAIPFAQSIFYRLNGVGITQQVLSENQKLIANKFNQALGAMQTGFTTTNEAFR
MN481979.1      TAGLSSFAAIPFAQSIFYRLNGVGITQQVLSENQKLIANKFNQALGAMQTGFTTTNEAFR
MN403102.1      TAGLSSFAAIPFAQSIFYRLNGVGITQQVLSENQKLIANKFNQALGAMQTGFTTTNEAFR
MG757598.1      TAGLSSFAAIPFAQSIFYRLNGVGITQQVLSENQKLIANKFNQALGAMQTGFTTTNEAFR
MH029552.1      TAGLSSFAAIPFAQSIFYRLNGVGITQQVLSENQKLIANKFNQALGAMQTGFTTTNEAFR
MH371127.1      TAGLSSFAAIPFAQSIFYRLNGVGITQQVLSENQKLIANKFNQALGAMQTGFTTTNEAFR
KU233362.1      TAGLSSFAAIPFAQSIFYRLNGVGITQQVLSENQKLIANKFNQALGAMQTGFTTTNEAFR
MN723544.1      TAGLSSFAAIPFAQSIFYRLNGVGITQQVLSENQKLIANKFNQALGAMQTGFTTTNEAFR
MN365232.1      TAGLSSFAAIPFAQSIFYRLNGVGITQQVLSENQKLIANKFNQALGAMQTGFTTTNEAFR
MN120513.1      TAGLSSFAAIPFAQSIFYRLNGVGITQQVLSENQKLIANKFNQALGAMQTGFTTTNEAFR
KY673148.1      TAGLSSFAAIPFAQSIFYRLNGVGITQQVLSENQKLIANKFNQALGAMQTGFTTTNEAFR
KY581684.1      TAGLSSFAAIPFAQSIFYRLNGVGITQQVLSENQKLIANKFNQALGAMQTGFTTTNEAFR
JX869059        TAGLSSFAAIPFAQSIFYRLNGVGITQQVLSENQKLIANKFNQALGAMQTGFTTTNEAFQ
MK967708.1      TAGLSSFAAIPFAQSIFYRLNGVGITQQVLSENQKLIANKFNQALGAMQTGFTTTNEAFQ
MK357908.1      TAGLSSFAAIPFAQSIFYRLNGVGITQQVLSENQKLIANKFNQALGAMQTGFTTTNEAFQ
                ****************************************** ************:

KX034094.1      KVQDAVNNNAQALSKLASELSNTFGAISASIGDIIQRLDVLEQDAQIDRLINGRLTTLNA
KX034095.1      KVQDAVNNNAQALSKLASELSNTFGAISASIGDIIQRLDVLEQDAQIDRLINGRLTTLNA
MN723542.1      KVQDAVNNNAQALSKLASELSNTFGAISASIGDIIQRLDVLEQDAQIDRLINGRLTTLNA
MK462243.1      KVQDAVNNNAQALSKLASELSNTFGAISASIGDIIQRLDVLEQDAQIDRLINGRLTTLNA
MK052676.1      KVQDAVNNNAQALSKLASELSNTFGAISASIGDIIQRLDVLEQDAQIDRLINGRLTTLNA
MG546331.1      KVQDAVNNNAQALSKLASELSNTFGAISASIGDIIQRLDVLEQDAQIDRLINGRLTTLNA
MN481964.1      KVQDAVNNNAQALSKLASELSNTFGAISASIGDIIQRLDVLEQDAQIDRLINGRLTTLNA
MK280984.2      KVQDAVNNNAQALSKLASELSNTFGAISASIGDIIQRLDVLEQDAQIDRLINGRLTTLNA
MG011351.2      KVQDAVNNNAQALSKLASELSNTFGAISASIGDIIQRLDVLEQDAQIDRLINGRLTTLNA
MG757604.1      KVQDAVNNNAQALSKLASELSNTFGAISASIGDIIQRLDVLEQDAQIDRLINGRLTTLNA
```

```
MH978886.1      KVQDAVNNNAQALSKLASELSNTFGAISASIGDIIQRLDVLEQDAQIDRLINGRLTTLNA
MH978887.1      KVQDAVNNNAQALSKLASELSNTFGAISASIGDIIQRLDVLEQDAQIDRLINGRLTTLNA
MN735679.1      KVQDAVNNNAQALSKLASELSNTFGAISASIGDIIQRLDVLEQDAQIDRLINGRLTTLNA
KX034100.1      KVQDAVNNNAQALSKLASELSNTFGAISASIGDIIQRLDVLEQDAQIDRLINGRLTTLNA
KT868868.1      KVQDAVNNNAQALSKLASELSNTFGAISASIGDIIQRLDVLEQDAQIDRLINGRLTTLNA
KT182957.1      KVQDAVNNNAQALSKLASELSNTFGAISASIGDIIQRLDVLEQDAQIDRLINGRLTTLNA
MK462247.1      KVQDAVNNNAQALSKLASELSNTFGAISASIGDIIQRLDVLEQDAQIDRLINGRLTTLNA
MH822886.1      KVQDAVNNNAQALSKLASELSNTFGAISASIGDIIQRLDVLEQDAQIDRLINGRLTTLNA
MK858157.1      KVQDAVNNNAQALSKLASELSNTFGAISASIGDIIQRLDVLEQDAQIDRLINGRLTTLNA
MH454272.1      KVQDAVNNNAQALSKLASELSNTFGAISASIGDIIQRLDVLEQDAQIDRLINGRLTTLNA
MN481979.1      KVQDAVNNNAQALSKLASELSNTFGAISASIGDIIQRLDVLEQDAQIDRLINGRLTTLNA
MN403102.1      KVQDAVNNNAQALSKLASELSNTFGAISASIGDIIQRLDVLEQDAQIDRLINGRLTTLNA
MG757598.1      KVQDAVNNNAQALSKLASELSNTFGAISASIGDIIQRLDVLEQDAQIDRLINGRLTTLNA
MH029552.1      KVQDAVNNNAQALSKLASELSNTFGAISASIGDIIQRLDVLEQDAQIDRLINGRLTTLNA
MH371127.1      KVQDAVNNNAQALSKLASELSNTFGAISASIGDIIQRLDVLEQDAQIDRLINGRLTTLNA
KU233362.1      KVQDAVNNNAQALSKLASELSNTFGAISASIGDIIQRLDVLEQDAQIDRLINGRLTTLNA
MN723544.1      KVQDAVNNNAQALSKLASELSNTFGAISASIGDIIQRLDVLEQDAQIDRLINGRLTTLNA
MN365232.1      KVQDAVNNNAQALSKLASELSNTFGAISASIGDIIQRLDVLEQDAQIDRLINGRLTTLNA
MN120513.1      KVQDAVNNNAQALSKLASELSNTFGAISASIGDIIQRLDVLEQDAQIDRLINGRLTTLNA
KY673148.1      KVQDAVNNNAQALSKLASELSNTFGAISASIGDIIQRLDVLEQDAQIDRLINGRLTTLNA
KY581684.1      KVQDAVNNNAQALSKLASELSNTFGAISASIGDIIQRLDVLEQDAQIDRLINGRLTTLNA
JX869059        KVQDAVNNNAQALSKLASELSNTFGAISASIGDIIQRLDVLEQDAQIDRLINGRLTTLNA
MK967708.1      KVQDAVNNNAQALSKLASELSNTFGAISASIGDIIQRLDVLEQDAQIDRLINGRLTTLNA
MK357908.1      KVQDAVNNNAQALSKLASELSNTFGAISASIGDIIQRLDVLEQDAQIDRLINGRLTTLNA
                ************************************************************

KX034094.1      FVAQQLVRSESAALSAQLAKDKVNECVKAQSKRSGFCGQGTHIVSFVVNAPNGLYFMHVG
KX034095.1      FVAQQLVRSESAALSAQLAKDKVNECVKAQSKRSGFCGQGTHIVSFVVNAPNGLYFMHVG
MN723542.1      FVAQQLVRSESAALSAQLAKDKVNECVKAQSKRSGFCGQGTHIVSFVVNAPNGLYFMHVG
MK462243.1      FVAQQLVRSESAALSAQLAKDKVNECVKAQSKRSGFCGQGTHIVSFVVNAPNGLYFMHVG
MK052676.1      FVAQQLVRSESAALSAQLAKDKVNECVKAQSKRSGFCGQGTHIVSFVVNAPNGLYFMHVG
MG546331.1      FVAQQLVRSESAALSAQLAKDKVNECVKAQSKRSGFCGQGTHIVSFVVNAPNGLYFMHVG
MN481964.1      FVAQQLVRSESAALSAQLAKDKVNECVKAQSKRSGFCGQGTHIVSFVVNAPNGLYFMHVG
MK280984.2      FVAQQLVRSESAALSAQLAKDKVNECVKAQSKRSGFCGQGTHIVSFVVNAPNGLYFMHVG
MG011351.2      FVAQQLVRSESAALSAQLAKDKVNECVKAQSKRSGFCGQGTHIVSFVVNAPNGLYFMHVG
MG757604.1      FVAQQLVRSESAALSAQLAKDKVNECVKAQSKRSGFCGQGTHIVSFVVNAPNGLYFMHVG
MH978886.1      FVAQQLVRSESAALSAQLAKDKVNECVKAQSKRSGFCGQGTHIVSFVVNAPNGLYFMHVG
MH978887.1      FVAQQLVRSESAALSAQLAKDKVNECVKAQSKRSGFCGQGTHIVSFVVNAPNGLYFMHVG
MN735679.1      FVAQQLVRSESAALSAQLAKDKVNECVKAQSKRSGFCGQGTHIVSFVVNAPNGLYFMHVG
KX034100.1      FVAQQLVRSESAALSAQLAKDKVNECVKAQSKRSGFCGQGTHIVSFVVNAPNGLYFMHVG
KT868868.1      FVAQQLVRSESAALSAQLAKDKVNECVKAQSKRSGFCGQGTHIVSFVVNAPNGLYFMHVG
KT182957.1      FVAQQLVRSESAALSAQLAKDKVNECVKAQSKRSGFCGQGTHIVSFVVNAPNGLYFMHVG
MK462247.1      FVAQQLVRSESAALSAQLAKDKVNECVKAQSKRSGFCGQGTHIVSFVVNAPNGLYFMHVG
MH822886.1      FVAQQLVRSESAALSAQLAKDKVNECVKAQSKRSGFCGQGTHIVSFVVNAPNGLYFMHVG
MK858157.1      FVAQQLVRSESAALSAQLAKDKVNECVKAQSKRSGFCGQGTHIVSFVVNAPNGLYFMHVG
MH454272.1      FVAQQLVRSESAALSAQLAKDKVNECVKAQSKRSGFCGQGTHIVSFVVNAPNGLYFMHVG
MN481979.1      FVAQQLVRSESAALSAQLAKDKVNECVKAQSKRSGFCGQGTHIVSFVVNAPNGLYFMHVG
MN403102.1      FVAQQLVRSESAALSAQLAKDKVNECVKAQSKRSGFCGQGTHIVSFVVNAPNGLYFMHVG
MG757598.1      FVAQQLVRSESAALSAQLAKDKVNECVKAQSKRSGFCGQGTHIVSFVVNAPNGLYFMHVG
MH029552.1      FVAQQLVRSESAALSAQLAKDKVNECVKAQSKRSGFCGQGTHIVSFVVNAPNGLYFMHVG
MH371127.1      FVAQQLVRSESAALSAQLAKDKVNECVKAQSKRSGFCGQGTHIVSFVVNAPNGLYFMHVG
KU233362.1      FVAQQLVRSESAALSAQLAKDKVNECVKAQSKRSGFCGQGTHIVSFVVNAPNGLYFMHVG
MN723544.1      FVAQQLVRSESAALSAQLAKDKVNECVKAQSKRSGFCGQGTHIVSFVVNAPNGLYFMHVG
MN365232.1      FVAQQLVRSESAALSAQLAKDKVNECVKAQSKRSGFCGQGTHIVSFVVNAPNGLYFMHVG
MN120513.1      FVAQQLVRSESAALSAQLAKDKVNECVKAQSKRSGFCGQGTHIVSFVVNAPNGLYFMHVG
KY673148.1      FVAQQLVRSESAALSAQLAKDKVNECVKAQSKRSGFCGQGTHIVSFVVNAPNGLYFMHVG
```

```
KY581684.1      FVAQQLVRSESAALSAQLAKDKVNECVKAQSKRSGFCGQGTHIVSFVVNAPNGLYFMHVG
JX869059        FVAQQLVRSESAALSAQLAKDKVNECVKAQSKRSGFCGQGTHIVSFVVNAPNGLYFMHVG
MK967708.1      FVAQQLVRSESAALSAQLAKDKVNECVKAQSKRSGFCGQGTHIVSFVVNAPNGLYFMHVG
MK357908.1      FVAQQLVRSESAALSAQLAKDKVNECVKAQSKRSGFCGQGTHIVSFVVNAPNGLYFMHVG
                ************************************************************

KX034094.1      YYPSNHIEVVSAYGLCDAANPTNCIAPVNGYFIKTNNTRIVDEWSYTGSSFYAPEPITSL
KX034095.1      YYPSNHIEVVSAYGLCDAANPTNCIAPVNGYFIKTNNTRIVDEWSYTGSSFYAPEPITSL
MN723542.1      YYPSNHIEVVSAYGLCDAANPTNCIAPVNGYFIKTNNTRIVDEWSYTGSSFYAPEPITSL
MK462243.1      YYPSNHIEVVSAYGLCDAANPTNCIAPVNGYFIKTNNTRIVDEWSYTGSSFYAPEPITSL
MK052676.1      YYPSNHIEVVSAYGLCDAANPTNCIAPVNGYFIKTNNTRIVDEWSYTGSSFYAPEPITSL
MG546331.1      YYPSNHIEVVSAYGLCDAANPTNCIAPVNGYFIKTNNTRIVDEWSYTGSSFYAPEPITSL
MN481964.1      YYPSNHIEVVSAYGLCDAANPTNCIAPVNGYFIKTNNTRIVDEWSYTGSSFYAPEPITSL
MK280984.2      YYPSNHIEVVSAYGLCDAANPTNCIAPVNGYFIKTNNTRIVDEWSYTGSSFYAPEPITSL
MG011351.2      YYPSNHIEVVSAYGLCDAANPTNCIAPVNGYFIKTNNTRIVDEWSYTGSSFYAPEPITSL
MG757604.1      YYPSNHIEVVSAYGLCDAANPTNCIAPVNGYFIKTNNTRIVDEWSYTGSSFYAPEPITSL
MH978886.1      YYPSNHIEVVSAYGLCDAANPTNCIAPVNGYFIKTNNTRIVDEWSYTGSSFYAPEPITSF
MH978887.1      YYPSNHIEVVSAYGLCDAANPTNCIAPVNGYFIKTNNTRIVDEWSYTGSSFYAPEPITSF
MN735679.1      YYPSNHIEVVSAYGLCDAANPTNCIAPVNGYFIKTNNTRIVDEWSYTGSSFYAPEPITSL
KX034100.1      YYPSNHIEVVSAYGLCDAANPTNCIAPVNGYFIKTNNTRIVDEWSYTGSSFYAPEPITSL
KT868868.1      YYPSNHIEVVSAYGLCDAANPTNCIAPVNGYFIKTNNTRIVDEWSYTGSSFYAPEPITSL
KT182957.1      YYPSNHIEVVSAYGLCDAANPTNCIAPVNGYFIKTNNTRIVDEWSYTGSSFYAPEPITSL
MK462247.1      YYPSNHIEVVSAYGLCDAANPTNCIAPVNGYFIKTNNTRIVDEWSYTGSSFYAPEPITSL
MH822886.1      YYPSNHIEVVSAYGLCDAANPTNCIAPVNGYFIKTNNTRIVDEWSYTGSSFYAPEPITSL
MK858157.1      YYPSNHIEVVSAYGLCDAANPTNCIAPVNGYFIKTNNTRIVDEWSYTGSSFYAPEPITSL
MH454272.1      YYPSNHIEVVSAYGLCDAANPTNCIAPVNGYFIKTNNTRIVDEWSYTGSSFYAPEPITSL
MN481979.1      YYPSNHIEVVSAYGLCDAANPTNCIAPVNGYFIKTNNTRIVDEWSYTGSSFYAPEPITSL
MN403102.1      YYPSNHIEVVSAYGLCDAANPTNCIAPVNGYFIKTNNTRIVDEWSYTGSSFYAPEPITSL
MG757598.1      YYPSNHIEVVSAYGLCDAANPTNCIAPVNGYFIKTNNTRIVDEWSYTGSSFYAPEPITSL
MH029552.1      YYPSNHIEVVSAYGLCDAANPTNCIAPVNGYFIKTNNTRIVDEWSYTGSSFYAPEPITSL
MH371127.1      YYPSNHIEVVSAYGLCDAANPTNCIAPVNGYFIKTNNTRIVDEWSYTGSSFYAPEPITSL
KU233362.1      YYPSNHIEVVSAYGLCDAANPTNCIAPVNGYFIKTNNTRIVDEWSYTGSSFYAPEPITSL
MN723544.1      YYPSNHIEVVSAYGLCDAANPTNCIAPVNGYFIKTNNTRIVDEWSYTGSSFYAPEPITSL
MN365232.1      YYPSNHIEVVSAYGLCDAANPTNCIAPVNGYFIKTNNTRIVDEWSYTGSSFYAPEPITSL
MN120513.1      YYPSNHIEVVSAYGLCDAANPTNCIAPVNGYFIKTNNTRIVDEWSYTGSSFYAPEPITSL
KY673148.1      YYPSNHIEVVSAYGLCDAANPTNCIAPVNGYFIKTNNTRIVDEWSYTGSSFYSPEPITSL
KY581684.1      YYPSNHIEVVSAYGLCDAANPTNCIAPVNGYFIKTNNTRIVDEWSYTGSSFYSPEPITSL
JX869059        YYPSNHIEVVSAYGLCDAANPTNCIAPVNGYFIKTNNTRIVDEWSYTGSSFYAPEPITSL
MK967708.1      YYPSNHIEVVSAYGLCDSANPTNCIAPVNGYFIKTNNTRIVDEWSYTGSSFYAPEPITSL
MK357908.1      YYPSNHIEVVSAYGLCDSANPTNCIAPVNGYFIKTNNTRIVDEWSYTGSSFYAPEPITSL
                ****************:*********************************:******:

KX034094.1      NTKYVAPQVTYQNISTNLPPPLLGNSTGIDFQDELDEFFKNVSTSIPNFGSLTQINTTLL
KX034095.1      NTKYVAPQVTYQNISTNLPPPLLGNSTGIDFQDELDEFFKNVSTSIPNFGSLTQINTTLL
MN723542.1      NTKYVAPQVTYQNISTNLPPPLLGNSTGIDFQDELDEFFKNVSTSIPNFGSLTQINTTLL
MK462243.1      NTKYVAPQVTYQNISTNLPPPLLGNSTGIDFQDELDEFFKNVSTSIPNFGSLTQINTTLL
MK052676.1      NTKYVAPQVTYQNISTNLPPPLLGNSTGIDFQDELDEFFKNVSTSIPNFGSLTQINTTLL
MG546331.1      NTKYVAPQVTYQNISTNLPPPLLGNSTGIDFQDELDEFFKNVSTSIPNFGSLTQINTTLL
MN481964.1      NTKYVAPQVTYQNISTNLPPPLLGNSTGIDFQDELDEFFKNVSTSIPNFGSLTQINTTLL
MK280984.2      NTKYVAPQVTYQNISTNLPPPLLGNSTGIDFQDELDEFFKNVSTSIPNFGSLTQINTTLL
MG011351.2      NTKYVAPQVTYQNISTNLPPPLLGNSTGIDFQDELDEFFKNVSTSIPNFGSLTQINTTLL
MG757604.1      NTKYVAPQVTYQNISTNLPPPLLGNSTGIDFQDELDEFFKNVSTSIPNFGSLTQINTTLL
MH978886.1      NTKYVAPQVTYQNISTNLPPPLLGNSTGIDFQDELDEFFKNVSTSIPNFGSLTQINTTLL
MH978887.1      NTKYVAPQVTYQNISTNLPPPLLGNSTGIDFQDELDEFFKNVSTSIPNFGSLTQINTTLL
MN735679.1      NTKYVAPQVTYQNISTNLPPPLLGNSTGIDFQDELDEFFKNVSTSIPNFGSLTQINTTLL
KX034100.1      NTKYVAPQVTYQNISTNLPPPLLGNSTGIDFQDELDEFFKNVSTSIPNFGSLTQINTTLL
```

```
KT868868.1      NTKYVAPQVTYQNISTNLPPPLLGNSTGIDFQDELDEFFKNVSTSIPNFGSLTQINTTLL
KT182957.1      NTKYVAPQVTYQNISTNLPPPLLGNSTGIDFQDELDEFFKNVSTSIPNFGSLTQINTTLL
MK462247.1      NTKYVAPQVTYQNISTNLPPPLLGNSTGIDFQDELDEFFKNVSTSIPNFGSLTQINTTLL
MH822886.1      NTKYVAPQVTYQNISTNLPPPLLGNSTGIDFQDELDEFFKNVSTSIPNFGSLTQINTTLL
MK858157.1      NTKYVAPQVTYQNISTNLPPPLLGNSTGIDFQDELDEFFKNVSTSIPNFGSLTQINTTLL
MH454272.1      NTKYVAPQVTYQNISTNLPPPLLGNSTGIDFQDELDEFFKNVSTSIPNFGSLTQINTTLL
MN481979.1      NTKYVAPQVTYQNISTNLPPPLLGNSTGIDFQDELDEFFKNVSTSIPNFGSLTQINTTLL
MN403102.1      NTKYVAPQVTYQNISTNLPPPLLSNSTGIDFQDELDEFFKNVSTSIPNFGSLTQINTTLL
MG757598.1      NTKYVAPQVTYQNISTNLPPPLLGNSTGIDFQDELDEFFKNVSTSIPNFGSLTQINTTLL
MH029552.1      NTKYVAPQVTYQNISTNLPPPLLGNSTGIDFQDELDEFFKNVSTSIPNFGSLTQINTTLL
MH371127.1      NTKYVAPQVTYQNISTNLPPPLLGNSTGIDFQDELDEFFKNVSTSIPNFGSLTQINTTLL
KU233362.1      NTKYVAPQVTYQNISTNLPPPLLGNSTGIDFQDELDEFFKNVSTSIPNFGSLTQINTTLL
MN723544.1      NTKYVAPQVTYQNISTNLPPPLLGNSTGIDFQDELDEFFKNVSTSIPNFGSLTQINTTLL
MN365232.1      NTKYVAPQVTYQNISTNLPPPLLGNSTGIDFQDELDEFFKNVSTSIPNFGSLTQINTTLL
MN120513.1      NTKYVAPQVTYQNISTNLPPPLLGNSTGIDFQDELDEFFKNVSTSIPNFGSLTQINTTLL
KY673148.1      NTKYVAPQVTYQNISTNLPPPLLGNSTGIDFQDELDEFFKNVSTSIPNFGSLTQINTTLL
KY581684.1      NTKYVAPQVTYQNISTNLPPPLLGNSTGIDFQDELDEFFKNVSTSIPNFGSLTQINTTLL
JX869059        NTKYVAPQVTYQNISTNLPPPLLGNSTGIDFQDELDEFFKNVSTSIPNFGSLTQINTTLL
MK967708.1      NTKYVAPQVTYQNISTNLPPPLLGNSTGIDFQDELDEFFKNVSTSIPNFGSLTQINTTLL
MK357908.1      NTKYVAPQVTYQNISTNLPPPLLGNSTGIDFQDELDEFFKNVSTSIPNFGSLTQINTTLL
                **********************.**********************************

KX034094.1      DLTYEMLSLQQVVKALNESYIDLKELGNYTYYNKWPWYIWLGFIAGLVALALCVFFILCC
KX034095.1      DLTYEMLSLQQVVKALNESYIDLKELGNYTYYNKWPWYIWLGFIAGLVALALCVFFILCC
MN723542.1      DLTYEMLSLQQVVKALNESYIDLKELGNYTYYNKWPWYIWLGFIAGLVALALCVFFILCC
MK462243.1      DLTYEMLSLQQVVKALNESYIDLKELGNYTYYNKWPWYIWLGFIAGLVALALCVFFILCC
MK052676.1      DLTYEMLSLQQVVKALNESYIDLKELGNYTYYNKWPWYIWLGFIAGLVALALCVFFILCC
MG546331.1      DLTYEMLSLQQVVKALNESYIDLKELGNYTYYNKWPWYIWLGFIAGLVALALCVFFILCC
MN481964.1      DLTYEMLSLQQVVKALNESYIDLKELGNYTYYNKWPWYIWLGFIAGLVALALCVFFILCC
MK280984.2      DLTYEMLSLQQVVKALNESYIDLKELGNYTYYNKWPWYIWLGFIAGLVALALCVFFILCC
MG011351.2      DLTYEMLSLQQVVKALNESYIDLKELGNYTYYNKWPWYIWLGFIAGLVALALCVFFILCC
MG757604.1      DLTYEMLSLQQVVKALNESYIDLKELGNYTYYNKWPWYIWLGFIAGLVALALCVFFILCC
MH978886.1      DLTYEMLSLQQVVKALNESYIDLKELGNYTYYNKWPWYIWLGFIAGLVALALCVFFILCC
MH978887.1      DLTYEMLSLQQVVKALNESYIDLKELGNYTYYNKWPWYIWLGFIAGLVALALCVFFILCC
MN735679.1      DLTYEMLSLQQVVKALNESYIDLKELGNYTYYNKWPWYIWLGFIAGLVALALCVFFILCC
KX034100.1      DLTYEMLSLQQVVKALNESYIDLKELGNYTYYNKWPWYIWLGFIAGLVALALCVFFILCC
KT868868.1      DLTYEMLSLQQVVKALNESYIDLKELGNYTYYNKWPWYIWLGFIAGLVALALCVFFILCC
KT182957.1      DLTYEMLSLQQVVKALNESYIDLKELGNYTYYNKWPWYIWLGFIAGLVALALCVFFILCC
MK462247.1      DLTYEMLSLQQVVKALNESYIDLKELGNYTYYNKWPWYIWLGFIAGLVALALCVFFILCC
MH822886.1      DLTYEMLSLQQVVKALNESYIDLKELGNYTYYNKWPWYIWLGFIAGLVALALCVFFILCC
MK858157.1      DLTYEMLSLQQVVKALNESYIDLKELGNYTYYNKWPWYIWLGFIAGLVALALCVFFILCC
MH454272.1      DLTYEMLSLQQVVKALNESYIDLKELGNYTYYNKWPWYIWLGFIAGLVALALCVFFILCC
MN481979.1      DLTYEMLSLQQVVKALNESYIDLKELGNYTYYNKWPWYIWLGFIAGLVALALCVFFILCC
MN403102.1      DLTYEMLSLQQVVKALNESYIDLKELGNYTYYNKWPWYIWLGFIAGLVALALCVFFILCC
MG757598.1      DLTYEMLSLQQVVKALNESYIDLKELGNYTYYNKWPWYIWLGFIAGLVALALCVFFILCC
MH029552.1      DLTYEMLSLQQVVKALNESYIDLKELGNYTYYNKWPWYIWLGFIAGLVALALCVFFILCC
MH371127.1      DLTYEMLSLQQVVKALNESYIDLKELGNYTYYNKWPWYIWLGFIAGLVALALCVFFILCC
KU233362.1      DLTYEMLSLQQVVKALNESYIDLKELGNYTYYNKWPWYIWLGFIAGLVALALCVFFILCC
MN723544.1      DLTYEMLSLQQVVKALNESYIDLKELGNYTYYNKWPWYIWLGFIAGLVALALCVFFILCC
MN365232.1      DLTYEMLSLQQVVKALNESYIDLKELGNYTYYNKWPWYIWLGFIAGLVALALCVFFILCC
MN120513.1      DLTYEMLSLQQVVKALNESYIDLKELGNYTYYNKWPWYIWLGFIAGLVALALCVFFILCC
KY673148.1      DLTYEMLSLQQVVKALNESYIDLKELGNYTYYNKWPWYIWLGFIAGLVALALCVFFILCC
KY581684.1      DLTYEMLSLQQVVKALNESYIDLKELGNYTYYNKWPWYIWLGFIAGLVALALCVFFILCC
JX869059        DLTYEMLSLQQVVKALNESYIDLKELGNYTYYNKWPWYIWLGFIAGLVALALCVFFILCC
MK967708.1      DLTYEMLSLQQVVKALNESYIDLKELGNYTYYNKWPWYIWLGFIAGLVALALCVFFILCC
MK357908.1      DLTYEMLSLQQVVKALNESYIDLKELGNYTYYNKWPWYIWLGFIAGLVALALCVFFILCC
```

```
                **************************************************************

KX034094.1      TGCGTNCMGKLKCNRCCDRYEEYDLEPHKVHVH
KX034095.1      TGCGTNCMGKLKCNRCCDRYEEYDLEPHKVHVH
MN723542.1      TGCGTNCMGKLKCNRCCDRYEEYDLEPHKVHVH
MK462243.1      TGCGTNCMGKLKCNRCCDRYEEYDLEPHKVHVH
MK052676.1      TGCGTNCMGKLKCNRCCDRYEEYDLEPHKVHVH
MG546331.1      TGCGTNCMGKLKCNRCCDRYEEYDLEPHKVHVH
MN481964.1      TGCGTNCMGKLKCNRCCDRYEEYDLEPHKVHVH
MK280984.2      TGCGTNCMGKLKCNRCCDRYEEYDLEPHKVHVH
MG011351.2      TGCGTNCMGKLKCNRCCDRYEEYDLEPHKVHVH
MG757604.1      TGCGTNCMGKLKCNRCCDRYEEYDLEPHKVHVH
MH978886.1      TGCGTNCMGKLKCNRCCDRYEEYDLEPHKVHVH
MH978887.1      TGCGTNCMGKLKCNRCCDRYEEYDLEPHKVHVH
MN735679.1      TGCGTNCMGKLKCNRCCDRYEEYDLEPHKVHVH
KX034100.1      TGCGTNCMGKLKCNRCCDRYEEYDLEPHKVHVH
KT868868.1      TGCGTNCMGKLKCNRCCDRYEEYDLEPHKVHVH
KT182957.1      TGCGTNCMGKLKCNRCCDRYEEYDLEPHKVHVH
MK462247.1      TGCGTNCMGKLKCNRCCDRYEEYDLEPHKVHVH
MH822886.1      TGCGTNCMGKLKCNRCCDRYEEYDLEPHKVHVH
MK858157.1      TGCGTNCMGKLKCNRCCDRYEEYDLEPHKVHVH
MH454272.1      TGCGTNCMGKLKCNRCCDRYEEYDLEPHKVHVH
MN481979.1      TGCGTNCMGKLKCNRCCDRYEEYDLEPHKVHVH
MN403102.1      TGCGTNCMGKLKCNRCCDRYEEYDLEPHKVHVH
MG757598.1      TGCGTNCMGKLKCNRCCDRYEEYDLEPHKVHVH
MH029552.1      TGCGTNCMGKLKCNRCCDRYEEYDLEPHKVHVH
MH371127.1      TGCGTNCMGKLKCNRCCDRYEEYDLEPHKVHVH
KU233362.1      TGCGTNCMGKLKCNRCCDRYEEYDLEPHKVHVH
MN723544.1      TGCGTNCMGKLKCNRCCDRYEEYDLEPHKVHVH
MN365232.1      TGCGTNCMGKLKCNRCCDRYEEYDLEPHKVHVH
MN120513.1      TGCGTNCMGKLKCNRCCDRYEEYDLEPHKVHVH
KY673148.1      TGCGTNCMGKLKCNRCCDRYEEYDLEPHKVHVH
KY581684.1      TGCGTNCMGKLKCNRCCDRYEEYDLEPHKVHVH
JX869059        TGCGTNCMGKLKCNRCCDRYEEYDLEPHKVHVH
MK967708.1      TGCGTNCMGKLKCNRCCDRYEEYDLEPHKVHVH
MK357908.1      TGCGTNCMGKLKCNRCCDRYEEYDLEPHKVHVH
                ********************************
```

---

clustalw.dnd

```
(
(
(
(
(
(
(
(
(
(
(
(
JX869059:0.00000,
(
MK967708.1:0.00370,
```

```
MK357908.1:0.00443)
:0.00290)
:0.00060,
(
(
(
MN723544.1:0.00074,
MN365232.1:0.00148)
:0.00000,
MN120513.1:0.00148)
:0.00055,
(
KY673148.1:0.00143,
KY581684.1:0.00079)
:0.00056)
:0.00000)
:0.00014,
(
(
(
(
(
MN481979.1:0.00000,
MN403102.1:0.00222)
:0.00000,
MG757598.1:0.00000)
:0.00000,
MH029552.1:0.00000)
:0.00000,
MH371127.1:0.00000)
:0.00000,
KU233362.1:0.00000)
:0.00000)
:0.00000,
(
MK858157.1:0.00000,
MH454272.1:0.00148)
:0.00074)
:0.00000,
(
MK462247.1:0.00148,
MH822886.1:0.00000)
:0.00074)
:0.00000,
(
(
KX034100.1:0.00000,
KT868868.1:0.00000)
:0.00000,
KT182957.1:0.00074)
:0.00074)
:0.00000,
MN735679.1:0.00074)
:0.00000,
(
MH978886.1:0.00000,
```

```
MH978887.1:0.00000)
:0.00074)
:0.00000,
(
MG757604.1:0.00074,
(
MK280984.2:0.00037,
MG011351.2:0.00037)
:0.00037)
:0.00000)
:0.00000,
MN481964.1:0.00074)
:0.00000,
(
MK052676.1:0.00074,
MG546331.1:0.00074)
:0.00000)
:0.00000,
(
MN723542.1:0.00000,
MK462243.1:0.00000)
:0.00074,
(
KX034094.1:0.00000,
KX034095.1:0.00000)
:0.00074);
```

Select tree menu ▼ Exec

CLUSTALW Result

Supplementary Material 7
Sequence Alignment of
SARS-CoV-2 Isolates

[clustalw.aln][clustalw.dnd][readme]

Select tree menu ▼ Exec

```
 CLUSTAL 2.1 Multiple Sequence Alignments


Sequence type explicitly set to Protein
Sequence format is Pearson
Sequence 1: MT019529.1WuhanFirstIsolateDecember  1273 aa
Sequence 2: MT434757.1IndiaApril                 1273 aa
Sequence 3: MT415320.1IndiaMarch                 1273 aa
Sequence 4: MT012098.1IndiaJanuary               1272 aa
Sequence 5: MT318827.1GermanyMarch               1273 aa
Sequence 6: MT291830.1ChinaWuhanDec2019          1273 aa
Sequence 7: MT291831.1ChinaBeijingJanuary        1273 aa
Sequence 8: MT396241.1ChinaMarch                 1273 aa
Sequence 9: MT230904.1HongKongJanuary            1273 aa
Sequence 10: MT372481.1MalaysiaMarch              1273 aa
Sequence 11: MT396266.1NetherlandsApril           1273 aa
Sequence 12: MT263074.1PeruMarch                  1273 aa
Sequence 13: MT300186.2NorthCarolinaApril         1273 aa
Sequence 14: MT350282.1BrazilMarch                1273 aa
Sequence 15: MT126808.1BrazilFebruary             1273 aa
Sequence 16: MT371574.1CzechRepublicMarch         1273 aa
Sequence 17: MT256924.2ColombiaMarch              1273 aa
Sequence 18: LC528233.1CruseShipFebruary          1273 aa
Sequence 19: MT020781.2FinlandJanuary             1273 aa
Sequence 20: MT320538.2FranceMarch                1273 aa
Sequence 21: MT328035.1GreeceMarch                1273 aa
Sequence 22: MT320891.2IranMarch                  1273 aa
Sequence 23: MT276598.1IsraelMarch                1273 aa
Sequence 24: MT276597.1IsraelFebruary             1273 aa
Sequence 25: MT077125.1ItalyJanuary               1273 aa
Sequence 26: LC542809.1JapanMarch                 1273 aa
Sequence 27: LC542976.1JapanFebruary              1273 aa
Sequence 28: LC529905.1JapanJanuary               1273 aa
Sequence 29: MT072688.1NepalJanuary               1273 aa
Sequence 30: MT240479.1PakistanMArch              1273 aa
Sequence 31: MT359231.1SerbiaApril                1273 aa
Sequence 32: MT324062.1SouthAfricaMarch           1273 aa
Sequence 33: MT304476.1SouthKoreaFebruary         1273 aa
Sequence 34: MT039890.1SouthKoreaJanuary          1273 aa
Sequence 35: MT007544.1AustraliaJanuary           1273 aa
Sequence 36: MT359866.1SpainMarch                 1273 aa
Sequence 37: MT233519.1SpainFebruary              1273 aa
Sequence 38: MT371050.1SriLankaMarch              1273 aa
Sequence 39: MT093571.1SwedenFebruary             1273 aa
Sequence 40: MT374112.1TaiwanMarch                1273 aa
Sequence 41: MT066176.1TaiwanFebruary             1273 aa
Sequence 42: MT066175.1TaiwanJanuary              1273 aa
Sequence 43: MT327745.1TurkiyeMarch               1273 aa
Sequence 44: MT192773.1VietNamJanuary             1273 aa
Sequence 45: MT233526.1WashingtonStateJanuary     1273 aa
Sequence 46: MN988713.1IllinoisJanuary            1273 aa
Sequence 47: MN997409.1ArizonaJanuary             1273 aa
```

```
Sequence 48: MN994468.1CaliforniaJanuary          1273 aa
Sequence 49: MT039888.1MassachusettsJanuary       1273 aa
Sequence 50: MT039887.1WisconsinJanuary           1273 aa
Sequence 51: MT304484.1NewHampshireFebruary       1273 aa
Sequence 52: MT304489.1TexasFebruary              1273 aa
Sequence 53: MT276330.1FloridaFebruary            1273 aa
Sequence 54: MT276328.1OregonFebruary             1273 aa
Sequence 55: MT276326.1GeorgiaFebruary            1273 aa
Sequence 56: MT276324.1CaliforniaFebruary         1273 aa
Sequence 57: MT276323.1RhodeIslandFebruary        1273 aa
Sequence 58: MT163716.1WashingtonStateFebruary    1273 aa
Sequence 59: MT325628.1VirginiaMarch              1273 aa
Sequence 60: MT325629.1MassachusettsMArch         1273 aa
Sequence 61: MT325627.1NewYorkMarch               1273 aa
Sequence 62: MT325625.1SouthCarolinaMarch         1273 aa
Sequence 63: MT325622.1NewJerseyMarch             1273 aa
Sequence 64: MT325621.1IowaMarch                  1273 aa
Sequence 65: MT325610.1UtahMarch                  1273 aa
Sequence 66: MT325605.1RhodeIslandMarch           1273 aa
Sequence 67: MT325604.1PennsylvaniaMarch          1273 aa
Sequence 68: MT325598.1OhioMarch                  1273 aa
Sequence 69: MT325597.1NevadaMarch                1273 aa
Sequence 70: MT325595.1NewHampshireMarch          1273 aa
Sequence 71: MT325593.1NebraskaMarch              1273 aa
Sequence 72: MT325591.1NorthCarolinaMarch         1273 aa
Sequence 73: MT325588.1MontanaMarch               1273 aa
Sequence 74: MT325587.1MarylandMarch              1273 aa
Sequence 75: MT325581.1LouisianaMarch             1273 aa
Sequence 76: MT325580.1KansasMarch                1273 aa
Sequence 77: MT325579.1IndianaMarch               1273 aa
Sequence 78: MT325578.1IllinoisMarch              1273 aa
Sequence 79: MT325575.1GeorgiaMarch               1273 aa
Sequence 80: MT308700.1MichiganMarch              1273 aa
Sequence 81: MT304478.1FLoridaMarch               1273 aa
Sequence 82: MT304477.1ArizonaMarch               1273 aa
Sequence 83: MT304487.1OregonMarch                1273 aa
Sequence 84: MT304491.1TexasMarch                 1273 aa
Sequence 85: MT188341.1MinnesotaMarch             1273 aa
Sequence 86: MT192765.1CaliforniaMarch            1273 aa
Sequence 87: MT251974.1ConnecticutMarch           1273 aa
Sequence 88: MT344949.1HawaiiMarch                1273 aa
Sequence 89: MT246472.1WashingtonStateMarch       1273 aa
Sequence 90: MT358744.1WashingtonStateApril       1273 aa
Sequence 91: MT365033.1NewYorkApril               1273 aa
Sequence 92: MT415909.1VirginiaApril              1273 aa
Start of Pairwise alignments
Aligning...



Sequences (1:2) Aligned. Score: 100
Sequences (1:3) Aligned. Score: 99.9214
Sequences (1:4) Aligned. Score: 99.6855
Sequences (1:5) Aligned. Score: 99.9214
Sequences (1:6) Aligned. Score: 100
Sequences (1:7) Aligned. Score: 100
Sequences (1:8) Aligned. Score: 100
Sequences (1:9) Aligned. Score: 99.9214
Sequences (1:10) Aligned. Score: 100
Sequences (1:11) Aligned. Score: 99.9214
Sequences (1:12) Aligned. Score: 99.9214
Sequences (1:13) Aligned. Score: 99.9214
```

```
Sequences (1:14) Aligned. Score: 99.9214
Sequences (1:15) Aligned. Score: 100
Sequences (1:16) Aligned. Score: 99.9214
Sequences (1:17) Aligned. Score: 100
Sequences (1:18) Aligned. Score: 100
Sequences (1:19) Aligned. Score: 99.9214
Sequences (1:20) Aligned. Score: 99.9214
Sequences (1:21) Aligned. Score: 99.9214
Sequences (1:22) Aligned. Score: 100
Sequences (1:23) Aligned. Score: 99.9214
Sequences (1:24) Aligned. Score: 100
Sequences (1:25) Aligned. Score: 100
Sequences (1:26) Aligned. Score: 100
Sequences (1:27) Aligned. Score: 100
Sequences (1:28) Aligned. Score: 100
Sequences (1:29) Aligned. Score: 100
Sequences (1:30) Aligned. Score: 100
Sequences (1:31) Aligned. Score: 99.9214
Sequences (1:32) Aligned. Score: 99.9214
Sequences (1:33) Aligned. Score: 100
Sequences (1:34) Aligned. Score: 99.9214
Sequences (1:35) Aligned. Score: 99.9214
Sequences (1:36) Aligned. Score: 99.9214
Sequences (1:37) Aligned. Score: 100
Sequences (1:38) Aligned. Score: 100
Sequences (1:39) Aligned. Score: 99.9214
Sequences (1:40) Aligned. Score: 99.9214
Sequences (1:41) Aligned. Score: 100
Sequences (1:42) Aligned. Score: 100
Sequences (1:43) Aligned. Score: 99.9214
Sequences (1:44) Aligned. Score: 100
Sequences (1:45) Aligned. Score: 100
Sequences (1:46) Aligned. Score: 100
Sequences (1:47) Aligned. Score: 100
Sequences (1:48) Aligned. Score: 100
Sequences (1:49) Aligned. Score: 100
Sequences (1:50) Aligned. Score: 100
Sequences (1:51) Aligned. Score: 99.9214
Sequences (1:52) Aligned. Score: 99.9214
Sequences (1:53) Aligned. Score: 99.9214
Sequences (1:54) Aligned. Score: 100
Sequences (1:55) Aligned. Score: 100
Sequences (1:56) Aligned. Score: 100
Sequences (1:57) Aligned. Score: 99.9214
Sequences (1:58) Aligned. Score: 100
Sequences (1:59) Aligned. Score: 100
Sequences (1:60) Aligned. Score: 99.9214
Sequences (1:61) Aligned. Score: 99.9214
Sequences (1:62) Aligned. Score: 100
Sequences (1:63) Aligned. Score: 99.9214
Sequences (1:64) Aligned. Score: 99.9214
Sequences (1:65) Aligned. Score: 99.9214
Sequences (1:66) Aligned. Score: 99.9214
Sequences (1:67) Aligned. Score: 99.9214
Sequences (1:68) Aligned. Score: 99.9214
Sequences (1:69) Aligned. Score: 99.9214
Sequences (1:70) Aligned. Score: 99.9214
Sequences (1:71) Aligned. Score: 100
Sequences (1:72) Aligned. Score: 100
Sequences (1:73) Aligned. Score: 99.9214
Sequences (1:74) Aligned. Score: 99.9214
Sequences (1:75) Aligned. Score: 99.9214
```

```
Sequences (1:76) Aligned. Score: 99.9214
Sequences (1:77) Aligned. Score: 99.9214
Sequences (1:78) Aligned. Score: 100
Sequences (1:79) Aligned. Score: 99.9214
Sequences (1:80) Aligned. Score: 99.9214
Sequences (1:81) Aligned. Score: 99.9214
Sequences (1:82) Aligned. Score: 99.9214
Sequences (1:83) Aligned. Score: 100
Sequences (1:84) Aligned. Score: 99.9214
Sequences (1:85) Aligned. Score: 100
Sequences (1:86) Aligned. Score: 99.9214
Sequences (1:87) Aligned. Score: 99.9214
Sequences (1:88) Aligned. Score: 100
Sequences (1:89) Aligned. Score: 100
Sequences (1:90) Aligned. Score: 99.9214
Sequences (1:91) Aligned. Score: 99.9214
Sequences (1:92) Aligned. Score: 99.9214
Sequences (2:3) Aligned. Score: 99.9214
Sequences (2:4) Aligned. Score: 99.6855
Sequences (2:5) Aligned. Score: 99.9214
Sequences (2:6) Aligned. Score: 100
Sequences (2:7) Aligned. Score: 100
Sequences (2:8) Aligned. Score: 100
Sequences (2:9) Aligned. Score: 99.9214
Sequences (2:10) Aligned. Score: 100
Sequences (2:11) Aligned. Score: 99.9214
Sequences (2:12) Aligned. Score: 99.9214
Sequences (2:13) Aligned. Score: 99.9214
Sequences (2:14) Aligned. Score: 99.9214
Sequences (2:15) Aligned. Score: 100
Sequences (2:16) Aligned. Score: 99.9214
Sequences (2:17) Aligned. Score: 100
Sequences (2:18) Aligned. Score: 100
Sequences (2:19) Aligned. Score: 99.9214
Sequences (2:20) Aligned. Score: 99.9214
Sequences (2:21) Aligned. Score: 99.9214
Sequences (2:22) Aligned. Score: 100
Sequences (2:23) Aligned. Score: 99.9214
Sequences (2:24) Aligned. Score: 100
Sequences (2:25) Aligned. Score: 100
Sequences (2:26) Aligned. Score: 100
Sequences (2:27) Aligned. Score: 100
Sequences (2:28) Aligned. Score: 100
Sequences (2:29) Aligned. Score: 100
Sequences (2:30) Aligned. Score: 100
Sequences (2:31) Aligned. Score: 99.9214
Sequences (2:32) Aligned. Score: 99.9214
Sequences (2:33) Aligned. Score: 100
Sequences (2:34) Aligned. Score: 99.9214
Sequences (2:35) Aligned. Score: 99.9214
Sequences (2:36) Aligned. Score: 99.9214
Sequences (2:37) Aligned. Score: 100
Sequences (2:38) Aligned. Score: 100
Sequences (2:39) Aligned. Score: 99.9214
Sequences (2:40) Aligned. Score: 99.9214
Sequences (2:41) Aligned. Score: 100
Sequences (2:42) Aligned. Score: 100
Sequences (2:43) Aligned. Score: 99.9214
Sequences (2:44) Aligned. Score: 100
Sequences (2:45) Aligned. Score: 100
Sequences (2:46) Aligned. Score: 100
Sequences (2:47) Aligned. Score: 100
```

```
Sequences (2:48) Aligned. Score: 100
Sequences (2:49) Aligned. Score: 100
Sequences (2:50) Aligned. Score: 100
Sequences (2:51) Aligned. Score: 99.9214
Sequences (2:52) Aligned. Score: 99.9214
Sequences (2:53) Aligned. Score: 99.9214
Sequences (2:54) Aligned. Score: 100
Sequences (2:55) Aligned. Score: 100
Sequences (2:56) Aligned. Score: 100
Sequences (2:57) Aligned. Score: 99.9214
Sequences (2:58) Aligned. Score: 100
Sequences (2:59) Aligned. Score: 100
Sequences (2:60) Aligned. Score: 99.9214
Sequences (2:61) Aligned. Score: 99.9214
Sequences (2:62) Aligned. Score: 100
Sequences (2:63) Aligned. Score: 99.9214
Sequences (2:64) Aligned. Score: 99.9214
Sequences (2:65) Aligned. Score: 99.9214
Sequences (2:66) Aligned. Score: 99.9214
Sequences (2:67) Aligned. Score: 99.9214
Sequences (2:68) Aligned. Score: 99.9214
Sequences (2:69) Aligned. Score: 99.9214
Sequences (2:70) Aligned. Score: 99.9214
Sequences (2:71) Aligned. Score: 100
Sequences (2:72) Aligned. Score: 100
Sequences (2:73) Aligned. Score: 99.9214
Sequences (2:74) Aligned. Score: 99.9214
Sequences (2:75) Aligned. Score: 99.9214
Sequences (2:76) Aligned. Score: 99.9214
Sequences (2:77) Aligned. Score: 99.9214
Sequences (2:78) Aligned. Score: 100
Sequences (2:79) Aligned. Score: 99.9214
Sequences (2:80) Aligned. Score: 99.9214
Sequences (2:81) Aligned. Score: 99.9214
Sequences (2:82) Aligned. Score: 99.9214
Sequences (2:83) Aligned. Score: 100
Sequences (2:84) Aligned. Score: 99.9214
Sequences (2:85) Aligned. Score: 100
Sequences (2:86) Aligned. Score: 99.9214
Sequences (2:87) Aligned. Score: 99.9214
Sequences (2:88) Aligned. Score: 100
Sequences (2:89) Aligned. Score: 100
Sequences (2:90) Aligned. Score: 99.9214
Sequences (2:91) Aligned. Score: 99.9214
Sequences (2:92) Aligned. Score: 99.9214
Sequences (3:4) Aligned. Score: 99.6069
Sequences (3:5) Aligned. Score: 99.8429
Sequences (3:6) Aligned. Score: 99.9214
Sequences (3:7) Aligned. Score: 99.9214
Sequences (3:8) Aligned. Score: 99.9214
Sequences (3:9) Aligned. Score: 99.8429
Sequences (3:10) Aligned. Score: 99.9214
Sequences (3:11) Aligned. Score: 99.8429
Sequences (3:12) Aligned. Score: 99.8429
Sequences (3:13) Aligned. Score: 99.8429
Sequences (3:14) Aligned. Score: 99.8429
Sequences (3:15) Aligned. Score: 99.9214
Sequences (3:16) Aligned. Score: 99.8429
Sequences (3:17) Aligned. Score: 99.9214
Sequences (3:18) Aligned. Score: 99.9214
Sequences (3:19) Aligned. Score: 99.8429
Sequences (3:20) Aligned. Score: 99.8429
```

```
Sequences (3:21) Aligned. Score: 99.8429
Sequences (3:22) Aligned. Score: 99.9214
Sequences (3:23) Aligned. Score: 99.8429
Sequences (3:24) Aligned. Score: 99.9214
Sequences (3:25) Aligned. Score: 99.9214
Sequences (3:26) Aligned. Score: 99.9214
Sequences (3:27) Aligned. Score: 99.9214
Sequences (3:28) Aligned. Score: 99.9214
Sequences (3:29) Aligned. Score: 99.9214
Sequences (3:30) Aligned. Score: 99.9214
Sequences (3:31) Aligned. Score: 99.8429
Sequences (3:32) Aligned. Score: 99.8429
Sequences (3:33) Aligned. Score: 99.9214
Sequences (3:34) Aligned. Score: 99.8429
Sequences (3:35) Aligned. Score: 99.8429
Sequences (3:36) Aligned. Score: 99.8429
Sequences (3:37) Aligned. Score: 99.9214
Sequences (3:38) Aligned. Score: 99.9214
Sequences (3:39) Aligned. Score: 99.8429
Sequences (3:40) Aligned. Score: 99.8429
Sequences (3:41) Aligned. Score: 99.9214
Sequences (3:42) Aligned. Score: 99.9214
Sequences (3:43) Aligned. Score: 99.8429
Sequences (3:44) Aligned. Score: 99.9214
Sequences (3:45) Aligned. Score: 99.9214
Sequences (3:46) Aligned. Score: 99.9214
Sequences (3:47) Aligned. Score: 99.9214
Sequences (3:48) Aligned. Score: 99.9214
Sequences (3:49) Aligned. Score: 99.9214
Sequences (3:50) Aligned. Score: 99.9214
Sequences (3:51) Aligned. Score: 99.8429
Sequences (3:52) Aligned. Score: 99.8429
Sequences (3:53) Aligned. Score: 99.8429
Sequences (3:54) Aligned. Score: 99.9214
Sequences (3:55) Aligned. Score: 99.9214
Sequences (3:56) Aligned. Score: 99.9214
Sequences (3:57) Aligned. Score: 99.8429
Sequences (3:58) Aligned. Score: 99.9214
Sequences (3:59) Aligned. Score: 99.9214
Sequences (3:60) Aligned. Score: 99.8429
Sequences (3:61) Aligned. Score: 99.8429
Sequences (3:62) Aligned. Score: 99.9214
Sequences (3:63) Aligned. Score: 99.8429
Sequences (3:64) Aligned. Score: 99.8429
Sequences (3:65) Aligned. Score: 99.8429
Sequences (3:66) Aligned. Score: 99.8429
Sequences (3:67) Aligned. Score: 99.8429
Sequences (3:68) Aligned. Score: 99.8429
Sequences (3:69) Aligned. Score: 99.8429
Sequences (3:70) Aligned. Score: 99.8429
Sequences (3:71) Aligned. Score: 99.9214
Sequences (3:72) Aligned. Score: 99.9214
Sequences (3:73) Aligned. Score: 99.8429
Sequences (3:74) Aligned. Score: 99.8429
Sequences (3:75) Aligned. Score: 99.8429
Sequences (3:76) Aligned. Score: 99.8429
Sequences (3:77) Aligned. Score: 99.8429
Sequences (3:78) Aligned. Score: 99.9214
Sequences (3:79) Aligned. Score: 99.8429
Sequences (3:80) Aligned. Score: 99.8429
Sequences (3:81) Aligned. Score: 99.8429
Sequences (3:82) Aligned. Score: 99.8429
```

```
Sequences (3:83) Aligned. Score: 99.9214
Sequences (3:84) Aligned. Score: 99.8429
Sequences (3:85) Aligned. Score: 99.9214
Sequences (3:86) Aligned. Score: 99.8429
Sequences (3:87) Aligned. Score: 99.8429
Sequences (3:88) Aligned. Score: 99.9214
Sequences (3:89) Aligned. Score: 99.9214
Sequences (3:90) Aligned. Score: 99.8429
Sequences (3:91) Aligned. Score: 99.8429
Sequences (3:92) Aligned. Score: 99.8429
Sequences (4:5) Aligned. Score: 99.6069
Sequences (4:6) Aligned. Score: 99.6855
Sequences (4:7) Aligned. Score: 99.6855
Sequences (4:8) Aligned. Score: 99.6855
Sequences (4:9) Aligned. Score: 99.6069
Sequences (4:10) Aligned. Score: 99.6855
Sequences (4:11) Aligned. Score: 99.6069
Sequences (4:12) Aligned. Score: 99.6069
Sequences (4:13) Aligned. Score: 99.6069
Sequences (4:14) Aligned. Score: 99.6069
Sequences (4:15) Aligned. Score: 99.6855
Sequences (4:16) Aligned. Score: 99.6069
Sequences (4:17) Aligned. Score: 99.6855
Sequences (4:18) Aligned. Score: 99.6855
Sequences (4:19) Aligned. Score: 99.6069
Sequences (4:20) Aligned. Score: 99.6069
Sequences (4:21) Aligned. Score: 99.6069
Sequences (4:22) Aligned. Score: 99.6855
Sequences (4:23) Aligned. Score: 99.6069
Sequences (4:24) Aligned. Score: 99.6855
Sequences (4:25) Aligned. Score: 99.6855
Sequences (4:26) Aligned. Score: 99.6855
Sequences (4:27) Aligned. Score: 99.6855
Sequences (4:28) Aligned. Score: 99.6855
Sequences (4:29) Aligned. Score: 99.6855
Sequences (4:30) Aligned. Score: 99.6855
Sequences (4:31) Aligned. Score: 99.6069
Sequences (4:32) Aligned. Score: 99.6069
Sequences (4:33) Aligned. Score: 99.6855
Sequences (4:34) Aligned. Score: 99.6069
Sequences (4:35) Aligned. Score: 99.6069
Sequences (4:36) Aligned. Score: 99.6069
Sequences (4:37) Aligned. Score: 99.6855
Sequences (4:38) Aligned. Score: 99.6855
Sequences (4:39) Aligned. Score: 99.6069
Sequences (4:40) Aligned. Score: 99.6069
Sequences (4:41) Aligned. Score: 99.6855
Sequences (4:42) Aligned. Score: 99.6855
Sequences (4:43) Aligned. Score: 99.6069
Sequences (4:44) Aligned. Score: 99.6855
Sequences (4:45) Aligned. Score: 99.6855
Sequences (4:46) Aligned. Score: 99.6855
Sequences (4:47) Aligned. Score: 99.6855
Sequences (4:48) Aligned. Score: 99.6855
Sequences (4:49) Aligned. Score: 99.6855
Sequences (4:50) Aligned. Score: 99.6855
Sequences (4:51) Aligned. Score: 99.6069
Sequences (4:52) Aligned. Score: 99.6069
Sequences (4:53) Aligned. Score: 99.6069
Sequences (4:54) Aligned. Score: 99.6855
Sequences (4:55) Aligned. Score: 99.6855
Sequences (4:56) Aligned. Score: 99.6855
```

```
Sequences (4:57) Aligned. Score: 99.6069
Sequences (4:58) Aligned. Score: 99.6855
Sequences (4:59) Aligned. Score: 99.6855
Sequences (4:60) Aligned. Score: 99.6069
Sequences (4:61) Aligned. Score: 99.6069
Sequences (4:62) Aligned. Score: 99.6855
Sequences (4:63) Aligned. Score: 99.6069
Sequences (4:64) Aligned. Score: 99.6069
Sequences (4:65) Aligned. Score: 99.6069
Sequences (4:66) Aligned. Score: 99.6069
Sequences (4:67) Aligned. Score: 99.6069
Sequences (4:68) Aligned. Score: 99.6069
Sequences (4:69) Aligned. Score: 99.6069
Sequences (4:70) Aligned. Score: 99.6069
Sequences (4:71) Aligned. Score: 99.6855
Sequences (4:72) Aligned. Score: 99.6855
Sequences (4:73) Aligned. Score: 99.6069
Sequences (4:74) Aligned. Score: 99.6069
Sequences (4:75) Aligned. Score: 99.6069
Sequences (4:76) Aligned. Score: 99.6069
Sequences (4:77) Aligned. Score: 99.6069
Sequences (4:78) Aligned. Score: 99.6855
Sequences (4:79) Aligned. Score: 99.6069
Sequences (4:80) Aligned. Score: 99.6069
Sequences (4:81) Aligned. Score: 99.6069
Sequences (4:82) Aligned. Score: 99.6069
Sequences (4:83) Aligned. Score: 99.6855
Sequences (4:84) Aligned. Score: 99.6069
Sequences (4:85) Aligned. Score: 99.6855
Sequences (4:86) Aligned. Score: 99.6069
Sequences (4:87) Aligned. Score: 99.6069
Sequences (4:88) Aligned. Score: 99.6855
Sequences (4:89) Aligned. Score: 99.6855
Sequences (4:90) Aligned. Score: 99.6069
Sequences (4:91) Aligned. Score: 99.6069
Sequences (4:92) Aligned. Score: 99.6069
Sequences (5:6) Aligned. Score: 99.9214
Sequences (5:7) Aligned. Score: 99.9214
Sequences (5:8) Aligned. Score: 99.9214
Sequences (5:9) Aligned. Score: 99.8429
Sequences (5:10) Aligned. Score: 99.9214
Sequences (5:11) Aligned. Score: 100
Sequences (5:12) Aligned. Score: 100
Sequences (5:13) Aligned. Score: 100
Sequences (5:14) Aligned. Score: 99.8429
Sequences (5:15) Aligned. Score: 99.9214
Sequences (5:16) Aligned. Score: 100
Sequences (5:17) Aligned. Score: 99.9214
Sequences (5:18) Aligned. Score: 99.9214
Sequences (5:19) Aligned. Score: 99.8429
Sequences (5:20) Aligned. Score: 100
Sequences (5:21) Aligned. Score: 100
Sequences (5:22) Aligned. Score: 99.9214
Sequences (5:23) Aligned. Score: 100
Sequences (5:24) Aligned. Score: 99.9214
Sequences (5:25) Aligned. Score: 99.9214
Sequences (5:26) Aligned. Score: 99.9214
Sequences (5:27) Aligned. Score: 99.9214
Sequences (5:28) Aligned. Score: 99.9214
Sequences (5:29) Aligned. Score: 99.9214
Sequences (5:30) Aligned. Score: 99.9214
Sequences (5:31) Aligned. Score: 100
```

```
Sequences (5:32) Aligned. Score: 100
Sequences (5:33) Aligned. Score: 99.9214
Sequences (5:34) Aligned. Score: 99.8429
Sequences (5:35) Aligned. Score: 99.8429
Sequences (5:36) Aligned. Score: 100
Sequences (5:37) Aligned. Score: 99.9214
Sequences (5:38) Aligned. Score: 99.9214
Sequences (5:39) Aligned. Score: 99.8429
Sequences (5:40) Aligned. Score: 100
Sequences (5:41) Aligned. Score: 99.9214
Sequences (5:42) Aligned. Score: 99.9214
Sequences (5:43) Aligned. Score: 99.8429
Sequences (5:44) Aligned. Score: 99.9214
Sequences (5:45) Aligned. Score: 99.9214
Sequences (5:46) Aligned. Score: 99.9214
Sequences (5:47) Aligned. Score: 99.9214
Sequences (5:48) Aligned. Score: 99.9214
Sequences (5:49) Aligned. Score: 99.9214
Sequences (5:50) Aligned. Score: 99.9214
Sequences (5:51) Aligned. Score: 100
Sequences (5:52) Aligned. Score: 99.8429
Sequences (5:53) Aligned. Score: 100
Sequences (5:54) Aligned. Score: 99.9214
Sequences (5:55) Aligned. Score: 99.9214
Sequences (5:56) Aligned. Score: 99.9214
Sequences (5:57) Aligned. Score: 100
Sequences (5:58) Aligned. Score: 99.9214
Sequences (5:59) Aligned. Score: 99.9214
Sequences (5:60) Aligned. Score: 100
Sequences (5:61) Aligned. Score: 100
Sequences (5:62) Aligned. Score: 99.9214
Sequences (5:63) Aligned. Score: 100
Sequences (5:64) Aligned. Score: 100
Sequences (5:65) Aligned. Score: 100
Sequences (5:66) Aligned. Score: 100
Sequences (5:67) Aligned. Score: 100
Sequences (5:68) Aligned. Score: 100
Sequences (5:69) Aligned. Score: 99.8429
Sequences (5:70) Aligned. Score: 100
Sequences (5:71) Aligned. Score: 99.9214
Sequences (5:72) Aligned. Score: 99.9214
Sequences (5:73) Aligned. Score: 100
Sequences (5:74) Aligned. Score: 100
Sequences (5:75) Aligned. Score: 100
Sequences (5:76) Aligned. Score: 100
Sequences (5:77) Aligned. Score: 100
Sequences (5:78) Aligned. Score: 99.9214
Sequences (5:79) Aligned. Score: 99.8429
Sequences (5:80) Aligned. Score: 100
Sequences (5:81) Aligned. Score: 100
Sequences (5:82) Aligned. Score: 100
Sequences (5:83) Aligned. Score: 99.9214
Sequences (5:84) Aligned. Score: 100
Sequences (5:85) Aligned. Score: 99.9214
Sequences (5:86) Aligned. Score: 100
Sequences (5:87) Aligned. Score: 100
Sequences (5:88) Aligned. Score: 99.9214
Sequences (5:89) Aligned. Score: 99.9214
Sequences (5:90) Aligned. Score: 100
Sequences (5:91) Aligned. Score: 100
Sequences (5:92) Aligned. Score: 100
Sequences (6:7) Aligned. Score: 100
```

```
Sequences (6:8) Aligned. Score: 100
Sequences (6:9) Aligned. Score: 99.9214
Sequences (6:10) Aligned. Score: 100
Sequences (6:11) Aligned. Score: 99.9214
Sequences (6:12) Aligned. Score: 99.9214
Sequences (6:13) Aligned. Score: 99.9214
Sequences (6:14) Aligned. Score: 99.9214
Sequences (6:15) Aligned. Score: 100
Sequences (6:16) Aligned. Score: 99.9214
Sequences (6:17) Aligned. Score: 100
Sequences (6:18) Aligned. Score: 100
Sequences (6:19) Aligned. Score: 99.9214
Sequences (6:20) Aligned. Score: 99.9214
Sequences (6:21) Aligned. Score: 99.9214
Sequences (6:22) Aligned. Score: 100
Sequences (6:23) Aligned. Score: 99.9214
Sequences (6:24) Aligned. Score: 100
Sequences (6:25) Aligned. Score: 100
Sequences (6:26) Aligned. Score: 100
Sequences (6:27) Aligned. Score: 100
Sequences (6:28) Aligned. Score: 100
Sequences (6:29) Aligned. Score: 100
Sequences (6:30) Aligned. Score: 100
Sequences (6:31) Aligned. Score: 99.9214
Sequences (6:32) Aligned. Score: 99.9214
Sequences (6:33) Aligned. Score: 100
Sequences (6:34) Aligned. Score: 99.9214
Sequences (6:35) Aligned. Score: 99.9214
Sequences (6:36) Aligned. Score: 99.9214
Sequences (6:37) Aligned. Score: 100
Sequences (6:38) Aligned. Score: 100
Sequences (6:39) Aligned. Score: 99.9214
Sequences (6:40) Aligned. Score: 99.9214
Sequences (6:41) Aligned. Score: 100
Sequences (6:42) Aligned. Score: 100
Sequences (6:43) Aligned. Score: 99.9214
Sequences (6:44) Aligned. Score: 100
Sequences (6:45) Aligned. Score: 100
Sequences (6:46) Aligned. Score: 100
Sequences (6:47) Aligned. Score: 100
Sequences (6:48) Aligned. Score: 100
Sequences (6:49) Aligned. Score: 100
Sequences (6:50) Aligned. Score: 100
Sequences (6:51) Aligned. Score: 99.9214
Sequences (6:52) Aligned. Score: 99.9214
Sequences (6:53) Aligned. Score: 99.9214
Sequences (6:54) Aligned. Score: 100
Sequences (6:55) Aligned. Score: 100
Sequences (6:56) Aligned. Score: 100
Sequences (6:57) Aligned. Score: 99.9214
Sequences (6:58) Aligned. Score: 100
Sequences (6:59) Aligned. Score: 100
Sequences (6:60) Aligned. Score: 99.9214
Sequences (6:61) Aligned. Score: 99.9214
Sequences (6:62) Aligned. Score: 100
Sequences (6:63) Aligned. Score: 99.9214
Sequences (6:64) Aligned. Score: 99.9214
Sequences (6:65) Aligned. Score: 99.9214
Sequences (6:66) Aligned. Score: 99.9214
Sequences (6:67) Aligned. Score: 99.9214
Sequences (6:68) Aligned. Score: 99.9214
Sequences (6:69) Aligned. Score: 99.9214
```

```
Sequences (6:70) Aligned. Score: 99.9214
Sequences (6:71) Aligned. Score: 100
Sequences (6:72) Aligned. Score: 100
Sequences (6:73) Aligned. Score: 99.9214
Sequences (6:74) Aligned. Score: 99.9214
Sequences (6:75) Aligned. Score: 99.9214
Sequences (6:76) Aligned. Score: 99.9214
Sequences (6:77) Aligned. Score: 99.9214
Sequences (6:78) Aligned. Score: 100
Sequences (6:79) Aligned. Score: 99.9214
Sequences (6:80) Aligned. Score: 99.9214
Sequences (6:81) Aligned. Score: 99.9214
Sequences (6:82) Aligned. Score: 99.9214
Sequences (6:83) Aligned. Score: 100
Sequences (6:84) Aligned. Score: 99.9214
Sequences (6:85) Aligned. Score: 100
Sequences (6:86) Aligned. Score: 99.9214
Sequences (6:87) Aligned. Score: 99.9214
Sequences (6:88) Aligned. Score: 100
Sequences (6:89) Aligned. Score: 100
Sequences (6:90) Aligned. Score: 99.9214
Sequences (6:91) Aligned. Score: 99.9214
Sequences (6:92) Aligned. Score: 99.9214
Sequences (7:8) Aligned. Score: 100
Sequences (7:9) Aligned. Score: 99.9214
Sequences (7:10) Aligned. Score: 100
Sequences (7:11) Aligned. Score: 99.9214
Sequences (7:12) Aligned. Score: 99.9214
Sequences (7:13) Aligned. Score: 99.9214
Sequences (7:14) Aligned. Score: 99.9214
Sequences (7:15) Aligned. Score: 100
Sequences (7:16) Aligned. Score: 99.9214
Sequences (7:17) Aligned. Score: 100
Sequences (7:18) Aligned. Score: 100
Sequences (7:19) Aligned. Score: 99.9214
Sequences (7:20) Aligned. Score: 99.9214
Sequences (7:21) Aligned. Score: 99.9214
Sequences (7:22) Aligned. Score: 100
Sequences (7:23) Aligned. Score: 99.9214
Sequences (7:24) Aligned. Score: 100
Sequences (7:25) Aligned. Score: 100
Sequences (7:26) Aligned. Score: 100
Sequences (7:27) Aligned. Score: 100
Sequences (7:28) Aligned. Score: 100
Sequences (7:29) Aligned. Score: 100
Sequences (7:30) Aligned. Score: 100
Sequences (7:31) Aligned. Score: 99.9214
Sequences (7:32) Aligned. Score: 99.9214
Sequences (7:33) Aligned. Score: 100
Sequences (7:34) Aligned. Score: 99.9214
Sequences (7:35) Aligned. Score: 99.9214
Sequences (7:36) Aligned. Score: 99.9214
Sequences (7:37) Aligned. Score: 100
Sequences (7:38) Aligned. Score: 100
Sequences (7:39) Aligned. Score: 99.9214
Sequences (7:40) Aligned. Score: 99.9214
Sequences (7:41) Aligned. Score: 100
Sequences (7:42) Aligned. Score: 100
Sequences (7:43) Aligned. Score: 99.9214
Sequences (7:44) Aligned. Score: 100
Sequences (7:45) Aligned. Score: 100
Sequences (7:46) Aligned. Score: 100
```

```
Sequences (7:47) Aligned. Score: 100
Sequences (7:48) Aligned. Score: 100
Sequences (7:49) Aligned. Score: 100
Sequences (7:50) Aligned. Score: 100
Sequences (7:51) Aligned. Score: 99.9214
Sequences (7:52) Aligned. Score: 99.9214
Sequences (7:53) Aligned. Score: 99.9214
Sequences (7:54) Aligned. Score: 100
Sequences (7:55) Aligned. Score: 100
Sequences (7:56) Aligned. Score: 100
Sequences (7:57) Aligned. Score: 99.9214
Sequences (7:58) Aligned. Score: 100
Sequences (7:59) Aligned. Score: 100
Sequences (7:60) Aligned. Score: 99.9214
Sequences (7:61) Aligned. Score: 99.9214
Sequences (7:62) Aligned. Score: 100
Sequences (7:63) Aligned. Score: 99.9214
Sequences (7:64) Aligned. Score: 99.9214
Sequences (7:65) Aligned. Score: 99.9214
Sequences (7:66) Aligned. Score: 99.9214
Sequences (7:67) Aligned. Score: 99.9214
Sequences (7:68) Aligned. Score: 99.9214
Sequences (7:69) Aligned. Score: 99.9214
Sequences (7:70) Aligned. Score: 99.9214
Sequences (7:71) Aligned. Score: 100
Sequences (7:72) Aligned. Score: 100
Sequences (7:73) Aligned. Score: 99.9214
Sequences (7:74) Aligned. Score: 99.9214
Sequences (7:75) Aligned. Score: 99.9214
Sequences (7:76) Aligned. Score: 99.9214
Sequences (7:77) Aligned. Score: 99.9214
Sequences (7:78) Aligned. Score: 100
Sequences (7:79) Aligned. Score: 99.9214
Sequences (7:80) Aligned. Score: 99.9214
Sequences (7:81) Aligned. Score: 99.9214
Sequences (7:82) Aligned. Score: 99.9214
Sequences (7:83) Aligned. Score: 100
Sequences (7:84) Aligned. Score: 99.9214
Sequences (7:85) Aligned. Score: 100
Sequences (7:86) Aligned. Score: 99.9214
Sequences (7:87) Aligned. Score: 99.9214
Sequences (7:88) Aligned. Score: 100
Sequences (7:89) Aligned. Score: 100
Sequences (7:90) Aligned. Score: 99.9214
Sequences (7:91) Aligned. Score: 99.9214
Sequences (7:92) Aligned. Score: 99.9214
Sequences (8:9) Aligned. Score: 99.9214
Sequences (8:10) Aligned. Score: 100
Sequences (8:11) Aligned. Score: 99.9214
Sequences (8:12) Aligned. Score: 99.9214
Sequences (8:13) Aligned. Score: 99.9214
Sequences (8:14) Aligned. Score: 99.9214
Sequences (8:15) Aligned. Score: 100
Sequences (8:16) Aligned. Score: 99.9214
Sequences (8:17) Aligned. Score: 100
Sequences (8:18) Aligned. Score: 100
Sequences (8:19) Aligned. Score: 99.9214
Sequences (8:20) Aligned. Score: 99.9214
Sequences (8:21) Aligned. Score: 99.9214
Sequences (8:22) Aligned. Score: 100
Sequences (8:23) Aligned. Score: 99.9214
Sequences (8:24) Aligned. Score: 100
```

```
Sequences (8:25) Aligned. Score: 100
Sequences (8:26) Aligned. Score: 100
Sequences (8:27) Aligned. Score: 100
Sequences (8:28) Aligned. Score: 100
Sequences (8:29) Aligned. Score: 100
Sequences (8:30) Aligned. Score: 100
Sequences (8:31) Aligned. Score: 99.9214
Sequences (8:32) Aligned. Score: 99.9214
Sequences (8:33) Aligned. Score: 100
Sequences (8:34) Aligned. Score: 99.9214
Sequences (8:35) Aligned. Score: 99.9214
Sequences (8:36) Aligned. Score: 99.9214
Sequences (8:37) Aligned. Score: 100
Sequences (8:38) Aligned. Score: 100
Sequences (8:39) Aligned. Score: 99.9214
Sequences (8:40) Aligned. Score: 99.9214
Sequences (8:41) Aligned. Score: 100
Sequences (8:42) Aligned. Score: 100
Sequences (8:43) Aligned. Score: 99.9214
Sequences (8:44) Aligned. Score: 100
Sequences (8:45) Aligned. Score: 100
Sequences (8:46) Aligned. Score: 100
Sequences (8:47) Aligned. Score: 100
Sequences (8:48) Aligned. Score: 100
Sequences (8:49) Aligned. Score: 100
Sequences (8:50) Aligned. Score: 100
Sequences (8:51) Aligned. Score: 99.9214
Sequences (8:52) Aligned. Score: 99.9214
Sequences (8:53) Aligned. Score: 99.9214
Sequences (8:54) Aligned. Score: 100
Sequences (8:55) Aligned. Score: 100
Sequences (8:56) Aligned. Score: 100
Sequences (8:57) Aligned. Score: 99.9214
Sequences (8:58) Aligned. Score: 100
Sequences (8:59) Aligned. Score: 100
Sequences (8:60) Aligned. Score: 99.9214
Sequences (8:61) Aligned. Score: 99.9214
Sequences (8:62) Aligned. Score: 100
Sequences (8:63) Aligned. Score: 99.9214
Sequences (8:64) Aligned. Score: 99.9214
Sequences (8:65) Aligned. Score: 99.9214
Sequences (8:66) Aligned. Score: 99.9214
Sequences (8:67) Aligned. Score: 99.9214
Sequences (8:68) Aligned. Score: 99.9214
Sequences (8:69) Aligned. Score: 99.9214
Sequences (8:70) Aligned. Score: 99.9214
Sequences (8:71) Aligned. Score: 100
Sequences (8:72) Aligned. Score: 100
Sequences (8:73) Aligned. Score: 99.9214
Sequences (8:74) Aligned. Score: 99.9214
Sequences (8:75) Aligned. Score: 99.9214
Sequences (8:76) Aligned. Score: 99.9214
Sequences (8:77) Aligned. Score: 99.9214
Sequences (8:78) Aligned. Score: 100
Sequences (8:79) Aligned. Score: 99.9214
Sequences (8:80) Aligned. Score: 99.9214
Sequences (8:81) Aligned. Score: 99.9214
Sequences (8:82) Aligned. Score: 99.9214
Sequences (8:83) Aligned. Score: 100
Sequences (8:84) Aligned. Score: 99.9214
Sequences (8:85) Aligned. Score: 100
Sequences (8:86) Aligned. Score: 99.9214
```

```
Sequences (8:87) Aligned. Score: 99.9214
Sequences (8:88) Aligned. Score: 100
Sequences (8:89) Aligned. Score: 100
Sequences (8:90) Aligned. Score: 99.9214
Sequences (8:91) Aligned. Score: 99.9214
Sequences (8:92) Aligned. Score: 99.9214
Sequences (9:10) Aligned. Score: 99.9214
Sequences (9:11) Aligned. Score: 99.8429
Sequences (9:12) Aligned. Score: 99.8429
Sequences (9:13) Aligned. Score: 99.8429
Sequences (9:14) Aligned. Score: 99.8429
Sequences (9:15) Aligned. Score: 99.9214
Sequences (9:16) Aligned. Score: 99.8429
Sequences (9:17) Aligned. Score: 99.9214
Sequences (9:18) Aligned. Score: 99.9214
Sequences (9:19) Aligned. Score: 99.8429
Sequences (9:20) Aligned. Score: 99.8429
Sequences (9:21) Aligned. Score: 99.8429
Sequences (9:22) Aligned. Score: 99.9214
Sequences (9:23) Aligned. Score: 99.8429
Sequences (9:24) Aligned. Score: 99.9214
Sequences (9:25) Aligned. Score: 99.9214
Sequences (9:26) Aligned. Score: 99.9214
Sequences (9:27) Aligned. Score: 99.9214
Sequences (9:28) Aligned. Score: 99.9214
Sequences (9:29) Aligned. Score: 99.9214
Sequences (9:30) Aligned. Score: 99.9214
Sequences (9:31) Aligned. Score: 99.8429
Sequences (9:32) Aligned. Score: 99.8429
Sequences (9:33) Aligned. Score: 99.9214
Sequences (9:34) Aligned. Score: 99.8429
Sequences (9:35) Aligned. Score: 99.8429
Sequences (9:36) Aligned. Score: 99.8429
Sequences (9:37) Aligned. Score: 99.9214
Sequences (9:38) Aligned. Score: 99.9214
Sequences (9:39) Aligned. Score: 99.8429
Sequences (9:40) Aligned. Score: 99.8429
Sequences (9:41) Aligned. Score: 99.9214
Sequences (9:42) Aligned. Score: 99.9214
Sequences (9:43) Aligned. Score: 99.8429
Sequences (9:44) Aligned. Score: 99.9214
Sequences (9:45) Aligned. Score: 99.9214
Sequences (9:46) Aligned. Score: 99.9214
Sequences (9:47) Aligned. Score: 99.9214
Sequences (9:48) Aligned. Score: 99.9214
Sequences (9:49) Aligned. Score: 99.9214
Sequences (9:50) Aligned. Score: 99.9214
Sequences (9:51) Aligned. Score: 99.8429
Sequences (9:52) Aligned. Score: 99.8429
Sequences (9:53) Aligned. Score: 99.8429
Sequences (9:54) Aligned. Score: 99.9214
Sequences (9:55) Aligned. Score: 99.9214
Sequences (9:56) Aligned. Score: 99.9214
Sequences (9:57) Aligned. Score: 99.8429
Sequences (9:58) Aligned. Score: 99.9214
Sequences (9:59) Aligned. Score: 99.9214
Sequences (9:60) Aligned. Score: 99.8429
Sequences (9:61) Aligned. Score: 99.8429
Sequences (9:62) Aligned. Score: 99.9214
Sequences (9:63) Aligned. Score: 99.8429
Sequences (9:64) Aligned. Score: 99.8429
Sequences (9:65) Aligned. Score: 99.8429
```

```
Sequences (9:66) Aligned. Score: 99.8429
Sequences (9:67) Aligned. Score: 99.8429
Sequences (9:68) Aligned. Score: 99.8429
Sequences (9:69) Aligned. Score: 99.8429
Sequences (9:70) Aligned. Score: 99.8429
Sequences (9:71) Aligned. Score: 99.9214
Sequences (9:72) Aligned. Score: 99.9214
Sequences (9:73) Aligned. Score: 99.8429
Sequences (9:74) Aligned. Score: 99.8429
Sequences (9:75) Aligned. Score: 99.8429
Sequences (9:76) Aligned. Score: 99.8429
Sequences (9:77) Aligned. Score: 99.8429
Sequences (9:78) Aligned. Score: 99.9214
Sequences (9:79) Aligned. Score: 99.8429
Sequences (9:80) Aligned. Score: 99.8429
Sequences (9:81) Aligned. Score: 99.8429
Sequences (9:82) Aligned. Score: 99.8429
Sequences (9:83) Aligned. Score: 99.9214
Sequences (9:84) Aligned. Score: 99.8429
Sequences (9:85) Aligned. Score: 99.9214
Sequences (9:86) Aligned. Score: 99.8429
Sequences (9:87) Aligned. Score: 99.8429
Sequences (9:88) Aligned. Score: 99.9214
Sequences (9:89) Aligned. Score: 99.9214
Sequences (9:90) Aligned. Score: 99.8429
Sequences (9:91) Aligned. Score: 99.8429
Sequences (9:92) Aligned. Score: 99.8429
Sequences (10:11) Aligned. Score: 99.9214
Sequences (10:12) Aligned. Score: 99.9214
Sequences (10:13) Aligned. Score: 99.9214
Sequences (10:14) Aligned. Score: 99.9214
Sequences (10:15) Aligned. Score: 100
Sequences (10:16) Aligned. Score: 99.9214
Sequences (10:17) Aligned. Score: 100
Sequences (10:18) Aligned. Score: 100
Sequences (10:19) Aligned. Score: 99.9214
Sequences (10:20) Aligned. Score: 99.9214
Sequences (10:21) Aligned. Score: 99.9214
Sequences (10:22) Aligned. Score: 100
Sequences (10:23) Aligned. Score: 99.9214
Sequences (10:24) Aligned. Score: 100
Sequences (10:25) Aligned. Score: 100
Sequences (10:26) Aligned. Score: 100
Sequences (10:27) Aligned. Score: 100
Sequences (10:28) Aligned. Score: 100
Sequences (10:29) Aligned. Score: 100
Sequences (10:30) Aligned. Score: 100
Sequences (10:31) Aligned. Score: 99.9214
Sequences (10:32) Aligned. Score: 99.9214
Sequences (10:33) Aligned. Score: 100
Sequences (10:34) Aligned. Score: 99.9214
Sequences (10:35) Aligned. Score: 99.9214
Sequences (10:36) Aligned. Score: 99.9214
Sequences (10:37) Aligned. Score: 100
Sequences (10:38) Aligned. Score: 100
Sequences (10:39) Aligned. Score: 99.9214
Sequences (10:40) Aligned. Score: 99.9214
Sequences (10:41) Aligned. Score: 100
Sequences (10:42) Aligned. Score: 100
Sequences (10:43) Aligned. Score: 99.9214
Sequences (10:44) Aligned. Score: 100
Sequences (10:45) Aligned. Score: 100
```

Sequences (10:46) Aligned. Score: 100
Sequences (10:47) Aligned. Score: 100
Sequences (10:48) Aligned. Score: 100
Sequences (10:49) Aligned. Score: 100
Sequences (10:50) Aligned. Score: 100
Sequences (10:51) Aligned. Score: 99.9214
Sequences (10:52) Aligned. Score: 99.9214
Sequences (10:53) Aligned. Score: 99.9214
Sequences (10:54) Aligned. Score: 100
Sequences (10:55) Aligned. Score: 100
Sequences (10:56) Aligned. Score: 100
Sequences (10:57) Aligned. Score: 99.9214
Sequences (10:58) Aligned. Score: 100
Sequences (10:59) Aligned. Score: 100
Sequences (10:60) Aligned. Score: 99.9214
Sequences (10:61) Aligned. Score: 99.9214
Sequences (10:62) Aligned. Score: 100
Sequences (10:63) Aligned. Score: 99.9214
Sequences (10:64) Aligned. Score: 99.9214
Sequences (10:65) Aligned. Score: 99.9214
Sequences (10:66) Aligned. Score: 99.9214
Sequences (10:67) Aligned. Score: 99.9214
Sequences (10:68) Aligned. Score: 99.9214
Sequences (10:69) Aligned. Score: 99.9214
Sequences (10:70) Aligned. Score: 99.9214
Sequences (10:71) Aligned. Score: 100
Sequences (10:72) Aligned. Score: 100
Sequences (10:73) Aligned. Score: 99.9214
Sequences (10:74) Aligned. Score: 99.9214
Sequences (10:75) Aligned. Score: 99.9214
Sequences (10:76) Aligned. Score: 99.9214
Sequences (10:77) Aligned. Score: 99.9214
Sequences (10:78) Aligned. Score: 100
Sequences (10:79) Aligned. Score: 99.9214
Sequences (10:80) Aligned. Score: 99.9214
Sequences (10:81) Aligned. Score: 99.9214
Sequences (10:82) Aligned. Score: 99.9214
Sequences (10:83) Aligned. Score: 100
Sequences (10:84) Aligned. Score: 99.9214
Sequences (10:85) Aligned. Score: 100
Sequences (10:86) Aligned. Score: 99.9214
Sequences (10:87) Aligned. Score: 99.9214
Sequences (10:88) Aligned. Score: 100
Sequences (10:89) Aligned. Score: 100
Sequences (10:90) Aligned. Score: 99.9214
Sequences (10:91) Aligned. Score: 99.9214
Sequences (10:92) Aligned. Score: 99.9214
Sequences (11:12) Aligned. Score: 100
Sequences (11:13) Aligned. Score: 100
Sequences (11:14) Aligned. Score: 99.8429
Sequences (11:15) Aligned. Score: 99.9214
Sequences (11:16) Aligned. Score: 100
Sequences (11:17) Aligned. Score: 99.9214
Sequences (11:18) Aligned. Score: 99.9214
Sequences (11:19) Aligned. Score: 99.8429
Sequences (11:20) Aligned. Score: 100
Sequences (11:21) Aligned. Score: 100
Sequences (11:22) Aligned. Score: 99.9214
Sequences (11:23) Aligned. Score: 100
Sequences (11:24) Aligned. Score: 99.9214
Sequences (11:25) Aligned. Score: 99.9214
Sequences (11:26) Aligned. Score: 99.9214

Sequences (11:27) Aligned. Score: 99.9214
Sequences (11:28) Aligned. Score: 99.9214
Sequences (11:29) Aligned. Score: 99.9214
Sequences (11:30) Aligned. Score: 99.9214
Sequences (11:31) Aligned. Score: 100
Sequences (11:32) Aligned. Score: 100
Sequences (11:33) Aligned. Score: 99.9214
Sequences (11:34) Aligned. Score: 99.8429
Sequences (11:35) Aligned. Score: 99.8429
Sequences (11:36) Aligned. Score: 100
Sequences (11:37) Aligned. Score: 99.9214
Sequences (11:38) Aligned. Score: 99.9214
Sequences (11:39) Aligned. Score: 99.8429
Sequences (11:40) Aligned. Score: 100
Sequences (11:41) Aligned. Score: 99.9214
Sequences (11:42) Aligned. Score: 99.9214
Sequences (11:43) Aligned. Score: 99.8429
Sequences (11:44) Aligned. Score: 99.9214
Sequences (11:45) Aligned. Score: 99.9214
Sequences (11:46) Aligned. Score: 99.9214
Sequences (11:47) Aligned. Score: 99.9214
Sequences (11:48) Aligned. Score: 99.9214
Sequences (11:49) Aligned. Score: 99.9214
Sequences (11:50) Aligned. Score: 99.9214
Sequences (11:51) Aligned. Score: 100
Sequences (11:52) Aligned. Score: 99.8429
Sequences (11:53) Aligned. Score: 100
Sequences (11:54) Aligned. Score: 99.9214
Sequences (11:55) Aligned. Score: 99.9214
Sequences (11:56) Aligned. Score: 99.9214
Sequences (11:57) Aligned. Score: 100
Sequences (11:58) Aligned. Score: 99.9214
Sequences (11:59) Aligned. Score: 99.9214
Sequences (11:60) Aligned. Score: 100
Sequences (11:61) Aligned. Score: 100
Sequences (11:62) Aligned. Score: 99.9214
Sequences (11:63) Aligned. Score: 100
Sequences (11:64) Aligned. Score: 100
Sequences (11:65) Aligned. Score: 100
Sequences (11:66) Aligned. Score: 100
Sequences (11:67) Aligned. Score: 100
Sequences (11:68) Aligned. Score: 100
Sequences (11:69) Aligned. Score: 99.8429
Sequences (11:70) Aligned. Score: 100
Sequences (11:71) Aligned. Score: 99.9214
Sequences (11:72) Aligned. Score: 99.9214
Sequences (11:73) Aligned. Score: 100
Sequences (11:74) Aligned. Score: 100
Sequences (11:75) Aligned. Score: 100
Sequences (11:76) Aligned. Score: 100
Sequences (11:77) Aligned. Score: 100
Sequences (11:78) Aligned. Score: 99.9214
Sequences (11:79) Aligned. Score: 99.8429
Sequences (11:80) Aligned. Score: 100
Sequences (11:81) Aligned. Score: 100
Sequences (11:82) Aligned. Score: 100
Sequences (11:83) Aligned. Score: 99.9214
Sequences (11:84) Aligned. Score: 100
Sequences (11:85) Aligned. Score: 99.9214
Sequences (11:86) Aligned. Score: 100
Sequences (11:87) Aligned. Score: 100
Sequences (11:88) Aligned. Score: 99.9214

Sequences (11:89) Aligned. Score: 99.9214
Sequences (11:90) Aligned. Score: 100
Sequences (11:91) Aligned. Score: 100
Sequences (11:92) Aligned. Score: 100
Sequences (12:13) Aligned. Score: 100
Sequences (12:14) Aligned. Score: 99.8429
Sequences (12:15) Aligned. Score: 99.9214
Sequences (12:16) Aligned. Score: 100
Sequences (12:17) Aligned. Score: 99.9214
Sequences (12:18) Aligned. Score: 99.9214
Sequences (12:19) Aligned. Score: 99.8429
Sequences (12:20) Aligned. Score: 100
Sequences (12:21) Aligned. Score: 100
Sequences (12:22) Aligned. Score: 99.9214
Sequences (12:23) Aligned. Score: 100
Sequences (12:24) Aligned. Score: 99.9214
Sequences (12:25) Aligned. Score: 99.9214
Sequences (12:26) Aligned. Score: 99.9214
Sequences (12:27) Aligned. Score: 99.9214
Sequences (12:28) Aligned. Score: 99.9214
Sequences (12:29) Aligned. Score: 99.9214
Sequences (12:30) Aligned. Score: 99.9214
Sequences (12:31) Aligned. Score: 100
Sequences (12:32) Aligned. Score: 100
Sequences (12:33) Aligned. Score: 99.9214
Sequences (12:34) Aligned. Score: 99.8429
Sequences (12:35) Aligned. Score: 99.8429
Sequences (12:36) Aligned. Score: 100
Sequences (12:37) Aligned. Score: 99.9214
Sequences (12:38) Aligned. Score: 99.9214
Sequences (12:39) Aligned. Score: 99.8429
Sequences (12:40) Aligned. Score: 100
Sequences (12:41) Aligned. Score: 99.9214
Sequences (12:42) Aligned. Score: 99.9214
Sequences (12:43) Aligned. Score: 99.8429
Sequences (12:44) Aligned. Score: 99.9214
Sequences (12:45) Aligned. Score: 99.9214
Sequences (12:46) Aligned. Score: 99.9214
Sequences (12:47) Aligned. Score: 99.9214
Sequences (12:48) Aligned. Score: 99.9214
Sequences (12:49) Aligned. Score: 99.9214
Sequences (12:50) Aligned. Score: 99.9214
Sequences (12:51) Aligned. Score: 100
Sequences (12:52) Aligned. Score: 99.8429
Sequences (12:53) Aligned. Score: 100
Sequences (12:54) Aligned. Score: 99.9214
Sequences (12:55) Aligned. Score: 99.9214
Sequences (12:56) Aligned. Score: 99.9214
Sequences (12:57) Aligned. Score: 100
Sequences (12:58) Aligned. Score: 99.9214
Sequences (12:59) Aligned. Score: 99.9214
Sequences (12:60) Aligned. Score: 100
Sequences (12:61) Aligned. Score: 100
Sequences (12:62) Aligned. Score: 99.9214
Sequences (12:63) Aligned. Score: 100
Sequences (12:64) Aligned. Score: 100
Sequences (12:65) Aligned. Score: 100
Sequences (12:66) Aligned. Score: 100
Sequences (12:67) Aligned. Score: 100
Sequences (12:68) Aligned. Score: 100
Sequences (12:69) Aligned. Score: 99.8429
Sequences (12:70) Aligned. Score: 100

```
Sequences (12:71) Aligned. Score: 99.9214
Sequences (12:72) Aligned. Score: 99.9214
Sequences (12:73) Aligned. Score: 100
Sequences (12:74) Aligned. Score: 100
Sequences (12:75) Aligned. Score: 100
Sequences (12:76) Aligned. Score: 100
Sequences (12:77) Aligned. Score: 100
Sequences (12:78) Aligned. Score: 99.9214
Sequences (12:79) Aligned. Score: 99.8429
Sequences (12:80) Aligned. Score: 100
Sequences (12:81) Aligned. Score: 100
Sequences (12:82) Aligned. Score: 100
Sequences (12:83) Aligned. Score: 99.9214
Sequences (12:84) Aligned. Score: 100
Sequences (12:85) Aligned. Score: 99.9214
Sequences (12:86) Aligned. Score: 100
Sequences (12:87) Aligned. Score: 100
Sequences (12:88) Aligned. Score: 99.9214
Sequences (12:89) Aligned. Score: 99.9214
Sequences (12:90) Aligned. Score: 100
Sequences (12:91) Aligned. Score: 100
Sequences (12:92) Aligned. Score: 100
Sequences (13:14) Aligned. Score: 99.8429
Sequences (13:15) Aligned. Score: 99.9214
Sequences (13:16) Aligned. Score: 100
Sequences (13:17) Aligned. Score: 99.9214
Sequences (13:18) Aligned. Score: 99.9214
Sequences (13:19) Aligned. Score: 99.8429
Sequences (13:20) Aligned. Score: 100
Sequences (13:21) Aligned. Score: 100
Sequences (13:22) Aligned. Score: 99.9214
Sequences (13:23) Aligned. Score: 100
Sequences (13:24) Aligned. Score: 99.9214
Sequences (13:25) Aligned. Score: 99.9214
Sequences (13:26) Aligned. Score: 99.9214
Sequences (13:27) Aligned. Score: 99.9214
Sequences (13:28) Aligned. Score: 99.9214
Sequences (13:29) Aligned. Score: 99.9214
Sequences (13:30) Aligned. Score: 99.9214
Sequences (13:31) Aligned. Score: 100
Sequences (13:32) Aligned. Score: 100
Sequences (13:33) Aligned. Score: 99.9214
Sequences (13:34) Aligned. Score: 99.8429
Sequences (13:35) Aligned. Score: 99.8429
Sequences (13:36) Aligned. Score: 100
Sequences (13:37) Aligned. Score: 99.9214
Sequences (13:38) Aligned. Score: 99.9214
Sequences (13:39) Aligned. Score: 99.8429
Sequences (13:40) Aligned. Score: 100
Sequences (13:41) Aligned. Score: 99.9214
Sequences (13:42) Aligned. Score: 99.9214
Sequences (13:43) Aligned. Score: 99.8429
Sequences (13:44) Aligned. Score: 99.9214
Sequences (13:45) Aligned. Score: 99.9214
Sequences (13:46) Aligned. Score: 99.9214
Sequences (13:47) Aligned. Score: 99.9214
Sequences (13:48) Aligned. Score: 99.9214
Sequences (13:49) Aligned. Score: 99.9214
Sequences (13:50) Aligned. Score: 99.9214
Sequences (13:51) Aligned. Score: 100
Sequences (13:52) Aligned. Score: 99.8429
Sequences (13:53) Aligned. Score: 100
```

```
Sequences (13:54) Aligned. Score: 99.9214
Sequences (13:55) Aligned. Score: 99.9214
Sequences (13:56) Aligned. Score: 99.9214
Sequences (13:57) Aligned. Score: 100
Sequences (13:58) Aligned. Score: 99.9214
Sequences (13:59) Aligned. Score: 99.9214
Sequences (13:60) Aligned. Score: 100
Sequences (13:61) Aligned. Score: 100
Sequences (13:62) Aligned. Score: 99.9214
Sequences (13:63) Aligned. Score: 100
Sequences (13:64) Aligned. Score: 100
Sequences (13:65) Aligned. Score: 100
Sequences (13:66) Aligned. Score: 100
Sequences (13:67) Aligned. Score: 100
Sequences (13:68) Aligned. Score: 100
Sequences (13:69) Aligned. Score: 99.8429
Sequences (13:70) Aligned. Score: 100
Sequences (13:71) Aligned. Score: 99.9214
Sequences (13:72) Aligned. Score: 99.9214
Sequences (13:73) Aligned. Score: 100
Sequences (13:74) Aligned. Score: 100
Sequences (13:75) Aligned. Score: 100
Sequences (13:76) Aligned. Score: 100
Sequences (13:77) Aligned. Score: 100
Sequences (13:78) Aligned. Score: 99.9214
Sequences (13:79) Aligned. Score: 99.8429
Sequences (13:80) Aligned. Score: 100
Sequences (13:81) Aligned. Score: 100
Sequences (13:82) Aligned. Score: 100
Sequences (13:83) Aligned. Score: 99.9214
Sequences (13:84) Aligned. Score: 100
Sequences (13:85) Aligned. Score: 99.9214
Sequences (13:86) Aligned. Score: 100
Sequences (13:87) Aligned. Score: 100
Sequences (13:88) Aligned. Score: 99.9214
Sequences (13:89) Aligned. Score: 99.9214
Sequences (13:90) Aligned. Score: 100
Sequences (13:91) Aligned. Score: 100
Sequences (13:92) Aligned. Score: 100
Sequences (14:15) Aligned. Score: 99.9214
Sequences (14:16) Aligned. Score: 99.8429
Sequences (14:17) Aligned. Score: 99.9214
Sequences (14:18) Aligned. Score: 99.9214
Sequences (14:19) Aligned. Score: 99.8429
Sequences (14:20) Aligned. Score: 99.8429
Sequences (14:21) Aligned. Score: 99.8429
Sequences (14:22) Aligned. Score: 99.9214
Sequences (14:23) Aligned. Score: 99.8429
Sequences (14:24) Aligned. Score: 99.9214
Sequences (14:25) Aligned. Score: 99.9214
Sequences (14:26) Aligned. Score: 99.9214
Sequences (14:27) Aligned. Score: 99.9214
Sequences (14:28) Aligned. Score: 99.9214
Sequences (14:29) Aligned. Score: 99.9214
Sequences (14:30) Aligned. Score: 99.9214
Sequences (14:31) Aligned. Score: 99.8429
Sequences (14:32) Aligned. Score: 99.8429
Sequences (14:33) Aligned. Score: 99.9214
Sequences (14:34) Aligned. Score: 99.8429
Sequences (14:35) Aligned. Score: 99.8429
Sequences (14:36) Aligned. Score: 99.8429
Sequences (14:37) Aligned. Score: 99.9214
```

```
Sequences (14:38) Aligned. Score: 99.9214
Sequences (14:39) Aligned. Score: 99.8429
Sequences (14:40) Aligned. Score: 99.8429
Sequences (14:41) Aligned. Score: 99.9214
Sequences (14:42) Aligned. Score: 99.9214
Sequences (14:43) Aligned. Score: 99.8429
Sequences (14:44) Aligned. Score: 99.9214
Sequences (14:45) Aligned. Score: 99.9214
Sequences (14:46) Aligned. Score: 99.9214
Sequences (14:47) Aligned. Score: 99.9214
Sequences (14:48) Aligned. Score: 99.9214
Sequences (14:49) Aligned. Score: 99.9214
Sequences (14:50) Aligned. Score: 99.9214
Sequences (14:51) Aligned. Score: 99.8429
Sequences (14:52) Aligned. Score: 99.8429
Sequences (14:53) Aligned. Score: 99.8429
Sequences (14:54) Aligned. Score: 99.9214
Sequences (14:55) Aligned. Score: 99.9214
Sequences (14:56) Aligned. Score: 99.9214
Sequences (14:57) Aligned. Score: 99.8429
Sequences (14:58) Aligned. Score: 99.9214
Sequences (14:59) Aligned. Score: 99.9214
Sequences (14:60) Aligned. Score: 99.8429
Sequences (14:61) Aligned. Score: 99.8429
Sequences (14:62) Aligned. Score: 99.9214
Sequences (14:63) Aligned. Score: 99.8429
Sequences (14:64) Aligned. Score: 99.8429
Sequences (14:65) Aligned. Score: 99.8429
Sequences (14:66) Aligned. Score: 99.8429
Sequences (14:67) Aligned. Score: 99.8429
Sequences (14:68) Aligned. Score: 99.8429
Sequences (14:69) Aligned. Score: 99.8429
Sequences (14:70) Aligned. Score: 99.8429
Sequences (14:71) Aligned. Score: 99.9214
Sequences (14:72) Aligned. Score: 99.9214
Sequences (14:73) Aligned. Score: 99.8429
Sequences (14:74) Aligned. Score: 99.8429
Sequences (14:75) Aligned. Score: 99.8429
Sequences (14:76) Aligned. Score: 99.8429
Sequences (14:77) Aligned. Score: 99.8429
Sequences (14:78) Aligned. Score: 99.9214
Sequences (14:79) Aligned. Score: 99.8429
Sequences (14:80) Aligned. Score: 99.8429
Sequences (14:81) Aligned. Score: 99.8429
Sequences (14:82) Aligned. Score: 99.8429
Sequences (14:83) Aligned. Score: 99.9214
Sequences (14:84) Aligned. Score: 99.8429
Sequences (14:85) Aligned. Score: 99.9214
Sequences (14:86) Aligned. Score: 99.8429
Sequences (14:87) Aligned. Score: 99.8429
Sequences (14:88) Aligned. Score: 99.9214
Sequences (14:89) Aligned. Score: 99.9214
Sequences (14:90) Aligned. Score: 99.8429
Sequences (14:91) Aligned. Score: 99.8429
Sequences (14:92) Aligned. Score: 99.8429
Sequences (15:16) Aligned. Score: 99.9214
Sequences (15:17) Aligned. Score: 100
Sequences (15:18) Aligned. Score: 100
Sequences (15:19) Aligned. Score: 99.9214
Sequences (15:20) Aligned. Score: 99.9214
Sequences (15:21) Aligned. Score: 99.9214
Sequences (15:22) Aligned. Score: 100
```

Sequences (15:23) Aligned. Score: 99.9214
Sequences (15:24) Aligned. Score: 100
Sequences (15:25) Aligned. Score: 100
Sequences (15:26) Aligned. Score: 100
Sequences (15:27) Aligned. Score: 100
Sequences (15:28) Aligned. Score: 100
Sequences (15:29) Aligned. Score: 100
Sequences (15:30) Aligned. Score: 100
Sequences (15:31) Aligned. Score: 99.9214
Sequences (15:32) Aligned. Score: 99.9214
Sequences (15:33) Aligned. Score: 100
Sequences (15:34) Aligned. Score: 99.9214
Sequences (15:35) Aligned. Score: 99.9214
Sequences (15:36) Aligned. Score: 99.9214
Sequences (15:37) Aligned. Score: 100
Sequences (15:38) Aligned. Score: 100
Sequences (15:39) Aligned. Score: 99.9214
Sequences (15:40) Aligned. Score: 99.9214
Sequences (15:41) Aligned. Score: 100
Sequences (15:42) Aligned. Score: 100
Sequences (15:43) Aligned. Score: 99.9214
Sequences (15:44) Aligned. Score: 100
Sequences (15:45) Aligned. Score: 100
Sequences (15:46) Aligned. Score: 100
Sequences (15:47) Aligned. Score: 100
Sequences (15:48) Aligned. Score: 100
Sequences (15:49) Aligned. Score: 100
Sequences (15:50) Aligned. Score: 100
Sequences (15:51) Aligned. Score: 99.9214
Sequences (15:52) Aligned. Score: 99.9214
Sequences (15:53) Aligned. Score: 99.9214
Sequences (15:54) Aligned. Score: 100
Sequences (15:55) Aligned. Score: 100
Sequences (15:56) Aligned. Score: 100
Sequences (15:57) Aligned. Score: 99.9214
Sequences (15:58) Aligned. Score: 100
Sequences (15:59) Aligned. Score: 100
Sequences (15:60) Aligned. Score: 99.9214
Sequences (15:61) Aligned. Score: 99.9214
Sequences (15:62) Aligned. Score: 100
Sequences (15:63) Aligned. Score: 99.9214
Sequences (15:64) Aligned. Score: 99.9214
Sequences (15:65) Aligned. Score: 99.9214
Sequences (15:66) Aligned. Score: 99.9214
Sequences (15:67) Aligned. Score: 99.9214
Sequences (15:68) Aligned. Score: 99.9214
Sequences (15:69) Aligned. Score: 99.9214
Sequences (15:70) Aligned. Score: 99.9214
Sequences (15:71) Aligned. Score: 100
Sequences (15:72) Aligned. Score: 100
Sequences (15:73) Aligned. Score: 99.9214
Sequences (15:74) Aligned. Score: 99.9214
Sequences (15:75) Aligned. Score: 99.9214
Sequences (15:76) Aligned. Score: 99.9214
Sequences (15:77) Aligned. Score: 99.9214
Sequences (15:78) Aligned. Score: 100
Sequences (15:79) Aligned. Score: 99.9214
Sequences (15:80) Aligned. Score: 99.9214
Sequences (15:81) Aligned. Score: 99.9214
Sequences (15:82) Aligned. Score: 99.9214
Sequences (15:83) Aligned. Score: 100
Sequences (15:84) Aligned. Score: 99.9214

Sequences (15:85) Aligned. Score: 100
Sequences (15:86) Aligned. Score: 99.9214
Sequences (15:87) Aligned. Score: 99.9214
Sequences (15:88) Aligned. Score: 100
Sequences (15:89) Aligned. Score: 100
Sequences (15:90) Aligned. Score: 99.9214
Sequences (15:91) Aligned. Score: 99.9214
Sequences (15:92) Aligned. Score: 99.9214
Sequences (16:17) Aligned. Score: 99.9214
Sequences (16:18) Aligned. Score: 99.9214
Sequences (16:19) Aligned. Score: 99.8429
Sequences (16:20) Aligned. Score: 100
Sequences (16:21) Aligned. Score: 100
Sequences (16:22) Aligned. Score: 99.9214
Sequences (16:23) Aligned. Score: 100
Sequences (16:24) Aligned. Score: 99.9214
Sequences (16:25) Aligned. Score: 99.9214
Sequences (16:26) Aligned. Score: 99.9214
Sequences (16:27) Aligned. Score: 99.9214
Sequences (16:28) Aligned. Score: 99.9214
Sequences (16:29) Aligned. Score: 99.9214
Sequences (16:30) Aligned. Score: 99.9214
Sequences (16:31) Aligned. Score: 100
Sequences (16:32) Aligned. Score: 100
Sequences (16:33) Aligned. Score: 99.9214
Sequences (16:34) Aligned. Score: 99.8429
Sequences (16:35) Aligned. Score: 99.8429
Sequences (16:36) Aligned. Score: 100
Sequences (16:37) Aligned. Score: 99.9214
Sequences (16:38) Aligned. Score: 99.9214
Sequences (16:39) Aligned. Score: 99.8429
Sequences (16:40) Aligned. Score: 100
Sequences (16:41) Aligned. Score: 99.9214
Sequences (16:42) Aligned. Score: 99.9214
Sequences (16:43) Aligned. Score: 99.8429
Sequences (16:44) Aligned. Score: 99.9214
Sequences (16:45) Aligned. Score: 99.9214
Sequences (16:46) Aligned. Score: 99.9214
Sequences (16:47) Aligned. Score: 99.9214
Sequences (16:48) Aligned. Score: 99.9214
Sequences (16:49) Aligned. Score: 99.9214
Sequences (16:50) Aligned. Score: 99.9214
Sequences (16:51) Aligned. Score: 100
Sequences (16:52) Aligned. Score: 99.8429
Sequences (16:53) Aligned. Score: 100
Sequences (16:54) Aligned. Score: 99.9214
Sequences (16:55) Aligned. Score: 99.9214
Sequences (16:56) Aligned. Score: 99.9214
Sequences (16:57) Aligned. Score: 100
Sequences (16:58) Aligned. Score: 99.9214
Sequences (16:59) Aligned. Score: 99.9214
Sequences (16:60) Aligned. Score: 100
Sequences (16:61) Aligned. Score: 100
Sequences (16:62) Aligned. Score: 99.9214
Sequences (16:63) Aligned. Score: 100
Sequences (16:64) Aligned. Score: 100
Sequences (16:65) Aligned. Score: 100
Sequences (16:66) Aligned. Score: 100
Sequences (16:67) Aligned. Score: 100
Sequences (16:68) Aligned. Score: 100
Sequences (16:69) Aligned. Score: 99.8429
Sequences (16:70) Aligned. Score: 100

Sequences (16:71) Aligned. Score: 99.9214
Sequences (16:72) Aligned. Score: 99.9214
Sequences (16:73) Aligned. Score: 100
Sequences (16:74) Aligned. Score: 100
Sequences (16:75) Aligned. Score: 100
Sequences (16:76) Aligned. Score: 100
Sequences (16:77) Aligned. Score: 100
Sequences (16:78) Aligned. Score: 99.9214
Sequences (16:79) Aligned. Score: 99.8429
Sequences (16:80) Aligned. Score: 100
Sequences (16:81) Aligned. Score: 100
Sequences (16:82) Aligned. Score: 100
Sequences (16:83) Aligned. Score: 99.9214
Sequences (16:84) Aligned. Score: 100
Sequences (16:85) Aligned. Score: 99.9214
Sequences (16:86) Aligned. Score: 100
Sequences (16:87) Aligned. Score: 100
Sequences (16:88) Aligned. Score: 99.9214
Sequences (16:89) Aligned. Score: 99.9214
Sequences (16:90) Aligned. Score: 100
Sequences (16:91) Aligned. Score: 100
Sequences (16:92) Aligned. Score: 100
Sequences (17:18) Aligned. Score: 100
Sequences (17:19) Aligned. Score: 99.9214
Sequences (17:20) Aligned. Score: 99.9214
Sequences (17:21) Aligned. Score: 99.9214
Sequences (17:22) Aligned. Score: 100
Sequences (17:23) Aligned. Score: 99.9214
Sequences (17:24) Aligned. Score: 100
Sequences (17:25) Aligned. Score: 100
Sequences (17:26) Aligned. Score: 100
Sequences (17:27) Aligned. Score: 100
Sequences (17:28) Aligned. Score: 100
Sequences (17:29) Aligned. Score: 100
Sequences (17:30) Aligned. Score: 100
Sequences (17:31) Aligned. Score: 99.9214
Sequences (17:32) Aligned. Score: 99.9214
Sequences (17:33) Aligned. Score: 100
Sequences (17:34) Aligned. Score: 99.9214
Sequences (17:35) Aligned. Score: 99.9214
Sequences (17:36) Aligned. Score: 99.9214
Sequences (17:37) Aligned. Score: 100
Sequences (17:38) Aligned. Score: 100
Sequences (17:39) Aligned. Score: 99.9214
Sequences (17:40) Aligned. Score: 99.9214
Sequences (17:41) Aligned. Score: 100
Sequences (17:42) Aligned. Score: 100
Sequences (17:43) Aligned. Score: 99.9214
Sequences (17:44) Aligned. Score: 100
Sequences (17:45) Aligned. Score: 100
Sequences (17:46) Aligned. Score: 100
Sequences (17:47) Aligned. Score: 100
Sequences (17:48) Aligned. Score: 100
Sequences (17:49) Aligned. Score: 100
Sequences (17:50) Aligned. Score: 100
Sequences (17:51) Aligned. Score: 99.9214
Sequences (17:52) Aligned. Score: 99.9214
Sequences (17:53) Aligned. Score: 99.9214
Sequences (17:54) Aligned. Score: 100
Sequences (17:55) Aligned. Score: 100
Sequences (17:56) Aligned. Score: 100
Sequences (17:57) Aligned. Score: 99.9214

Sequences (17:58) Aligned. Score: 100
Sequences (17:59) Aligned. Score: 100
Sequences (17:60) Aligned. Score: 99.9214
Sequences (17:61) Aligned. Score: 99.9214
Sequences (17:62) Aligned. Score: 100
Sequences (17:63) Aligned. Score: 99.9214
Sequences (17:64) Aligned. Score: 99.9214
Sequences (17:65) Aligned. Score: 99.9214
Sequences (17:66) Aligned. Score: 99.9214
Sequences (17:67) Aligned. Score: 99.9214
Sequences (17:68) Aligned. Score: 99.9214
Sequences (17:69) Aligned. Score: 99.9214
Sequences (17:70) Aligned. Score: 99.9214
Sequences (17:71) Aligned. Score: 100
Sequences (17:72) Aligned. Score: 100
Sequences (17:73) Aligned. Score: 99.9214
Sequences (17:74) Aligned. Score: 99.9214
Sequences (17:75) Aligned. Score: 99.9214
Sequences (17:76) Aligned. Score: 99.9214
Sequences (17:77) Aligned. Score: 99.9214
Sequences (17:78) Aligned. Score: 100
Sequences (17:79) Aligned. Score: 99.9214
Sequences (17:80) Aligned. Score: 99.9214
Sequences (17:81) Aligned. Score: 99.9214
Sequences (17:82) Aligned. Score: 99.9214
Sequences (17:83) Aligned. Score: 100
Sequences (17:84) Aligned. Score: 99.9214
Sequences (17:85) Aligned. Score: 100
Sequences (17:86) Aligned. Score: 99.9214
Sequences (17:87) Aligned. Score: 99.9214
Sequences (17:88) Aligned. Score: 100
Sequences (17:89) Aligned. Score: 100
Sequences (17:90) Aligned. Score: 99.9214
Sequences (17:91) Aligned. Score: 99.9214
Sequences (17:92) Aligned. Score: 99.9214
Sequences (18:19) Aligned. Score: 99.9214
Sequences (18:20) Aligned. Score: 99.9214
Sequences (18:21) Aligned. Score: 99.9214
Sequences (18:22) Aligned. Score: 100
Sequences (18:23) Aligned. Score: 99.9214
Sequences (18:24) Aligned. Score: 100
Sequences (18:25) Aligned. Score: 100
Sequences (18:26) Aligned. Score: 100
Sequences (18:27) Aligned. Score: 100
Sequences (18:28) Aligned. Score: 100
Sequences (18:29) Aligned. Score: 100
Sequences (18:30) Aligned. Score: 100
Sequences (18:31) Aligned. Score: 99.9214
Sequences (18:32) Aligned. Score: 99.9214
Sequences (18:33) Aligned. Score: 100
Sequences (18:34) Aligned. Score: 99.9214
Sequences (18:35) Aligned. Score: 99.9214
Sequences (18:36) Aligned. Score: 99.9214
Sequences (18:37) Aligned. Score: 100
Sequences (18:38) Aligned. Score: 100
Sequences (18:39) Aligned. Score: 99.9214
Sequences (18:40) Aligned. Score: 99.9214
Sequences (18:41) Aligned. Score: 100
Sequences (18:42) Aligned. Score: 100
Sequences (18:43) Aligned. Score: 99.9214
Sequences (18:44) Aligned. Score: 100
Sequences (18:45) Aligned. Score: 100

Sequences (18:46) Aligned. Score: 100
Sequences (18:47) Aligned. Score: 100
Sequences (18:48) Aligned. Score: 100
Sequences (18:49) Aligned. Score: 100
Sequences (18:50) Aligned. Score: 100
Sequences (18:51) Aligned. Score: 99.9214
Sequences (18:52) Aligned. Score: 99.9214
Sequences (18:53) Aligned. Score: 99.9214
Sequences (18:54) Aligned. Score: 100
Sequences (18:55) Aligned. Score: 100
Sequences (18:56) Aligned. Score: 100
Sequences (18:57) Aligned. Score: 99.9214
Sequences (18:58) Aligned. Score: 100
Sequences (18:59) Aligned. Score: 100
Sequences (18:60) Aligned. Score: 99.9214
Sequences (18:61) Aligned. Score: 99.9214
Sequences (18:62) Aligned. Score: 100
Sequences (18:63) Aligned. Score: 99.9214
Sequences (18:64) Aligned. Score: 99.9214
Sequences (18:65) Aligned. Score: 99.9214
Sequences (18:66) Aligned. Score: 99.9214
Sequences (18:67) Aligned. Score: 99.9214
Sequences (18:68) Aligned. Score: 99.9214
Sequences (18:69) Aligned. Score: 99.9214
Sequences (18:70) Aligned. Score: 99.9214
Sequences (18:71) Aligned. Score: 100
Sequences (18:72) Aligned. Score: 100
Sequences (18:73) Aligned. Score: 99.9214
Sequences (18:74) Aligned. Score: 99.9214
Sequences (18:75) Aligned. Score: 99.9214
Sequences (18:76) Aligned. Score: 99.9214
Sequences (18:77) Aligned. Score: 99.9214
Sequences (18:78) Aligned. Score: 100
Sequences (18:79) Aligned. Score: 99.9214
Sequences (18:80) Aligned. Score: 99.9214
Sequences (18:81) Aligned. Score: 99.9214
Sequences (18:82) Aligned. Score: 99.9214
Sequences (18:83) Aligned. Score: 100
Sequences (18:84) Aligned. Score: 99.9214
Sequences (18:85) Aligned. Score: 100
Sequences (18:86) Aligned. Score: 99.9214
Sequences (18:87) Aligned. Score: 99.9214
Sequences (18:88) Aligned. Score: 100
Sequences (18:89) Aligned. Score: 100
Sequences (18:90) Aligned. Score: 99.9214
Sequences (18:91) Aligned. Score: 99.9214
Sequences (18:92) Aligned. Score: 99.9214
Sequences (19:20) Aligned. Score: 99.8429
Sequences (19:21) Aligned. Score: 99.8429
Sequences (19:22) Aligned. Score: 99.9214
Sequences (19:23) Aligned. Score: 99.8429
Sequences (19:24) Aligned. Score: 99.9214
Sequences (19:25) Aligned. Score: 99.9214
Sequences (19:26) Aligned. Score: 99.9214
Sequences (19:27) Aligned. Score: 99.9214
Sequences (19:28) Aligned. Score: 99.9214
Sequences (19:29) Aligned. Score: 99.9214
Sequences (19:30) Aligned. Score: 99.9214
Sequences (19:31) Aligned. Score: 99.8429
Sequences (19:32) Aligned. Score: 99.8429
Sequences (19:33) Aligned. Score: 99.9214
Sequences (19:34) Aligned. Score: 99.8429

```
Sequences (19:35) Aligned. Score: 99.8429
Sequences (19:36) Aligned. Score: 99.8429
Sequences (19:37) Aligned. Score: 99.9214
Sequences (19:38) Aligned. Score: 99.9214
Sequences (19:39) Aligned. Score: 99.8429
Sequences (19:40) Aligned. Score: 99.8429
Sequences (19:41) Aligned. Score: 99.9214
Sequences (19:42) Aligned. Score: 99.9214
Sequences (19:43) Aligned. Score: 99.8429
Sequences (19:44) Aligned. Score: 99.9214
Sequences (19:45) Aligned. Score: 99.9214
Sequences (19:46) Aligned. Score: 99.9214
Sequences (19:47) Aligned. Score: 99.9214
Sequences (19:48) Aligned. Score: 99.9214
Sequences (19:49) Aligned. Score: 99.9214
Sequences (19:50) Aligned. Score: 99.9214
Sequences (19:51) Aligned. Score: 99.8429
Sequences (19:52) Aligned. Score: 99.8429
Sequences (19:53) Aligned. Score: 99.8429
Sequences (19:54) Aligned. Score: 99.9214
Sequences (19:55) Aligned. Score: 99.9214
Sequences (19:56) Aligned. Score: 99.9214
Sequences (19:57) Aligned. Score: 99.8429
Sequences (19:58) Aligned. Score: 99.9214
Sequences (19:59) Aligned. Score: 99.9214
Sequences (19:60) Aligned. Score: 99.8429
Sequences (19:61) Aligned. Score: 99.8429
Sequences (19:62) Aligned. Score: 99.9214
Sequences (19:63) Aligned. Score: 99.8429
Sequences (19:64) Aligned. Score: 99.8429
Sequences (19:65) Aligned. Score: 99.8429
Sequences (19:66) Aligned. Score: 99.8429
Sequences (19:67) Aligned. Score: 99.8429
Sequences (19:68) Aligned. Score: 99.8429
Sequences (19:69) Aligned. Score: 99.8429
Sequences (19:70) Aligned. Score: 99.8429
Sequences (19:71) Aligned. Score: 99.9214
Sequences (19:72) Aligned. Score: 99.9214
Sequences (19:73) Aligned. Score: 99.8429
Sequences (19:74) Aligned. Score: 99.8429
Sequences (19:75) Aligned. Score: 99.8429
Sequences (19:76) Aligned. Score: 99.8429
Sequences (19:77) Aligned. Score: 99.8429
Sequences (19:78) Aligned. Score: 99.9214
Sequences (19:79) Aligned. Score: 99.8429
Sequences (19:80) Aligned. Score: 99.8429
Sequences (19:81) Aligned. Score: 99.8429
Sequences (19:82) Aligned. Score: 99.8429
Sequences (19:83) Aligned. Score: 99.9214
Sequences (19:84) Aligned. Score: 99.8429
Sequences (19:85) Aligned. Score: 99.9214
Sequences (19:86) Aligned. Score: 99.8429
Sequences (19:87) Aligned. Score: 99.8429
Sequences (19:88) Aligned. Score: 99.9214
Sequences (19:89) Aligned. Score: 99.9214
Sequences (19:90) Aligned. Score: 99.8429
Sequences (19:91) Aligned. Score: 99.8429
Sequences (19:92) Aligned. Score: 99.8429
Sequences (20:21) Aligned. Score: 100
Sequences (20:22) Aligned. Score: 99.9214
Sequences (20:23) Aligned. Score: 100
Sequences (20:24) Aligned. Score: 99.9214
```

```
Sequences (20:25) Aligned. Score: 99.9214
Sequences (20:26) Aligned. Score: 99.9214
Sequences (20:27) Aligned. Score: 99.9214
Sequences (20:28) Aligned. Score: 99.9214
Sequences (20:29) Aligned. Score: 99.9214
Sequences (20:30) Aligned. Score: 99.9214
Sequences (20:31) Aligned. Score: 100
Sequences (20:32) Aligned. Score: 100
Sequences (20:33) Aligned. Score: 99.9214
Sequences (20:34) Aligned. Score: 99.8429
Sequences (20:35) Aligned. Score: 99.8429
Sequences (20:36) Aligned. Score: 100
Sequences (20:37) Aligned. Score: 99.9214
Sequences (20:38) Aligned. Score: 99.9214
Sequences (20:39) Aligned. Score: 99.8429
Sequences (20:40) Aligned. Score: 100
Sequences (20:41) Aligned. Score: 99.9214
Sequences (20:42) Aligned. Score: 99.9214
Sequences (20:43) Aligned. Score: 99.8429
Sequences (20:44) Aligned. Score: 99.9214
Sequences (20:45) Aligned. Score: 99.9214
Sequences (20:46) Aligned. Score: 99.9214
Sequences (20:47) Aligned. Score: 99.9214
Sequences (20:48) Aligned. Score: 99.9214
Sequences (20:49) Aligned. Score: 99.9214
Sequences (20:50) Aligned. Score: 99.9214
Sequences (20:51) Aligned. Score: 100
Sequences (20:52) Aligned. Score: 99.8429
Sequences (20:53) Aligned. Score: 100
Sequences (20:54) Aligned. Score: 99.9214
Sequences (20:55) Aligned. Score: 99.9214
Sequences (20:56) Aligned. Score: 99.9214
Sequences (20:57) Aligned. Score: 100
Sequences (20:58) Aligned. Score: 99.9214
Sequences (20:59) Aligned. Score: 99.9214
Sequences (20:60) Aligned. Score: 100
Sequences (20:61) Aligned. Score: 100
Sequences (20:62) Aligned. Score: 99.9214
Sequences (20:63) Aligned. Score: 100
Sequences (20:64) Aligned. Score: 100
Sequences (20:65) Aligned. Score: 100
Sequences (20:66) Aligned. Score: 100
Sequences (20:67) Aligned. Score: 100
Sequences (20:68) Aligned. Score: 100
Sequences (20:69) Aligned. Score: 99.8429
Sequences (20:70) Aligned. Score: 100
Sequences (20:71) Aligned. Score: 99.9214
Sequences (20:72) Aligned. Score: 99.9214
Sequences (20:73) Aligned. Score: 100
Sequences (20:74) Aligned. Score: 100
Sequences (20:75) Aligned. Score: 100
Sequences (20:76) Aligned. Score: 100
Sequences (20:77) Aligned. Score: 100
Sequences (20:78) Aligned. Score: 99.9214
Sequences (20:79) Aligned. Score: 99.8429
Sequences (20:80) Aligned. Score: 100
Sequences (20:81) Aligned. Score: 100
Sequences (20:82) Aligned. Score: 100
Sequences (20:83) Aligned. Score: 99.9214
Sequences (20:84) Aligned. Score: 100
Sequences (20:85) Aligned. Score: 99.9214
Sequences (20:86) Aligned. Score: 100
```

```
Sequences (20:87) Aligned. Score: 100
Sequences (20:88) Aligned. Score: 99.9214
Sequences (20:89) Aligned. Score: 99.9214
Sequences (20:90) Aligned. Score: 100
Sequences (20:91) Aligned. Score: 100
Sequences (20:92) Aligned. Score: 100
Sequences (21:22) Aligned. Score: 99.9214
Sequences (21:23) Aligned. Score: 100
Sequences (21:24) Aligned. Score: 99.9214
Sequences (21:25) Aligned. Score: 99.9214
Sequences (21:26) Aligned. Score: 99.9214
Sequences (21:27) Aligned. Score: 99.9214
Sequences (21:28) Aligned. Score: 99.9214
Sequences (21:29) Aligned. Score: 99.9214
Sequences (21:30) Aligned. Score: 99.9214
Sequences (21:31) Aligned. Score: 100
Sequences (21:32) Aligned. Score: 100
Sequences (21:33) Aligned. Score: 99.9214
Sequences (21:34) Aligned. Score: 99.8429
Sequences (21:35) Aligned. Score: 99.8429
Sequences (21:36) Aligned. Score: 100
Sequences (21:37) Aligned. Score: 99.9214
Sequences (21:38) Aligned. Score: 99.9214
Sequences (21:39) Aligned. Score: 99.8429
Sequences (21:40) Aligned. Score: 100
Sequences (21:41) Aligned. Score: 99.9214
Sequences (21:42) Aligned. Score: 99.9214
Sequences (21:43) Aligned. Score: 99.8429
Sequences (21:44) Aligned. Score: 99.9214
Sequences (21:45) Aligned. Score: 99.9214
Sequences (21:46) Aligned. Score: 99.9214
Sequences (21:47) Aligned. Score: 99.9214
Sequences (21:48) Aligned. Score: 99.9214
Sequences (21:49) Aligned. Score: 99.9214
Sequences (21:50) Aligned. Score: 99.9214
Sequences (21:51) Aligned. Score: 100
Sequences (21:52) Aligned. Score: 99.8429
Sequences (21:53) Aligned. Score: 100
Sequences (21:54) Aligned. Score: 99.9214
Sequences (21:55) Aligned. Score: 99.9214
Sequences (21:56) Aligned. Score: 99.9214
Sequences (21:57) Aligned. Score: 100
Sequences (21:58) Aligned. Score: 99.9214
Sequences (21:59) Aligned. Score: 99.9214
Sequences (21:60) Aligned. Score: 100
Sequences (21:61) Aligned. Score: 100
Sequences (21:62) Aligned. Score: 99.9214
Sequences (21:63) Aligned. Score: 100
Sequences (21:64) Aligned. Score: 100
Sequences (21:65) Aligned. Score: 100
Sequences (21:66) Aligned. Score: 100
Sequences (21:67) Aligned. Score: 100
Sequences (21:68) Aligned. Score: 100
Sequences (21:69) Aligned. Score: 99.8429
Sequences (21:70) Aligned. Score: 100
Sequences (21:71) Aligned. Score: 99.9214
Sequences (21:72) Aligned. Score: 99.9214
Sequences (21:73) Aligned. Score: 100
Sequences (21:74) Aligned. Score: 100
Sequences (21:75) Aligned. Score: 100
Sequences (21:76) Aligned. Score: 100
Sequences (21:77) Aligned. Score: 100
```

```
Sequences (21:78) Aligned. Score: 99.9214
Sequences (21:79) Aligned. Score: 99.8429
Sequences (21:80) Aligned. Score: 100
Sequences (21:81) Aligned. Score: 100
Sequences (21:82) Aligned. Score: 100
Sequences (21:83) Aligned. Score: 99.9214
Sequences (21:84) Aligned. Score: 100
Sequences (21:85) Aligned. Score: 99.9214
Sequences (21:86) Aligned. Score: 100
Sequences (21:87) Aligned. Score: 100
Sequences (21:88) Aligned. Score: 99.9214
Sequences (21:89) Aligned. Score: 99.9214
Sequences (21:90) Aligned. Score: 100
Sequences (21:91) Aligned. Score: 100
Sequences (21:92) Aligned. Score: 100
Sequences (22:23) Aligned. Score: 99.9214
Sequences (22:24) Aligned. Score: 100
Sequences (22:25) Aligned. Score: 100
Sequences (22:26) Aligned. Score: 100
Sequences (22:27) Aligned. Score: 100
Sequences (22:28) Aligned. Score: 100
Sequences (22:29) Aligned. Score: 100
Sequences (22:30) Aligned. Score: 100
Sequences (22:31) Aligned. Score: 99.9214
Sequences (22:32) Aligned. Score: 99.9214
Sequences (22:33) Aligned. Score: 100
Sequences (22:34) Aligned. Score: 99.9214
Sequences (22:35) Aligned. Score: 99.9214
Sequences (22:36) Aligned. Score: 99.9214
Sequences (22:37) Aligned. Score: 100
Sequences (22:38) Aligned. Score: 100
Sequences (22:39) Aligned. Score: 99.9214
Sequences (22:40) Aligned. Score: 99.9214
Sequences (22:41) Aligned. Score: 100
Sequences (22:42) Aligned. Score: 100
Sequences (22:43) Aligned. Score: 99.9214
Sequences (22:44) Aligned. Score: 100
Sequences (22:45) Aligned. Score: 100
Sequences (22:46) Aligned. Score: 100
Sequences (22:47) Aligned. Score: 100
Sequences (22:48) Aligned. Score: 100
Sequences (22:49) Aligned. Score: 100
Sequences (22:50) Aligned. Score: 100
Sequences (22:51) Aligned. Score: 99.9214
Sequences (22:52) Aligned. Score: 99.9214
Sequences (22:53) Aligned. Score: 99.9214
Sequences (22:54) Aligned. Score: 100
Sequences (22:55) Aligned. Score: 100
Sequences (22:56) Aligned. Score: 100
Sequences (22:57) Aligned. Score: 99.9214
Sequences (22:58) Aligned. Score: 100
Sequences (22:59) Aligned. Score: 100
Sequences (22:60) Aligned. Score: 99.9214
Sequences (22:61) Aligned. Score: 99.9214
Sequences (22:62) Aligned. Score: 100
Sequences (22:63) Aligned. Score: 99.9214
Sequences (22:64) Aligned. Score: 99.9214
Sequences (22:65) Aligned. Score: 99.9214
Sequences (22:66) Aligned. Score: 99.9214
Sequences (22:67) Aligned. Score: 99.9214
Sequences (22:68) Aligned. Score: 99.9214
Sequences (22:69) Aligned. Score: 99.9214
```

```
Sequences (22:70) Aligned. Score: 99.9214
Sequences (22:71) Aligned. Score: 100
Sequences (22:72) Aligned. Score: 100
Sequences (22:73) Aligned. Score: 99.9214
Sequences (22:74) Aligned. Score: 99.9214
Sequences (22:75) Aligned. Score: 99.9214
Sequences (22:76) Aligned. Score: 99.9214
Sequences (22:77) Aligned. Score: 99.9214
Sequences (22:78) Aligned. Score: 100
Sequences (22:79) Aligned. Score: 99.9214
Sequences (22:80) Aligned. Score: 99.9214
Sequences (22:81) Aligned. Score: 99.9214
Sequences (22:82) Aligned. Score: 99.9214
Sequences (22:83) Aligned. Score: 100
Sequences (22:84) Aligned. Score: 99.9214
Sequences (22:85) Aligned. Score: 100
Sequences (22:86) Aligned. Score: 99.9214
Sequences (22:87) Aligned. Score: 99.9214
Sequences (22:88) Aligned. Score: 100
Sequences (22:89) Aligned. Score: 100
Sequences (22:90) Aligned. Score: 99.9214
Sequences (22:91) Aligned. Score: 99.9214
Sequences (22:92) Aligned. Score: 99.9214
Sequences (23:24) Aligned. Score: 99.9214
Sequences (23:25) Aligned. Score: 99.9214
Sequences (23:26) Aligned. Score: 99.9214
Sequences (23:27) Aligned. Score: 99.9214
Sequences (23:28) Aligned. Score: 99.9214
Sequences (23:29) Aligned. Score: 99.9214
Sequences (23:30) Aligned. Score: 99.9214
Sequences (23:31) Aligned. Score: 100
Sequences (23:32) Aligned. Score: 100
Sequences (23:33) Aligned. Score: 99.9214
Sequences (23:34) Aligned. Score: 99.8429
Sequences (23:35) Aligned. Score: 99.8429
Sequences (23:36) Aligned. Score: 100
Sequences (23:37) Aligned. Score: 99.9214
Sequences (23:38) Aligned. Score: 99.9214
Sequences (23:39) Aligned. Score: 99.8429
Sequences (23:40) Aligned. Score: 100
Sequences (23:41) Aligned. Score: 99.9214
Sequences (23:42) Aligned. Score: 99.9214
Sequences (23:43) Aligned. Score: 99.8429
Sequences (23:44) Aligned. Score: 99.9214
Sequences (23:45) Aligned. Score: 99.9214
Sequences (23:46) Aligned. Score: 99.9214
Sequences (23:47) Aligned. Score: 99.9214
Sequences (23:48) Aligned. Score: 99.9214
Sequences (23:49) Aligned. Score: 99.9214
Sequences (23:50) Aligned. Score: 99.9214
Sequences (23:51) Aligned. Score: 100
Sequences (23:52) Aligned. Score: 99.8429
Sequences (23:53) Aligned. Score: 100
Sequences (23:54) Aligned. Score: 99.9214
Sequences (23:55) Aligned. Score: 99.9214
Sequences (23:56) Aligned. Score: 99.9214
Sequences (23:57) Aligned. Score: 100
Sequences (23:58) Aligned. Score: 99.9214
Sequences (23:59) Aligned. Score: 99.9214
Sequences (23:60) Aligned. Score: 100
Sequences (23:61) Aligned. Score: 100
Sequences (23:62) Aligned. Score: 99.9214
```

```
Sequences (23:63) Aligned. Score: 100
Sequences (23:64) Aligned. Score: 100
Sequences (23:65) Aligned. Score: 100
Sequences (23:66) Aligned. Score: 100
Sequences (23:67) Aligned. Score: 100
Sequences (23:68) Aligned. Score: 100
Sequences (23:69) Aligned. Score: 99.8429
Sequences (23:70) Aligned. Score: 100
Sequences (23:71) Aligned. Score: 99.9214
Sequences (23:72) Aligned. Score: 99.9214
Sequences (23:73) Aligned. Score: 100
Sequences (23:74) Aligned. Score: 100
Sequences (23:75) Aligned. Score: 100
Sequences (23:76) Aligned. Score: 100
Sequences (23:77) Aligned. Score: 100
Sequences (23:78) Aligned. Score: 99.9214
Sequences (23:79) Aligned. Score: 99.8429
Sequences (23:80) Aligned. Score: 100
Sequences (23:81) Aligned. Score: 100
Sequences (23:82) Aligned. Score: 100
Sequences (23:83) Aligned. Score: 99.9214
Sequences (23:84) Aligned. Score: 100
Sequences (23:85) Aligned. Score: 99.9214
Sequences (23:86) Aligned. Score: 100
Sequences (23:87) Aligned. Score: 100
Sequences (23:88) Aligned. Score: 99.9214
Sequences (23:89) Aligned. Score: 99.9214
Sequences (23:90) Aligned. Score: 100
Sequences (23:91) Aligned. Score: 100
Sequences (23:92) Aligned. Score: 100
Sequences (24:25) Aligned. Score: 100
Sequences (24:26) Aligned. Score: 100
Sequences (24:27) Aligned. Score: 100
Sequences (24:28) Aligned. Score: 100
Sequences (24:29) Aligned. Score: 100
Sequences (24:30) Aligned. Score: 100
Sequences (24:31) Aligned. Score: 99.9214
Sequences (24:32) Aligned. Score: 99.9214
Sequences (24:33) Aligned. Score: 100
Sequences (24:34) Aligned. Score: 99.9214
Sequences (24:35) Aligned. Score: 99.9214
Sequences (24:36) Aligned. Score: 99.9214
Sequences (24:37) Aligned. Score: 100
Sequences (24:38) Aligned. Score: 100
Sequences (24:39) Aligned. Score: 99.9214
Sequences (24:40) Aligned. Score: 99.9214
Sequences (24:41) Aligned. Score: 100
Sequences (24:42) Aligned. Score: 100
Sequences (24:43) Aligned. Score: 99.9214
Sequences (24:44) Aligned. Score: 100
Sequences (24:45) Aligned. Score: 100
Sequences (24:46) Aligned. Score: 100
Sequences (24:47) Aligned. Score: 100
Sequences (24:48) Aligned. Score: 100
Sequences (24:49) Aligned. Score: 100
Sequences (24:50) Aligned. Score: 100
Sequences (24:51) Aligned. Score: 99.9214
Sequences (24:52) Aligned. Score: 99.9214
Sequences (24:53) Aligned. Score: 99.9214
Sequences (24:54) Aligned. Score: 100
Sequences (24:55) Aligned. Score: 100
Sequences (24:56) Aligned. Score: 100
```

```
Sequences (24:57) Aligned. Score: 99.9214
Sequences (24:58) Aligned. Score: 100
Sequences (24:59) Aligned. Score: 100
Sequences (24:60) Aligned. Score: 99.9214
Sequences (24:61) Aligned. Score: 99.9214
Sequences (24:62) Aligned. Score: 100
Sequences (24:63) Aligned. Score: 99.9214
Sequences (24:64) Aligned. Score: 99.9214
Sequences (24:65) Aligned. Score: 99.9214
Sequences (24:66) Aligned. Score: 99.9214
Sequences (24:67) Aligned. Score: 99.9214
Sequences (24:68) Aligned. Score: 99.9214
Sequences (24:69) Aligned. Score: 99.9214
Sequences (24:70) Aligned. Score: 99.9214
Sequences (24:71) Aligned. Score: 100
Sequences (24:72) Aligned. Score: 100
Sequences (24:73) Aligned. Score: 99.9214
Sequences (24:74) Aligned. Score: 99.9214
Sequences (24:75) Aligned. Score: 99.9214
Sequences (24:76) Aligned. Score: 99.9214
Sequences (24:77) Aligned. Score: 99.9214
Sequences (24:78) Aligned. Score: 100
Sequences (24:79) Aligned. Score: 99.9214
Sequences (24:80) Aligned. Score: 99.9214
Sequences (24:81) Aligned. Score: 99.9214
Sequences (24:82) Aligned. Score: 99.9214
Sequences (24:83) Aligned. Score: 100
Sequences (24:84) Aligned. Score: 99.9214
Sequences (24:85) Aligned. Score: 100
Sequences (24:86) Aligned. Score: 99.9214
Sequences (24:87) Aligned. Score: 99.9214
Sequences (24:88) Aligned. Score: 100
Sequences (24:89) Aligned. Score: 100
Sequences (24:90) Aligned. Score: 99.9214
Sequences (24:91) Aligned. Score: 99.9214
Sequences (24:92) Aligned. Score: 99.9214
Sequences (25:26) Aligned. Score: 100
Sequences (25:27) Aligned. Score: 100
Sequences (25:28) Aligned. Score: 100
Sequences (25:29) Aligned. Score: 100
Sequences (25:30) Aligned. Score: 100
Sequences (25:31) Aligned. Score: 99.9214
Sequences (25:32) Aligned. Score: 99.9214
Sequences (25:33) Aligned. Score: 100
Sequences (25:34) Aligned. Score: 99.9214
Sequences (25:35) Aligned. Score: 99.9214
Sequences (25:36) Aligned. Score: 99.9214
Sequences (25:37) Aligned. Score: 100
Sequences (25:38) Aligned. Score: 100
Sequences (25:39) Aligned. Score: 99.9214
Sequences (25:40) Aligned. Score: 99.9214
Sequences (25:41) Aligned. Score: 100
Sequences (25:42) Aligned. Score: 100
Sequences (25:43) Aligned. Score: 99.9214
Sequences (25:44) Aligned. Score: 100
Sequences (25:45) Aligned. Score: 100
Sequences (25:46) Aligned. Score: 100
Sequences (25:47) Aligned. Score: 100
Sequences (25:48) Aligned. Score: 100
Sequences (25:49) Aligned. Score: 100
Sequences (25:50) Aligned. Score: 100
Sequences (25:51) Aligned. Score: 99.9214
```

```
Sequences (25:52) Aligned. Score: 99.9214
Sequences (25:53) Aligned. Score: 99.9214
Sequences (25:54) Aligned. Score: 100
Sequences (25:55) Aligned. Score: 100
Sequences (25:56) Aligned. Score: 100
Sequences (25:57) Aligned. Score: 99.9214
Sequences (25:58) Aligned. Score: 100
Sequences (25:59) Aligned. Score: 100
Sequences (25:60) Aligned. Score: 99.9214
Sequences (25:61) Aligned. Score: 99.9214
Sequences (25:62) Aligned. Score: 100
Sequences (25:63) Aligned. Score: 99.9214
Sequences (25:64) Aligned. Score: 99.9214
Sequences (25:65) Aligned. Score: 99.9214
Sequences (25:66) Aligned. Score: 99.9214
Sequences (25:67) Aligned. Score: 99.9214
Sequences (25:68) Aligned. Score: 99.9214
Sequences (25:69) Aligned. Score: 99.9214
Sequences (25:70) Aligned. Score: 99.9214
Sequences (25:71) Aligned. Score: 100
Sequences (25:72) Aligned. Score: 100
Sequences (25:73) Aligned. Score: 99.9214
Sequences (25:74) Aligned. Score: 99.9214
Sequences (25:75) Aligned. Score: 99.9214
Sequences (25:76) Aligned. Score: 99.9214
Sequences (25:77) Aligned. Score: 99.9214
Sequences (25:78) Aligned. Score: 100
Sequences (25:79) Aligned. Score: 99.9214
Sequences (25:80) Aligned. Score: 99.9214
Sequences (25:81) Aligned. Score: 99.9214
Sequences (25:82) Aligned. Score: 99.9214
Sequences (25:83) Aligned. Score: 100
Sequences (25:84) Aligned. Score: 99.9214
Sequences (25:85) Aligned. Score: 100
Sequences (25:86) Aligned. Score: 99.9214
Sequences (25:87) Aligned. Score: 99.9214
Sequences (25:88) Aligned. Score: 100
Sequences (25:89) Aligned. Score: 100
Sequences (25:90) Aligned. Score: 99.9214
Sequences (25:91) Aligned. Score: 99.9214
Sequences (25:92) Aligned. Score: 99.9214
Sequences (26:27) Aligned. Score: 100
Sequences (26:28) Aligned. Score: 100
Sequences (26:29) Aligned. Score: 100
Sequences (26:30) Aligned. Score: 100
Sequences (26:31) Aligned. Score: 99.9214
Sequences (26:32) Aligned. Score: 99.9214
Sequences (26:33) Aligned. Score: 100
Sequences (26:34) Aligned. Score: 99.9214
Sequences (26:35) Aligned. Score: 99.9214
Sequences (26:36) Aligned. Score: 99.9214
Sequences (26:37) Aligned. Score: 100
Sequences (26:38) Aligned. Score: 100
Sequences (26:39) Aligned. Score: 99.9214
Sequences (26:40) Aligned. Score: 99.9214
Sequences (26:41) Aligned. Score: 100
Sequences (26:42) Aligned. Score: 100
Sequences (26:43) Aligned. Score: 99.9214
Sequences (26:44) Aligned. Score: 100
Sequences (26:45) Aligned. Score: 100
Sequences (26:46) Aligned. Score: 100
Sequences (26:47) Aligned. Score: 100
```

```
Sequences (26:48) Aligned. Score: 100
Sequences (26:49) Aligned. Score: 100
Sequences (26:50) Aligned. Score: 100
Sequences (26:51) Aligned. Score: 99.9214
Sequences (26:52) Aligned. Score: 99.9214
Sequences (26:53) Aligned. Score: 99.9214
Sequences (26:54) Aligned. Score: 100
Sequences (26:55) Aligned. Score: 100
Sequences (26:56) Aligned. Score: 100
Sequences (26:57) Aligned. Score: 99.9214
Sequences (26:58) Aligned. Score: 100
Sequences (26:59) Aligned. Score: 100
Sequences (26:60) Aligned. Score: 99.9214
Sequences (26:61) Aligned. Score: 99.9214
Sequences (26:62) Aligned. Score: 100
Sequences (26:63) Aligned. Score: 99.9214
Sequences (26:64) Aligned. Score: 99.9214
Sequences (26:65) Aligned. Score: 99.9214
Sequences (26:66) Aligned. Score: 99.9214
Sequences (26:67) Aligned. Score: 99.9214
Sequences (26:68) Aligned. Score: 99.9214
Sequences (26:69) Aligned. Score: 99.9214
Sequences (26:70) Aligned. Score: 99.9214
Sequences (26:71) Aligned. Score: 100
Sequences (26:72) Aligned. Score: 100
Sequences (26:73) Aligned. Score: 99.9214
Sequences (26:74) Aligned. Score: 99.9214
Sequences (26:75) Aligned. Score: 99.9214
Sequences (26:76) Aligned. Score: 99.9214
Sequences (26:77) Aligned. Score: 99.9214
Sequences (26:78) Aligned. Score: 100
Sequences (26:79) Aligned. Score: 99.9214
Sequences (26:80) Aligned. Score: 99.9214
Sequences (26:81) Aligned. Score: 99.9214
Sequences (26:82) Aligned. Score: 99.9214
Sequences (26:83) Aligned. Score: 100
Sequences (26:84) Aligned. Score: 99.9214
Sequences (26:85) Aligned. Score: 100
Sequences (26:86) Aligned. Score: 99.9214
Sequences (26:87) Aligned. Score: 99.9214
Sequences (26:88) Aligned. Score: 100
Sequences (26:89) Aligned. Score: 100
Sequences (26:90) Aligned. Score: 99.9214
Sequences (26:91) Aligned. Score: 99.9214
Sequences (26:92) Aligned. Score: 99.9214
Sequences (27:28) Aligned. Score: 100
Sequences (27:29) Aligned. Score: 100
Sequences (27:30) Aligned. Score: 100
Sequences (27:31) Aligned. Score: 99.9214
Sequences (27:32) Aligned. Score: 99.9214
Sequences (27:33) Aligned. Score: 100
Sequences (27:34) Aligned. Score: 99.9214
Sequences (27:35) Aligned. Score: 99.9214
Sequences (27:36) Aligned. Score: 99.9214
Sequences (27:37) Aligned. Score: 100
Sequences (27:38) Aligned. Score: 100
Sequences (27:39) Aligned. Score: 99.9214
Sequences (27:40) Aligned. Score: 99.9214
Sequences (27:41) Aligned. Score: 100
Sequences (27:42) Aligned. Score: 100
Sequences (27:43) Aligned. Score: 99.9214
Sequences (27:44) Aligned. Score: 100
```

Sequences (27:45) Aligned. Score: 100
Sequences (27:46) Aligned. Score: 100
Sequences (27:47) Aligned. Score: 100
Sequences (27:48) Aligned. Score: 100
Sequences (27:49) Aligned. Score: 100
Sequences (27:50) Aligned. Score: 100
Sequences (27:51) Aligned. Score: 99.9214
Sequences (27:52) Aligned. Score: 99.9214
Sequences (27:53) Aligned. Score: 99.9214
Sequences (27:54) Aligned. Score: 100
Sequences (27:55) Aligned. Score: 100
Sequences (27:56) Aligned. Score: 100
Sequences (27:57) Aligned. Score: 99.9214
Sequences (27:58) Aligned. Score: 100
Sequences (27:59) Aligned. Score: 100
Sequences (27:60) Aligned. Score: 99.9214
Sequences (27:61) Aligned. Score: 99.9214
Sequences (27:62) Aligned. Score: 100
Sequences (27:63) Aligned. Score: 99.9214
Sequences (27:64) Aligned. Score: 99.9214
Sequences (27:65) Aligned. Score: 99.9214
Sequences (27:66) Aligned. Score: 99.9214
Sequences (27:67) Aligned. Score: 99.9214
Sequences (27:68) Aligned. Score: 99.9214
Sequences (27:69) Aligned. Score: 99.9214
Sequences (27:70) Aligned. Score: 99.9214
Sequences (27:71) Aligned. Score: 100
Sequences (27:72) Aligned. Score: 100
Sequences (27:73) Aligned. Score: 99.9214
Sequences (27:74) Aligned. Score: 99.9214
Sequences (27:75) Aligned. Score: 99.9214
Sequences (27:76) Aligned. Score: 99.9214
Sequences (27:77) Aligned. Score: 99.9214
Sequences (27:78) Aligned. Score: 100
Sequences (27:79) Aligned. Score: 99.9214
Sequences (27:80) Aligned. Score: 99.9214
Sequences (27:81) Aligned. Score: 99.9214
Sequences (27:82) Aligned. Score: 99.9214
Sequences (27:83) Aligned. Score: 100
Sequences (27:84) Aligned. Score: 99.9214
Sequences (27:85) Aligned. Score: 100
Sequences (27:86) Aligned. Score: 99.9214
Sequences (27:87) Aligned. Score: 99.9214
Sequences (27:88) Aligned. Score: 100
Sequences (27:89) Aligned. Score: 100
Sequences (27:90) Aligned. Score: 99.9214
Sequences (27:91) Aligned. Score: 99.9214
Sequences (27:92) Aligned. Score: 99.9214
Sequences (28:29) Aligned. Score: 100
Sequences (28:30) Aligned. Score: 100
Sequences (28:31) Aligned. Score: 99.9214
Sequences (28:32) Aligned. Score: 99.9214
Sequences (28:33) Aligned. Score: 100
Sequences (28:34) Aligned. Score: 99.9214
Sequences (28:35) Aligned. Score: 99.9214
Sequences (28:36) Aligned. Score: 99.9214
Sequences (28:37) Aligned. Score: 100
Sequences (28:38) Aligned. Score: 100
Sequences (28:39) Aligned. Score: 99.9214
Sequences (28:40) Aligned. Score: 99.9214
Sequences (28:41) Aligned. Score: 100
Sequences (28:42) Aligned. Score: 100

```
Sequences (28:43) Aligned. Score: 99.9214
Sequences (28:44) Aligned. Score: 100
Sequences (28:45) Aligned. Score: 100
Sequences (28:46) Aligned. Score: 100
Sequences (28:47) Aligned. Score: 100
Sequences (28:48) Aligned. Score: 100
Sequences (28:49) Aligned. Score: 100
Sequences (28:50) Aligned. Score: 100
Sequences (28:51) Aligned. Score: 99.9214
Sequences (28:52) Aligned. Score: 99.9214
Sequences (28:53) Aligned. Score: 99.9214
Sequences (28:54) Aligned. Score: 100
Sequences (28:55) Aligned. Score: 100
Sequences (28:56) Aligned. Score: 100
Sequences (28:57) Aligned. Score: 99.9214
Sequences (28:58) Aligned. Score: 100
Sequences (28:59) Aligned. Score: 100
Sequences (28:60) Aligned. Score: 99.9214
Sequences (28:61) Aligned. Score: 99.9214
Sequences (28:62) Aligned. Score: 100
Sequences (28:63) Aligned. Score: 99.9214
Sequences (28:64) Aligned. Score: 99.9214
Sequences (28:65) Aligned. Score: 99.9214
Sequences (28:66) Aligned. Score: 99.9214
Sequences (28:67) Aligned. Score: 99.9214
Sequences (28:68) Aligned. Score: 99.9214
Sequences (28:69) Aligned. Score: 99.9214
Sequences (28:70) Aligned. Score: 99.9214
Sequences (28:71) Aligned. Score: 100
Sequences (28:72) Aligned. Score: 100
Sequences (28:73) Aligned. Score: 99.9214
Sequences (28:74) Aligned. Score: 99.9214
Sequences (28:75) Aligned. Score: 99.9214
Sequences (28:76) Aligned. Score: 99.9214
Sequences (28:77) Aligned. Score: 99.9214
Sequences (28:78) Aligned. Score: 100
Sequences (28:79) Aligned. Score: 99.9214
Sequences (28:80) Aligned. Score: 99.9214
Sequences (28:81) Aligned. Score: 99.9214
Sequences (28:82) Aligned. Score: 99.9214
Sequences (28:83) Aligned. Score: 100
Sequences (28:84) Aligned. Score: 99.9214
Sequences (28:85) Aligned. Score: 100
Sequences (28:86) Aligned. Score: 99.9214
Sequences (28:87) Aligned. Score: 99.9214
Sequences (28:88) Aligned. Score: 100
Sequences (28:89) Aligned. Score: 100
Sequences (28:90) Aligned. Score: 99.9214
Sequences (28:91) Aligned. Score: 99.9214
Sequences (28:92) Aligned. Score: 99.9214
Sequences (29:30) Aligned. Score: 100
Sequences (29:31) Aligned. Score: 99.9214
Sequences (29:32) Aligned. Score: 99.9214
Sequences (29:33) Aligned. Score: 100
Sequences (29:34) Aligned. Score: 99.9214
Sequences (29:35) Aligned. Score: 99.9214
Sequences (29:36) Aligned. Score: 99.9214
Sequences (29:37) Aligned. Score: 100
Sequences (29:38) Aligned. Score: 100
Sequences (29:39) Aligned. Score: 99.9214
Sequences (29:40) Aligned. Score: 99.9214
Sequences (29:41) Aligned. Score: 100
```

```
Sequences (29:42) Aligned. Score: 100
Sequences (29:43) Aligned. Score: 99.9214
Sequences (29:44) Aligned. Score: 100
Sequences (29:45) Aligned. Score: 100
Sequences (29:46) Aligned. Score: 100
Sequences (29:47) Aligned. Score: 100
Sequences (29:48) Aligned. Score: 100
Sequences (29:49) Aligned. Score: 100
Sequences (29:50) Aligned. Score: 100
Sequences (29:51) Aligned. Score: 99.9214
Sequences (29:52) Aligned. Score: 99.9214
Sequences (29:53) Aligned. Score: 99.9214
Sequences (29:54) Aligned. Score: 100
Sequences (29:55) Aligned. Score: 100
Sequences (29:56) Aligned. Score: 100
Sequences (29:57) Aligned. Score: 99.9214
Sequences (29:58) Aligned. Score: 100
Sequences (29:59) Aligned. Score: 100
Sequences (29:60) Aligned. Score: 99.9214
Sequences (29:61) Aligned. Score: 99.9214
Sequences (29:62) Aligned. Score: 100
Sequences (29:63) Aligned. Score: 99.9214
Sequences (29:64) Aligned. Score: 99.9214
Sequences (29:65) Aligned. Score: 99.9214
Sequences (29:66) Aligned. Score: 99.9214
Sequences (29:67) Aligned. Score: 99.9214
Sequences (29:68) Aligned. Score: 99.9214
Sequences (29:69) Aligned. Score: 99.9214
Sequences (29:70) Aligned. Score: 99.9214
Sequences (29:71) Aligned. Score: 100
Sequences (29:72) Aligned. Score: 100
Sequences (29:73) Aligned. Score: 99.9214
Sequences (29:74) Aligned. Score: 99.9214
Sequences (29:75) Aligned. Score: 99.9214
Sequences (29:76) Aligned. Score: 99.9214
Sequences (29:77) Aligned. Score: 99.9214
Sequences (29:78) Aligned. Score: 100
Sequences (29:79) Aligned. Score: 99.9214
Sequences (29:80) Aligned. Score: 99.9214
Sequences (29:81) Aligned. Score: 99.9214
Sequences (29:82) Aligned. Score: 99.9214
Sequences (29:83) Aligned. Score: 100
Sequences (29:84) Aligned. Score: 99.9214
Sequences (29:85) Aligned. Score: 100
Sequences (29:86) Aligned. Score: 99.9214
Sequences (29:87) Aligned. Score: 99.9214
Sequences (29:88) Aligned. Score: 100
Sequences (29:89) Aligned. Score: 100
Sequences (29:90) Aligned. Score: 99.9214
Sequences (29:91) Aligned. Score: 99.9214
Sequences (29:92) Aligned. Score: 99.9214
Sequences (30:31) Aligned. Score: 99.9214
Sequences (30:32) Aligned. Score: 99.9214
Sequences (30:33) Aligned. Score: 100
Sequences (30:34) Aligned. Score: 99.9214
Sequences (30:35) Aligned. Score: 99.9214
Sequences (30:36) Aligned. Score: 99.9214
Sequences (30:37) Aligned. Score: 100
Sequences (30:38) Aligned. Score: 100
Sequences (30:39) Aligned. Score: 99.9214
Sequences (30:40) Aligned. Score: 99.9214
Sequences (30:41) Aligned. Score: 100
```

```
Sequences (30:42) Aligned. Score: 100
Sequences (30:43) Aligned. Score: 99.9214
Sequences (30:44) Aligned. Score: 100
Sequences (30:45) Aligned. Score: 100
Sequences (30:46) Aligned. Score: 100
Sequences (30:47) Aligned. Score: 100
Sequences (30:48) Aligned. Score: 100
Sequences (30:49) Aligned. Score: 100
Sequences (30:50) Aligned. Score: 100
Sequences (30:51) Aligned. Score: 99.9214
Sequences (30:52) Aligned. Score: 99.9214
Sequences (30:53) Aligned. Score: 99.9214
Sequences (30:54) Aligned. Score: 100
Sequences (30:55) Aligned. Score: 100
Sequences (30:56) Aligned. Score: 100
Sequences (30:57) Aligned. Score: 99.9214
Sequences (30:58) Aligned. Score: 100
Sequences (30:59) Aligned. Score: 100
Sequences (30:60) Aligned. Score: 99.9214
Sequences (30:61) Aligned. Score: 99.9214
Sequences (30:62) Aligned. Score: 100
Sequences (30:63) Aligned. Score: 99.9214
Sequences (30:64) Aligned. Score: 99.9214
Sequences (30:65) Aligned. Score: 99.9214
Sequences (30:66) Aligned. Score: 99.9214
Sequences (30:67) Aligned. Score: 99.9214
Sequences (30:68) Aligned. Score: 99.9214
Sequences (30:69) Aligned. Score: 99.9214
Sequences (30:70) Aligned. Score: 99.9214
Sequences (30:71) Aligned. Score: 100
Sequences (30:72) Aligned. Score: 100
Sequences (30:73) Aligned. Score: 99.9214
Sequences (30:74) Aligned. Score: 99.9214
Sequences (30:75) Aligned. Score: 99.9214
Sequences (30:76) Aligned. Score: 99.9214
Sequences (30:77) Aligned. Score: 99.9214
Sequences (30:78) Aligned. Score: 100
Sequences (30:79) Aligned. Score: 99.9214
Sequences (30:80) Aligned. Score: 99.9214
Sequences (30:81) Aligned. Score: 99.9214
Sequences (30:82) Aligned. Score: 99.9214
Sequences (30:83) Aligned. Score: 100
Sequences (30:84) Aligned. Score: 99.9214
Sequences (30:85) Aligned. Score: 100
Sequences (30:86) Aligned. Score: 99.9214
Sequences (30:87) Aligned. Score: 99.9214
Sequences (30:88) Aligned. Score: 100
Sequences (30:89) Aligned. Score: 100
Sequences (30:90) Aligned. Score: 99.9214
Sequences (30:91) Aligned. Score: 99.9214
Sequences (30:92) Aligned. Score: 99.9214
Sequences (31:32) Aligned. Score: 100
Sequences (31:33) Aligned. Score: 99.9214
Sequences (31:34) Aligned. Score: 99.8429
Sequences (31:35) Aligned. Score: 99.8429
Sequences (31:36) Aligned. Score: 100
Sequences (31:37) Aligned. Score: 99.9214
Sequences (31:38) Aligned. Score: 99.9214
Sequences (31:39) Aligned. Score: 99.8429
Sequences (31:40) Aligned. Score: 100
Sequences (31:41) Aligned. Score: 99.9214
Sequences (31:42) Aligned. Score: 99.9214
```

```
Sequences (31:43) Aligned. Score: 99.8429
Sequences (31:44) Aligned. Score: 99.9214
Sequences (31:45) Aligned. Score: 99.9214
Sequences (31:46) Aligned. Score: 99.9214
Sequences (31:47) Aligned. Score: 99.9214
Sequences (31:48) Aligned. Score: 99.9214
Sequences (31:49) Aligned. Score: 99.9214
Sequences (31:50) Aligned. Score: 99.9214
Sequences (31:51) Aligned. Score: 100
Sequences (31:52) Aligned. Score: 99.8429
Sequences (31:53) Aligned. Score: 100
Sequences (31:54) Aligned. Score: 99.9214
Sequences (31:55) Aligned. Score: 99.9214
Sequences (31:56) Aligned. Score: 99.9214
Sequences (31:57) Aligned. Score: 100
Sequences (31:58) Aligned. Score: 99.9214
Sequences (31:59) Aligned. Score: 99.9214
Sequences (31:60) Aligned. Score: 100
Sequences (31:61) Aligned. Score: 100
Sequences (31:62) Aligned. Score: 99.9214
Sequences (31:63) Aligned. Score: 100
Sequences (31:64) Aligned. Score: 100
Sequences (31:65) Aligned. Score: 100
Sequences (31:66) Aligned. Score: 100
Sequences (31:67) Aligned. Score: 100
Sequences (31:68) Aligned. Score: 100
Sequences (31:69) Aligned. Score: 99.8429
Sequences (31:70) Aligned. Score: 100
Sequences (31:71) Aligned. Score: 99.9214
Sequences (31:72) Aligned. Score: 99.9214
Sequences (31:73) Aligned. Score: 100
Sequences (31:74) Aligned. Score: 100
Sequences (31:75) Aligned. Score: 100
Sequences (31:76) Aligned. Score: 100
Sequences (31:77) Aligned. Score: 100
Sequences (31:78) Aligned. Score: 99.9214
Sequences (31:79) Aligned. Score: 99.8429
Sequences (31:80) Aligned. Score: 100
Sequences (31:81) Aligned. Score: 100
Sequences (31:82) Aligned. Score: 100
Sequences (31:83) Aligned. Score: 99.9214
Sequences (31:84) Aligned. Score: 100
Sequences (31:85) Aligned. Score: 99.9214
Sequences (31:86) Aligned. Score: 100
Sequences (31:87) Aligned. Score: 100
Sequences (31:88) Aligned. Score: 99.9214
Sequences (31:89) Aligned. Score: 99.9214
Sequences (31:90) Aligned. Score: 100
Sequences (31:91) Aligned. Score: 100
Sequences (31:92) Aligned. Score: 100
Sequences (32:33) Aligned. Score: 99.9214
Sequences (32:34) Aligned. Score: 99.8429
Sequences (32:35) Aligned. Score: 99.8429
Sequences (32:36) Aligned. Score: 100
Sequences (32:37) Aligned. Score: 99.9214
Sequences (32:38) Aligned. Score: 99.9214
Sequences (32:39) Aligned. Score: 99.8429
Sequences (32:40) Aligned. Score: 100
Sequences (32:41) Aligned. Score: 99.9214
Sequences (32:42) Aligned. Score: 99.9214
Sequences (32:43) Aligned. Score: 99.8429
Sequences (32:44) Aligned. Score: 99.9214
```

```
Sequences (32:45) Aligned. Score: 99.9214
Sequences (32:46) Aligned. Score: 99.9214
Sequences (32:47) Aligned. Score: 99.9214
Sequences (32:48) Aligned. Score: 99.9214
Sequences (32:49) Aligned. Score: 99.9214
Sequences (32:50) Aligned. Score: 99.9214
Sequences (32:51) Aligned. Score: 100
Sequences (32:52) Aligned. Score: 99.8429
Sequences (32:53) Aligned. Score: 100
Sequences (32:54) Aligned. Score: 99.9214
Sequences (32:55) Aligned. Score: 99.9214
Sequences (32:56) Aligned. Score: 99.9214
Sequences (32:57) Aligned. Score: 100
Sequences (32:58) Aligned. Score: 99.9214
Sequences (32:59) Aligned. Score: 99.9214
Sequences (32:60) Aligned. Score: 100
Sequences (32:61) Aligned. Score: 100
Sequences (32:62) Aligned. Score: 99.9214
Sequences (32:63) Aligned. Score: 100
Sequences (32:64) Aligned. Score: 100
Sequences (32:65) Aligned. Score: 100
Sequences (32:66) Aligned. Score: 100
Sequences (32:67) Aligned. Score: 100
Sequences (32:68) Aligned. Score: 100
Sequences (32:69) Aligned. Score: 99.8429
Sequences (32:70) Aligned. Score: 100
Sequences (32:71) Aligned. Score: 99.9214
Sequences (32:72) Aligned. Score: 99.9214
Sequences (32:73) Aligned. Score: 100
Sequences (32:74) Aligned. Score: 100
Sequences (32:75) Aligned. Score: 100
Sequences (32:76) Aligned. Score: 100
Sequences (32:77) Aligned. Score: 100
Sequences (32:78) Aligned. Score: 99.9214
Sequences (32:79) Aligned. Score: 99.8429
Sequences (32:80) Aligned. Score: 100
Sequences (32:81) Aligned. Score: 100
Sequences (32:82) Aligned. Score: 100
Sequences (32:83) Aligned. Score: 99.9214
Sequences (32:84) Aligned. Score: 100
Sequences (32:85) Aligned. Score: 99.9214
Sequences (32:86) Aligned. Score: 100
Sequences (32:87) Aligned. Score: 100
Sequences (32:88) Aligned. Score: 99.9214
Sequences (32:89) Aligned. Score: 99.9214
Sequences (32:90) Aligned. Score: 100
Sequences (32:91) Aligned. Score: 100
Sequences (32:92) Aligned. Score: 100
Sequences (33:34) Aligned. Score: 99.9214
Sequences (33:35) Aligned. Score: 99.9214
Sequences (33:36) Aligned. Score: 99.9214
Sequences (33:37) Aligned. Score: 100
Sequences (33:38) Aligned. Score: 100
Sequences (33:39) Aligned. Score: 99.9214
Sequences (33:40) Aligned. Score: 99.9214
Sequences (33:41) Aligned. Score: 100
Sequences (33:42) Aligned. Score: 100
Sequences (33:43) Aligned. Score: 99.9214
Sequences (33:44) Aligned. Score: 100
Sequences (33:45) Aligned. Score: 100
Sequences (33:46) Aligned. Score: 100
Sequences (33:47) Aligned. Score: 100
```

```
Sequences (33:48) Aligned. Score: 100
Sequences (33:49) Aligned. Score: 100
Sequences (33:50) Aligned. Score: 100
Sequences (33:51) Aligned. Score: 99.9214
Sequences (33:52) Aligned. Score: 99.9214
Sequences (33:53) Aligned. Score: 99.9214
Sequences (33:54) Aligned. Score: 100
Sequences (33:55) Aligned. Score: 100
Sequences (33:56) Aligned. Score: 100
Sequences (33:57) Aligned. Score: 99.9214
Sequences (33:58) Aligned. Score: 100
Sequences (33:59) Aligned. Score: 100
Sequences (33:60) Aligned. Score: 99.9214
Sequences (33:61) Aligned. Score: 99.9214
Sequences (33:62) Aligned. Score: 100
Sequences (33:63) Aligned. Score: 99.9214
Sequences (33:64) Aligned. Score: 99.9214
Sequences (33:65) Aligned. Score: 99.9214
Sequences (33:66) Aligned. Score: 99.9214
Sequences (33:67) Aligned. Score: 99.9214
Sequences (33:68) Aligned. Score: 99.9214
Sequences (33:69) Aligned. Score: 99.9214
Sequences (33:70) Aligned. Score: 99.9214
Sequences (33:71) Aligned. Score: 100
Sequences (33:72) Aligned. Score: 100
Sequences (33:73) Aligned. Score: 99.9214
Sequences (33:74) Aligned. Score: 99.9214
Sequences (33:75) Aligned. Score: 99.9214
Sequences (33:76) Aligned. Score: 99.9214
Sequences (33:77) Aligned. Score: 99.9214
Sequences (33:78) Aligned. Score: 100
Sequences (33:79) Aligned. Score: 99.9214
Sequences (33:80) Aligned. Score: 99.9214
Sequences (33:81) Aligned. Score: 99.9214
Sequences (33:82) Aligned. Score: 99.9214
Sequences (33:83) Aligned. Score: 100
Sequences (33:84) Aligned. Score: 99.9214
Sequences (33:85) Aligned. Score: 100
Sequences (33:86) Aligned. Score: 99.9214
Sequences (33:87) Aligned. Score: 99.9214
Sequences (33:88) Aligned. Score: 100
Sequences (33:89) Aligned. Score: 100
Sequences (33:90) Aligned. Score: 99.9214
Sequences (33:91) Aligned. Score: 99.9214
Sequences (33:92) Aligned. Score: 99.9214
Sequences (34:35) Aligned. Score: 99.8429
Sequences (34:36) Aligned. Score: 99.8429
Sequences (34:37) Aligned. Score: 99.9214
Sequences (34:38) Aligned. Score: 99.9214
Sequences (34:39) Aligned. Score: 99.8429
Sequences (34:40) Aligned. Score: 99.8429
Sequences (34:41) Aligned. Score: 99.9214
Sequences (34:42) Aligned. Score: 99.9214
Sequences (34:43) Aligned. Score: 99.8429
Sequences (34:44) Aligned. Score: 99.9214
Sequences (34:45) Aligned. Score: 99.9214
Sequences (34:46) Aligned. Score: 99.9214
Sequences (34:47) Aligned. Score: 99.9214
Sequences (34:48) Aligned. Score: 99.9214
Sequences (34:49) Aligned. Score: 99.9214
Sequences (34:50) Aligned. Score: 99.9214
Sequences (34:51) Aligned. Score: 99.8429
```

```
Sequences (34:52) Aligned. Score: 99.8429
Sequences (34:53) Aligned. Score: 99.8429
Sequences (34:54) Aligned. Score: 99.9214
Sequences (34:55) Aligned. Score: 99.9214
Sequences (34:56) Aligned. Score: 99.9214
Sequences (34:57) Aligned. Score: 99.8429
Sequences (34:58) Aligned. Score: 99.9214
Sequences (34:59) Aligned. Score: 99.9214
Sequences (34:60) Aligned. Score: 99.8429
Sequences (34:61) Aligned. Score: 99.8429
Sequences (34:62) Aligned. Score: 99.9214
Sequences (34:63) Aligned. Score: 99.8429
Sequences (34:64) Aligned. Score: 99.8429
Sequences (34:65) Aligned. Score: 99.8429
Sequences (34:66) Aligned. Score: 99.8429
Sequences (34:67) Aligned. Score: 99.8429
Sequences (34:68) Aligned. Score: 99.8429
Sequences (34:69) Aligned. Score: 99.8429
Sequences (34:70) Aligned. Score: 99.8429
Sequences (34:71) Aligned. Score: 99.9214
Sequences (34:72) Aligned. Score: 99.9214
Sequences (34:73) Aligned. Score: 99.8429
Sequences (34:74) Aligned. Score: 99.8429
Sequences (34:75) Aligned. Score: 99.8429
Sequences (34:76) Aligned. Score: 99.8429
Sequences (34:77) Aligned. Score: 99.8429
Sequences (34:78) Aligned. Score: 99.9214
Sequences (34:79) Aligned. Score: 99.8429
Sequences (34:80) Aligned. Score: 99.8429
Sequences (34:81) Aligned. Score: 99.8429
Sequences (34:82) Aligned. Score: 99.8429
Sequences (34:83) Aligned. Score: 99.9214
Sequences (34:84) Aligned. Score: 99.8429
Sequences (34:85) Aligned. Score: 99.9214
Sequences (34:86) Aligned. Score: 99.8429
Sequences (34:87) Aligned. Score: 99.8429
Sequences (34:88) Aligned. Score: 99.9214
Sequences (34:89) Aligned. Score: 99.9214
Sequences (34:90) Aligned. Score: 99.8429
Sequences (34:91) Aligned. Score: 99.8429
Sequences (34:92) Aligned. Score: 99.8429
Sequences (35:36) Aligned. Score: 99.8429
Sequences (35:37) Aligned. Score: 99.9214
Sequences (35:38) Aligned. Score: 99.9214
Sequences (35:39) Aligned. Score: 99.8429
Sequences (35:40) Aligned. Score: 99.8429
Sequences (35:41) Aligned. Score: 99.9214
Sequences (35:42) Aligned. Score: 99.9214
Sequences (35:43) Aligned. Score: 99.8429
Sequences (35:44) Aligned. Score: 99.9214
Sequences (35:45) Aligned. Score: 99.9214
Sequences (35:46) Aligned. Score: 99.9214
Sequences (35:47) Aligned. Score: 99.9214
Sequences (35:48) Aligned. Score: 99.9214
Sequences (35:49) Aligned. Score: 99.9214
Sequences (35:50) Aligned. Score: 99.9214
Sequences (35:51) Aligned. Score: 99.8429
Sequences (35:52) Aligned. Score: 99.8429
Sequences (35:53) Aligned. Score: 99.8429
Sequences (35:54) Aligned. Score: 99.9214
Sequences (35:55) Aligned. Score: 99.9214
Sequences (35:56) Aligned. Score: 99.9214
```

```
Sequences (35:57) Aligned. Score: 99.8429
Sequences (35:58) Aligned. Score: 99.9214
Sequences (35:59) Aligned. Score: 99.9214
Sequences (35:60) Aligned. Score: 99.8429
Sequences (35:61) Aligned. Score: 99.8429
Sequences (35:62) Aligned. Score: 99.9214
Sequences (35:63) Aligned. Score: 99.8429
Sequences (35:64) Aligned. Score: 99.8429
Sequences (35:65) Aligned. Score: 99.8429
Sequences (35:66) Aligned. Score: 99.8429
Sequences (35:67) Aligned. Score: 99.8429
Sequences (35:68) Aligned. Score: 99.8429
Sequences (35:69) Aligned. Score: 99.8429
Sequences (35:70) Aligned. Score: 99.8429
Sequences (35:71) Aligned. Score: 99.9214
Sequences (35:72) Aligned. Score: 99.9214
Sequences (35:73) Aligned. Score: 99.8429
Sequences (35:74) Aligned. Score: 99.8429
Sequences (35:75) Aligned. Score: 99.8429
Sequences (35:76) Aligned. Score: 99.8429
Sequences (35:77) Aligned. Score: 99.8429
Sequences (35:78) Aligned. Score: 99.9214
Sequences (35:79) Aligned. Score: 99.8429
Sequences (35:80) Aligned. Score: 99.8429
Sequences (35:81) Aligned. Score: 99.8429
Sequences (35:82) Aligned. Score: 99.8429
Sequences (35:83) Aligned. Score: 99.9214
Sequences (35:84) Aligned. Score: 99.8429
Sequences (35:85) Aligned. Score: 99.9214
Sequences (35:86) Aligned. Score: 99.8429
Sequences (35:87) Aligned. Score: 99.8429
Sequences (35:88) Aligned. Score: 99.9214
Sequences (35:89) Aligned. Score: 99.9214
Sequences (35:90) Aligned. Score: 99.8429
Sequences (35:91) Aligned. Score: 99.8429
Sequences (35:92) Aligned. Score: 99.8429
Sequences (36:37) Aligned. Score: 99.9214
Sequences (36:38) Aligned. Score: 99.9214
Sequences (36:39) Aligned. Score: 99.8429
Sequences (36:40) Aligned. Score: 100
Sequences (36:41) Aligned. Score: 99.9214
Sequences (36:42) Aligned. Score: 99.9214
Sequences (36:43) Aligned. Score: 99.8429
Sequences (36:44) Aligned. Score: 99.9214
Sequences (36:45) Aligned. Score: 99.9214
Sequences (36:46) Aligned. Score: 99.9214
Sequences (36:47) Aligned. Score: 99.9214
Sequences (36:48) Aligned. Score: 99.9214
Sequences (36:49) Aligned. Score: 99.9214
Sequences (36:50) Aligned. Score: 99.9214
Sequences (36:51) Aligned. Score: 100
Sequences (36:52) Aligned. Score: 99.8429
Sequences (36:53) Aligned. Score: 100
Sequences (36:54) Aligned. Score: 99.9214
Sequences (36:55) Aligned. Score: 99.9214
Sequences (36:56) Aligned. Score: 99.9214
Sequences (36:57) Aligned. Score: 100
Sequences (36:58) Aligned. Score: 99.9214
Sequences (36:59) Aligned. Score: 99.9214
Sequences (36:60) Aligned. Score: 100
Sequences (36:61) Aligned. Score: 100
Sequences (36:62) Aligned. Score: 99.9214
```

```
Sequences (36:63) Aligned. Score: 100
Sequences (36:64) Aligned. Score: 100
Sequences (36:65) Aligned. Score: 100
Sequences (36:66) Aligned. Score: 100
Sequences (36:67) Aligned. Score: 100
Sequences (36:68) Aligned. Score: 100
Sequences (36:69) Aligned. Score: 99.8429
Sequences (36:70) Aligned. Score: 100
Sequences (36:71) Aligned. Score: 99.9214
Sequences (36:72) Aligned. Score: 99.9214
Sequences (36:73) Aligned. Score: 100
Sequences (36:74) Aligned. Score: 100
Sequences (36:75) Aligned. Score: 100
Sequences (36:76) Aligned. Score: 100
Sequences (36:77) Aligned. Score: 100
Sequences (36:78) Aligned. Score: 99.9214
Sequences (36:79) Aligned. Score: 99.8429
Sequences (36:80) Aligned. Score: 100
Sequences (36:81) Aligned. Score: 100
Sequences (36:82) Aligned. Score: 100
Sequences (36:83) Aligned. Score: 99.9214
Sequences (36:84) Aligned. Score: 100
Sequences (36:85) Aligned. Score: 99.9214
Sequences (36:86) Aligned. Score: 100
Sequences (36:87) Aligned. Score: 100
Sequences (36:88) Aligned. Score: 99.9214
Sequences (36:89) Aligned. Score: 99.9214
Sequences (36:90) Aligned. Score: 100
Sequences (36:91) Aligned. Score: 100
Sequences (36:92) Aligned. Score: 100
Sequences (37:38) Aligned. Score: 100
Sequences (37:39) Aligned. Score: 99.9214
Sequences (37:40) Aligned. Score: 99.9214
Sequences (37:41) Aligned. Score: 100
Sequences (37:42) Aligned. Score: 100
Sequences (37:43) Aligned. Score: 99.9214
Sequences (37:44) Aligned. Score: 100
Sequences (37:45) Aligned. Score: 100
Sequences (37:46) Aligned. Score: 100
Sequences (37:47) Aligned. Score: 100
Sequences (37:48) Aligned. Score: 100
Sequences (37:49) Aligned. Score: 100
Sequences (37:50) Aligned. Score: 100
Sequences (37:51) Aligned. Score: 99.9214
Sequences (37:52) Aligned. Score: 99.9214
Sequences (37:53) Aligned. Score: 99.9214
Sequences (37:54) Aligned. Score: 100
Sequences (37:55) Aligned. Score: 100
Sequences (37:56) Aligned. Score: 100
Sequences (37:57) Aligned. Score: 99.9214
Sequences (37:58) Aligned. Score: 100
Sequences (37:59) Aligned. Score: 100
Sequences (37:60) Aligned. Score: 99.9214
Sequences (37:61) Aligned. Score: 99.9214
Sequences (37:62) Aligned. Score: 100
Sequences (37:63) Aligned. Score: 99.9214
Sequences (37:64) Aligned. Score: 99.9214
Sequences (37:65) Aligned. Score: 99.9214
Sequences (37:66) Aligned. Score: 99.9214
Sequences (37:67) Aligned. Score: 99.9214
Sequences (37:68) Aligned. Score: 99.9214
Sequences (37:69) Aligned. Score: 99.9214
```

```
Sequences (37:70) Aligned. Score: 99.9214
Sequences (37:71) Aligned. Score: 100
Sequences (37:72) Aligned. Score: 100
Sequences (37:73) Aligned. Score: 99.9214
Sequences (37:74) Aligned. Score: 99.9214
Sequences (37:75) Aligned. Score: 99.9214
Sequences (37:76) Aligned. Score: 99.9214
Sequences (37:77) Aligned. Score: 99.9214
Sequences (37:78) Aligned. Score: 100
Sequences (37:79) Aligned. Score: 99.9214
Sequences (37:80) Aligned. Score: 99.9214
Sequences (37:81) Aligned. Score: 99.9214
Sequences (37:82) Aligned. Score: 99.9214
Sequences (37:83) Aligned. Score: 100
Sequences (37:84) Aligned. Score: 99.9214
Sequences (37:85) Aligned. Score: 100
Sequences (37:86) Aligned. Score: 99.9214
Sequences (37:87) Aligned. Score: 99.9214
Sequences (37:88) Aligned. Score: 100
Sequences (37:89) Aligned. Score: 100
Sequences (37:90) Aligned. Score: 99.9214
Sequences (37:91) Aligned. Score: 99.9214
Sequences (37:92) Aligned. Score: 99.9214
Sequences (38:39) Aligned. Score: 99.9214
Sequences (38:40) Aligned. Score: 99.9214
Sequences (38:41) Aligned. Score: 100
Sequences (38:42) Aligned. Score: 100
Sequences (38:43) Aligned. Score: 99.9214
Sequences (38:44) Aligned. Score: 100
Sequences (38:45) Aligned. Score: 100
Sequences (38:46) Aligned. Score: 100
Sequences (38:47) Aligned. Score: 100
Sequences (38:48) Aligned. Score: 100
Sequences (38:49) Aligned. Score: 100
Sequences (38:50) Aligned. Score: 100
Sequences (38:51) Aligned. Score: 99.9214
Sequences (38:52) Aligned. Score: 99.9214
Sequences (38:53) Aligned. Score: 99.9214
Sequences (38:54) Aligned. Score: 100
Sequences (38:55) Aligned. Score: 100
Sequences (38:56) Aligned. Score: 100
Sequences (38:57) Aligned. Score: 99.9214
Sequences (38:58) Aligned. Score: 100
Sequences (38:59) Aligned. Score: 100
Sequences (38:60) Aligned. Score: 99.9214
Sequences (38:61) Aligned. Score: 99.9214
Sequences (38:62) Aligned. Score: 100
Sequences (38:63) Aligned. Score: 99.9214
Sequences (38:64) Aligned. Score: 99.9214
Sequences (38:65) Aligned. Score: 99.9214
Sequences (38:66) Aligned. Score: 99.9214
Sequences (38:67) Aligned. Score: 99.9214
Sequences (38:68) Aligned. Score: 99.9214
Sequences (38:69) Aligned. Score: 99.9214
Sequences (38:70) Aligned. Score: 99.9214
Sequences (38:71) Aligned. Score: 100
Sequences (38:72) Aligned. Score: 100
Sequences (38:73) Aligned. Score: 99.9214
Sequences (38:74) Aligned. Score: 99.9214
Sequences (38:75) Aligned. Score: 99.9214
Sequences (38:76) Aligned. Score: 99.9214
Sequences (38:77) Aligned. Score: 99.9214
```

Sequences (38:78) Aligned. Score: 100
Sequences (38:79) Aligned. Score: 99.9214
Sequences (38:80) Aligned. Score: 99.9214
Sequences (38:81) Aligned. Score: 99.9214
Sequences (38:82) Aligned. Score: 99.9214
Sequences (38:83) Aligned. Score: 100
Sequences (38:84) Aligned. Score: 99.9214
Sequences (38:85) Aligned. Score: 100
Sequences (38:86) Aligned. Score: 99.9214
Sequences (38:87) Aligned. Score: 99.9214
Sequences (38:88) Aligned. Score: 100
Sequences (38:89) Aligned. Score: 100
Sequences (38:90) Aligned. Score: 99.9214
Sequences (38:91) Aligned. Score: 99.9214
Sequences (38:92) Aligned. Score: 99.9214
Sequences (39:40) Aligned. Score: 99.8429
Sequences (39:41) Aligned. Score: 99.9214
Sequences (39:42) Aligned. Score: 99.9214
Sequences (39:43) Aligned. Score: 99.8429
Sequences (39:44) Aligned. Score: 99.9214
Sequences (39:45) Aligned. Score: 99.9214
Sequences (39:46) Aligned. Score: 99.9214
Sequences (39:47) Aligned. Score: 99.9214
Sequences (39:48) Aligned. Score: 99.9214
Sequences (39:49) Aligned. Score: 99.9214
Sequences (39:50) Aligned. Score: 99.9214
Sequences (39:51) Aligned. Score: 99.8429
Sequences (39:52) Aligned. Score: 99.8429
Sequences (39:53) Aligned. Score: 99.8429
Sequences (39:54) Aligned. Score: 99.9214
Sequences (39:55) Aligned. Score: 99.9214
Sequences (39:56) Aligned. Score: 99.9214
Sequences (39:57) Aligned. Score: 99.8429
Sequences (39:58) Aligned. Score: 99.9214
Sequences (39:59) Aligned. Score: 99.9214
Sequences (39:60) Aligned. Score: 99.8429
Sequences (39:61) Aligned. Score: 99.8429
Sequences (39:62) Aligned. Score: 99.9214
Sequences (39:63) Aligned. Score: 99.8429
Sequences (39:64) Aligned. Score: 99.8429
Sequences (39:65) Aligned. Score: 99.8429
Sequences (39:66) Aligned. Score: 99.8429
Sequences (39:67) Aligned. Score: 99.8429
Sequences (39:68) Aligned. Score: 99.8429
Sequences (39:69) Aligned. Score: 99.8429
Sequences (39:70) Aligned. Score: 99.8429
Sequences (39:71) Aligned. Score: 99.9214
Sequences (39:72) Aligned. Score: 99.9214
Sequences (39:73) Aligned. Score: 99.8429
Sequences (39:74) Aligned. Score: 99.8429
Sequences (39:75) Aligned. Score: 99.8429
Sequences (39:76) Aligned. Score: 99.8429
Sequences (39:77) Aligned. Score: 99.8429
Sequences (39:78) Aligned. Score: 99.9214
Sequences (39:79) Aligned. Score: 99.8429
Sequences (39:80) Aligned. Score: 99.8429
Sequences (39:81) Aligned. Score: 99.8429
Sequences (39:82) Aligned. Score: 99.8429
Sequences (39:83) Aligned. Score: 99.9214
Sequences (39:84) Aligned. Score: 99.8429
Sequences (39:85) Aligned. Score: 99.9214
Sequences (39:86) Aligned. Score: 99.8429

```
Sequences (39:87) Aligned. Score: 99.8429
Sequences (39:88) Aligned. Score: 99.9214
Sequences (39:89) Aligned. Score: 99.9214
Sequences (39:90) Aligned. Score: 99.8429
Sequences (39:91) Aligned. Score: 99.8429
Sequences (39:92) Aligned. Score: 99.8429
Sequences (40:41) Aligned. Score: 99.9214
Sequences (40:42) Aligned. Score: 99.9214
Sequences (40:43) Aligned. Score: 99.8429
Sequences (40:44) Aligned. Score: 99.9214
Sequences (40:45) Aligned. Score: 99.9214
Sequences (40:46) Aligned. Score: 99.9214
Sequences (40:47) Aligned. Score: 99.9214
Sequences (40:48) Aligned. Score: 99.9214
Sequences (40:49) Aligned. Score: 99.9214
Sequences (40:50) Aligned. Score: 99.9214
Sequences (40:51) Aligned. Score: 100
Sequences (40:52) Aligned. Score: 99.8429
Sequences (40:53) Aligned. Score: 100
Sequences (40:54) Aligned. Score: 99.9214
Sequences (40:55) Aligned. Score: 99.9214
Sequences (40:56) Aligned. Score: 99.9214
Sequences (40:57) Aligned. Score: 100
Sequences (40:58) Aligned. Score: 99.9214
Sequences (40:59) Aligned. Score: 99.9214
Sequences (40:60) Aligned. Score: 100
Sequences (40:61) Aligned. Score: 100
Sequences (40:62) Aligned. Score: 99.9214
Sequences (40:63) Aligned. Score: 100
Sequences (40:64) Aligned. Score: 100
Sequences (40:65) Aligned. Score: 100
Sequences (40:66) Aligned. Score: 100
Sequences (40:67) Aligned. Score: 100
Sequences (40:68) Aligned. Score: 100
Sequences (40:69) Aligned. Score: 99.8429
Sequences (40:70) Aligned. Score: 100
Sequences (40:71) Aligned. Score: 99.9214
Sequences (40:72) Aligned. Score: 99.9214
Sequences (40:73) Aligned. Score: 100
Sequences (40:74) Aligned. Score: 100
Sequences (40:75) Aligned. Score: 100
Sequences (40:76) Aligned. Score: 100
Sequences (40:77) Aligned. Score: 100
Sequences (40:78) Aligned. Score: 99.9214
Sequences (40:79) Aligned. Score: 99.8429
Sequences (40:80) Aligned. Score: 100
Sequences (40:81) Aligned. Score: 100
Sequences (40:82) Aligned. Score: 100
Sequences (40:83) Aligned. Score: 99.9214
Sequences (40:84) Aligned. Score: 100
Sequences (40:85) Aligned. Score: 99.9214
Sequences (40:86) Aligned. Score: 100
Sequences (40:87) Aligned. Score: 100
Sequences (40:88) Aligned. Score: 99.9214
Sequences (40:89) Aligned. Score: 99.9214
Sequences (40:90) Aligned. Score: 100
Sequences (40:91) Aligned. Score: 100
Sequences (40:92) Aligned. Score: 100
Sequences (41:42) Aligned. Score: 100
Sequences (41:43) Aligned. Score: 99.9214
Sequences (41:44) Aligned. Score: 100
Sequences (41:45) Aligned. Score: 100
```

```
Sequences (41:46) Aligned. Score: 100
Sequences (41:47) Aligned. Score: 100
Sequences (41:48) Aligned. Score: 100
Sequences (41:49) Aligned. Score: 100
Sequences (41:50) Aligned. Score: 100
Sequences (41:51) Aligned. Score: 99.9214
Sequences (41:52) Aligned. Score: 99.9214
Sequences (41:53) Aligned. Score: 99.9214
Sequences (41:54) Aligned. Score: 100
Sequences (41:55) Aligned. Score: 100
Sequences (41:56) Aligned. Score: 100
Sequences (41:57) Aligned. Score: 99.9214
Sequences (41:58) Aligned. Score: 100
Sequences (41:59) Aligned. Score: 100
Sequences (41:60) Aligned. Score: 99.9214
Sequences (41:61) Aligned. Score: 99.9214
Sequences (41:62) Aligned. Score: 100
Sequences (41:63) Aligned. Score: 99.9214
Sequences (41:64) Aligned. Score: 99.9214
Sequences (41:65) Aligned. Score: 99.9214
Sequences (41:66) Aligned. Score: 99.9214
Sequences (41:67) Aligned. Score: 99.9214
Sequences (41:68) Aligned. Score: 99.9214
Sequences (41:69) Aligned. Score: 99.9214
Sequences (41:70) Aligned. Score: 99.9214
Sequences (41:71) Aligned. Score: 100
Sequences (41:72) Aligned. Score: 100
Sequences (41:73) Aligned. Score: 99.9214
Sequences (41:74) Aligned. Score: 99.9214
Sequences (41:75) Aligned. Score: 99.9214
Sequences (41:76) Aligned. Score: 99.9214
Sequences (41:77) Aligned. Score: 99.9214
Sequences (41:78) Aligned. Score: 100
Sequences (41:79) Aligned. Score: 99.9214
Sequences (41:80) Aligned. Score: 99.9214
Sequences (41:81) Aligned. Score: 99.9214
Sequences (41:82) Aligned. Score: 99.9214
Sequences (41:83) Aligned. Score: 100
Sequences (41:84) Aligned. Score: 99.9214
Sequences (41:85) Aligned. Score: 100
Sequences (41:86) Aligned. Score: 99.9214
Sequences (41:87) Aligned. Score: 99.9214
Sequences (41:88) Aligned. Score: 100
Sequences (41:89) Aligned. Score: 100
Sequences (41:90) Aligned. Score: 99.9214
Sequences (41:91) Aligned. Score: 99.9214
Sequences (41:92) Aligned. Score: 99.9214
Sequences (42:43) Aligned. Score: 99.9214
Sequences (42:44) Aligned. Score: 100
Sequences (42:45) Aligned. Score: 100
Sequences (42:46) Aligned. Score: 100
Sequences (42:47) Aligned. Score: 100
Sequences (42:48) Aligned. Score: 100
Sequences (42:49) Aligned. Score: 100
Sequences (42:50) Aligned. Score: 100
Sequences (42:51) Aligned. Score: 99.9214
Sequences (42:52) Aligned. Score: 99.9214
Sequences (42:53) Aligned. Score: 99.9214
Sequences (42:54) Aligned. Score: 100
Sequences (42:55) Aligned. Score: 100
Sequences (42:56) Aligned. Score: 100
Sequences (42:57) Aligned. Score: 99.9214
```

```
Sequences (42:58) Aligned. Score: 100
Sequences (42:59) Aligned. Score: 100
Sequences (42:60) Aligned. Score: 99.9214
Sequences (42:61) Aligned. Score: 99.9214
Sequences (42:62) Aligned. Score: 100
Sequences (42:63) Aligned. Score: 99.9214
Sequences (42:64) Aligned. Score: 99.9214
Sequences (42:65) Aligned. Score: 99.9214
Sequences (42:66) Aligned. Score: 99.9214
Sequences (42:67) Aligned. Score: 99.9214
Sequences (42:68) Aligned. Score: 99.9214
Sequences (42:69) Aligned. Score: 99.9214
Sequences (42:70) Aligned. Score: 99.9214
Sequences (42:71) Aligned. Score: 100
Sequences (42:72) Aligned. Score: 100
Sequences (42:73) Aligned. Score: 99.9214
Sequences (42:74) Aligned. Score: 99.9214
Sequences (42:75) Aligned. Score: 99.9214
Sequences (42:76) Aligned. Score: 99.9214
Sequences (42:77) Aligned. Score: 99.9214
Sequences (42:78) Aligned. Score: 100
Sequences (42:79) Aligned. Score: 99.9214
Sequences (42:80) Aligned. Score: 99.9214
Sequences (42:81) Aligned. Score: 99.9214
Sequences (42:82) Aligned. Score: 99.9214
Sequences (42:83) Aligned. Score: 100
Sequences (42:84) Aligned. Score: 99.9214
Sequences (42:85) Aligned. Score: 100
Sequences (42:86) Aligned. Score: 99.9214
Sequences (42:87) Aligned. Score: 99.9214
Sequences (42:88) Aligned. Score: 100
Sequences (42:89) Aligned. Score: 100
Sequences (42:90) Aligned. Score: 99.9214
Sequences (42:91) Aligned. Score: 99.9214
Sequences (42:92) Aligned. Score: 99.9214
Sequences (43:44) Aligned. Score: 99.9214
Sequences (43:45) Aligned. Score: 99.9214
Sequences (43:46) Aligned. Score: 99.9214
Sequences (43:47) Aligned. Score: 99.9214
Sequences (43:48) Aligned. Score: 99.9214
Sequences (43:49) Aligned. Score: 99.9214
Sequences (43:50) Aligned. Score: 99.9214
Sequences (43:51) Aligned. Score: 99.8429
Sequences (43:52) Aligned. Score: 99.8429
Sequences (43:53) Aligned. Score: 99.8429
Sequences (43:54) Aligned. Score: 99.9214
Sequences (43:55) Aligned. Score: 99.9214
Sequences (43:56) Aligned. Score: 99.9214
Sequences (43:57) Aligned. Score: 99.8429
Sequences (43:58) Aligned. Score: 99.9214
Sequences (43:59) Aligned. Score: 99.9214
Sequences (43:60) Aligned. Score: 99.8429
Sequences (43:61) Aligned. Score: 99.8429
Sequences (43:62) Aligned. Score: 99.9214
Sequences (43:63) Aligned. Score: 99.8429
Sequences (43:64) Aligned. Score: 99.8429
Sequences (43:65) Aligned. Score: 99.8429
Sequences (43:66) Aligned. Score: 99.8429
Sequences (43:67) Aligned. Score: 99.8429
Sequences (43:68) Aligned. Score: 99.8429
Sequences (43:69) Aligned. Score: 99.8429
Sequences (43:70) Aligned. Score: 99.8429
```

Sequences (43:71) Aligned. Score: 99.9214
Sequences (43:72) Aligned. Score: 99.9214
Sequences (43:73) Aligned. Score: 99.8429
Sequences (43:74) Aligned. Score: 99.8429
Sequences (43:75) Aligned. Score: 99.8429
Sequences (43:76) Aligned. Score: 99.8429
Sequences (43:77) Aligned. Score: 99.8429
Sequences (43:78) Aligned. Score: 99.9214
Sequences (43:79) Aligned. Score: 99.8429
Sequences (43:80) Aligned. Score: 99.8429
Sequences (43:81) Aligned. Score: 99.8429
Sequences (43:82) Aligned. Score: 99.8429
Sequences (43:83) Aligned. Score: 99.9214
Sequences (43:84) Aligned. Score: 99.8429
Sequences (43:85) Aligned. Score: 99.9214
Sequences (43:86) Aligned. Score: 99.8429
Sequences (43:87) Aligned. Score: 99.8429
Sequences (43:88) Aligned. Score: 99.9214
Sequences (43:89) Aligned. Score: 99.9214
Sequences (43:90) Aligned. Score: 99.8429
Sequences (43:91) Aligned. Score: 99.8429
Sequences (43:92) Aligned. Score: 99.8429
Sequences (44:45) Aligned. Score: 100
Sequences (44:46) Aligned. Score: 100
Sequences (44:47) Aligned. Score: 100
Sequences (44:48) Aligned. Score: 100
Sequences (44:49) Aligned. Score: 100
Sequences (44:50) Aligned. Score: 100
Sequences (44:51) Aligned. Score: 99.9214
Sequences (44:52) Aligned. Score: 99.9214
Sequences (44:53) Aligned. Score: 99.9214
Sequences (44:54) Aligned. Score: 100
Sequences (44:55) Aligned. Score: 100
Sequences (44:56) Aligned. Score: 100
Sequences (44:57) Aligned. Score: 99.9214
Sequences (44:58) Aligned. Score: 100
Sequences (44:59) Aligned. Score: 100
Sequences (44:60) Aligned. Score: 99.9214
Sequences (44:61) Aligned. Score: 99.9214
Sequences (44:62) Aligned. Score: 100
Sequences (44:63) Aligned. Score: 99.9214
Sequences (44:64) Aligned. Score: 99.9214
Sequences (44:65) Aligned. Score: 99.9214
Sequences (44:66) Aligned. Score: 99.9214
Sequences (44:67) Aligned. Score: 99.9214
Sequences (44:68) Aligned. Score: 99.9214
Sequences (44:69) Aligned. Score: 99.9214
Sequences (44:70) Aligned. Score: 99.9214
Sequences (44:71) Aligned. Score: 100
Sequences (44:72) Aligned. Score: 100
Sequences (44:73) Aligned. Score: 99.9214
Sequences (44:74) Aligned. Score: 99.9214
Sequences (44:75) Aligned. Score: 99.9214
Sequences (44:76) Aligned. Score: 99.9214
Sequences (44:77) Aligned. Score: 99.9214
Sequences (44:78) Aligned. Score: 100
Sequences (44:79) Aligned. Score: 99.9214
Sequences (44:80) Aligned. Score: 99.9214
Sequences (44:81) Aligned. Score: 99.9214
Sequences (44:82) Aligned. Score: 99.9214
Sequences (44:83) Aligned. Score: 100
Sequences (44:84) Aligned. Score: 99.9214

```
Sequences (44:85) Aligned. Score: 100
Sequences (44:86) Aligned. Score: 99.9214
Sequences (44:87) Aligned. Score: 99.9214
Sequences (44:88) Aligned. Score: 100
Sequences (44:89) Aligned. Score: 100
Sequences (44:90) Aligned. Score: 99.9214
Sequences (44:91) Aligned. Score: 99.9214
Sequences (44:92) Aligned. Score: 99.9214
Sequences (45:46) Aligned. Score: 100
Sequences (45:47) Aligned. Score: 100
Sequences (45:48) Aligned. Score: 100
Sequences (45:49) Aligned. Score: 100
Sequences (45:50) Aligned. Score: 100
Sequences (45:51) Aligned. Score: 99.9214
Sequences (45:52) Aligned. Score: 99.9214
Sequences (45:53) Aligned. Score: 99.9214
Sequences (45:54) Aligned. Score: 100
Sequences (45:55) Aligned. Score: 100
Sequences (45:56) Aligned. Score: 100
Sequences (45:57) Aligned. Score: 99.9214
Sequences (45:58) Aligned. Score: 100
Sequences (45:59) Aligned. Score: 100
Sequences (45:60) Aligned. Score: 99.9214
Sequences (45:61) Aligned. Score: 99.9214
Sequences (45:62) Aligned. Score: 100
Sequences (45:63) Aligned. Score: 99.9214
Sequences (45:64) Aligned. Score: 99.9214
Sequences (45:65) Aligned. Score: 99.9214
Sequences (45:66) Aligned. Score: 99.9214
Sequences (45:67) Aligned. Score: 99.9214
Sequences (45:68) Aligned. Score: 99.9214
Sequences (45:69) Aligned. Score: 99.9214
Sequences (45:70) Aligned. Score: 99.9214
Sequences (45:71) Aligned. Score: 100
Sequences (45:72) Aligned. Score: 100
Sequences (45:73) Aligned. Score: 99.9214
Sequences (45:74) Aligned. Score: 99.9214
Sequences (45:75) Aligned. Score: 99.9214
Sequences (45:76) Aligned. Score: 99.9214
Sequences (45:77) Aligned. Score: 99.9214
Sequences (45:78) Aligned. Score: 100
Sequences (45:79) Aligned. Score: 99.9214
Sequences (45:80) Aligned. Score: 99.9214
Sequences (45:81) Aligned. Score: 99.9214
Sequences (45:82) Aligned. Score: 99.9214
Sequences (45:83) Aligned. Score: 100
Sequences (45:84) Aligned. Score: 99.9214
Sequences (45:85) Aligned. Score: 100
Sequences (45:86) Aligned. Score: 99.9214
Sequences (45:87) Aligned. Score: 99.9214
Sequences (45:88) Aligned. Score: 100
Sequences (45:89) Aligned. Score: 100
Sequences (45:90) Aligned. Score: 99.9214
Sequences (45:91) Aligned. Score: 99.9214
Sequences (45:92) Aligned. Score: 99.9214
Sequences (46:47) Aligned. Score: 100
Sequences (46:48) Aligned. Score: 100
Sequences (46:49) Aligned. Score: 100
Sequences (46:50) Aligned. Score: 100
Sequences (46:51) Aligned. Score: 99.9214
Sequences (46:52) Aligned. Score: 99.9214
Sequences (46:53) Aligned. Score: 99.9214
```

```
Sequences (46:54) Aligned. Score: 100
Sequences (46:55) Aligned. Score: 100
Sequences (46:56) Aligned. Score: 100
Sequences (46:57) Aligned. Score: 99.9214
Sequences (46:58) Aligned. Score: 100
Sequences (46:59) Aligned. Score: 100
Sequences (46:60) Aligned. Score: 99.9214
Sequences (46:61) Aligned. Score: 99.9214
Sequences (46:62) Aligned. Score: 100
Sequences (46:63) Aligned. Score: 99.9214
Sequences (46:64) Aligned. Score: 99.9214
Sequences (46:65) Aligned. Score: 99.9214
Sequences (46:66) Aligned. Score: 99.9214
Sequences (46:67) Aligned. Score: 99.9214
Sequences (46:68) Aligned. Score: 99.9214
Sequences (46:69) Aligned. Score: 99.9214
Sequences (46:70) Aligned. Score: 99.9214
Sequences (46:71) Aligned. Score: 100
Sequences (46:72) Aligned. Score: 100
Sequences (46:73) Aligned. Score: 99.9214
Sequences (46:74) Aligned. Score: 99.9214
Sequences (46:75) Aligned. Score: 99.9214
Sequences (46:76) Aligned. Score: 99.9214
Sequences (46:77) Aligned. Score: 99.9214
Sequences (46:78) Aligned. Score: 100
Sequences (46:79) Aligned. Score: 99.9214
Sequences (46:80) Aligned. Score: 99.9214
Sequences (46:81) Aligned. Score: 99.9214
Sequences (46:82) Aligned. Score: 99.9214
Sequences (46:83) Aligned. Score: 100
Sequences (46:84) Aligned. Score: 99.9214
Sequences (46:85) Aligned. Score: 100
Sequences (46:86) Aligned. Score: 99.9214
Sequences (46:87) Aligned. Score: 99.9214
Sequences (46:88) Aligned. Score: 100
Sequences (46:89) Aligned. Score: 100
Sequences (46:90) Aligned. Score: 99.9214
Sequences (46:91) Aligned. Score: 99.9214
Sequences (46:92) Aligned. Score: 99.9214
Sequences (47:48) Aligned. Score: 100
Sequences (47:49) Aligned. Score: 100
Sequences (47:50) Aligned. Score: 100
Sequences (47:51) Aligned. Score: 99.9214
Sequences (47:52) Aligned. Score: 99.9214
Sequences (47:53) Aligned. Score: 99.9214
Sequences (47:54) Aligned. Score: 100
Sequences (47:55) Aligned. Score: 100
Sequences (47:56) Aligned. Score: 100
Sequences (47:57) Aligned. Score: 99.9214
Sequences (47:58) Aligned. Score: 100
Sequences (47:59) Aligned. Score: 100
Sequences (47:60) Aligned. Score: 99.9214
Sequences (47:61) Aligned. Score: 99.9214
Sequences (47:62) Aligned. Score: 100
Sequences (47:63) Aligned. Score: 99.9214
Sequences (47:64) Aligned. Score: 99.9214
Sequences (47:65) Aligned. Score: 99.9214
Sequences (47:66) Aligned. Score: 99.9214
Sequences (47:67) Aligned. Score: 99.9214
Sequences (47:68) Aligned. Score: 99.9214
Sequences (47:69) Aligned. Score: 99.9214
Sequences (47:70) Aligned. Score: 99.9214
```

```
Sequences (47:71) Aligned. Score: 100
Sequences (47:72) Aligned. Score: 100
Sequences (47:73) Aligned. Score: 99.9214
Sequences (47:74) Aligned. Score: 99.9214
Sequences (47:75) Aligned. Score: 99.9214
Sequences (47:76) Aligned. Score: 99.9214
Sequences (47:77) Aligned. Score: 99.9214
Sequences (47:78) Aligned. Score: 100
Sequences (47:79) Aligned. Score: 99.9214
Sequences (47:80) Aligned. Score: 99.9214
Sequences (47:81) Aligned. Score: 99.9214
Sequences (47:82) Aligned. Score: 99.9214
Sequences (47:83) Aligned. Score: 100
Sequences (47:84) Aligned. Score: 99.9214
Sequences (47:85) Aligned. Score: 100
Sequences (47:86) Aligned. Score: 99.9214
Sequences (47:87) Aligned. Score: 99.9214
Sequences (47:88) Aligned. Score: 100
Sequences (47:89) Aligned. Score: 100
Sequences (47:90) Aligned. Score: 99.9214
Sequences (47:91) Aligned. Score: 99.9214
Sequences (47:92) Aligned. Score: 99.9214
Sequences (48:49) Aligned. Score: 100
Sequences (48:50) Aligned. Score: 100
Sequences (48:51) Aligned. Score: 99.9214
Sequences (48:52) Aligned. Score: 99.9214
Sequences (48:53) Aligned. Score: 99.9214
Sequences (48:54) Aligned. Score: 100
Sequences (48:55) Aligned. Score: 100
Sequences (48:56) Aligned. Score: 100
Sequences (48:57) Aligned. Score: 99.9214
Sequences (48:58) Aligned. Score: 100
Sequences (48:59) Aligned. Score: 100
Sequences (48:60) Aligned. Score: 99.9214
Sequences (48:61) Aligned. Score: 99.9214
Sequences (48:62) Aligned. Score: 100
Sequences (48:63) Aligned. Score: 99.9214
Sequences (48:64) Aligned. Score: 99.9214
Sequences (48:65) Aligned. Score: 99.9214
Sequences (48:66) Aligned. Score: 99.9214
Sequences (48:67) Aligned. Score: 99.9214
Sequences (48:68) Aligned. Score: 99.9214
Sequences (48:69) Aligned. Score: 99.9214
Sequences (48:70) Aligned. Score: 99.9214
Sequences (48:71) Aligned. Score: 100
Sequences (48:72) Aligned. Score: 100
Sequences (48:73) Aligned. Score: 99.9214
Sequences (48:74) Aligned. Score: 99.9214
Sequences (48:75) Aligned. Score: 99.9214
Sequences (48:76) Aligned. Score: 99.9214
Sequences (48:77) Aligned. Score: 99.9214
Sequences (48:78) Aligned. Score: 100
Sequences (48:79) Aligned. Score: 99.9214
Sequences (48:80) Aligned. Score: 99.9214
Sequences (48:81) Aligned. Score: 99.9214
Sequences (48:82) Aligned. Score: 99.9214
Sequences (48:83) Aligned. Score: 100
Sequences (48:84) Aligned. Score: 99.9214
Sequences (48:85) Aligned. Score: 100
Sequences (48:86) Aligned. Score: 99.9214
Sequences (48:87) Aligned. Score: 99.9214
Sequences (48:88) Aligned. Score: 100
```

```
Sequences (48:89) Aligned. Score: 100
Sequences (48:90) Aligned. Score: 99.9214
Sequences (48:91) Aligned. Score: 99.9214
Sequences (48:92) Aligned. Score: 99.9214
Sequences (49:50) Aligned. Score: 100
Sequences (49:51) Aligned. Score: 99.9214
Sequences (49:52) Aligned. Score: 99.9214
Sequences (49:53) Aligned. Score: 99.9214
Sequences (49:54) Aligned. Score: 100
Sequences (49:55) Aligned. Score: 100
Sequences (49:56) Aligned. Score: 100
Sequences (49:57) Aligned. Score: 99.9214
Sequences (49:58) Aligned. Score: 100
Sequences (49:59) Aligned. Score: 100
Sequences (49:60) Aligned. Score: 99.9214
Sequences (49:61) Aligned. Score: 99.9214
Sequences (49:62) Aligned. Score: 100
Sequences (49:63) Aligned. Score: 99.9214
Sequences (49:64) Aligned. Score: 99.9214
Sequences (49:65) Aligned. Score: 99.9214
Sequences (49:66) Aligned. Score: 99.9214
Sequences (49:67) Aligned. Score: 99.9214
Sequences (49:68) Aligned. Score: 99.9214
Sequences (49:69) Aligned. Score: 99.9214
Sequences (49:70) Aligned. Score: 99.9214
Sequences (49:71) Aligned. Score: 100
Sequences (49:72) Aligned. Score: 100
Sequences (49:73) Aligned. Score: 99.9214
Sequences (49:74) Aligned. Score: 99.9214
Sequences (49:75) Aligned. Score: 99.9214
Sequences (49:76) Aligned. Score: 99.9214
Sequences (49:77) Aligned. Score: 99.9214
Sequences (49:78) Aligned. Score: 100
Sequences (49:79) Aligned. Score: 99.9214
Sequences (49:80) Aligned. Score: 99.9214
Sequences (49:81) Aligned. Score: 99.9214
Sequences (49:82) Aligned. Score: 99.9214
Sequences (49:83) Aligned. Score: 100
Sequences (49:84) Aligned. Score: 99.9214
Sequences (49:85) Aligned. Score: 100
Sequences (49:86) Aligned. Score: 99.9214
Sequences (49:87) Aligned. Score: 99.9214
Sequences (49:88) Aligned. Score: 100
Sequences (49:89) Aligned. Score: 100
Sequences (49:90) Aligned. Score: 99.9214
Sequences (49:91) Aligned. Score: 99.9214
Sequences (49:92) Aligned. Score: 99.9214
Sequences (50:51) Aligned. Score: 99.9214
Sequences (50:52) Aligned. Score: 99.9214
Sequences (50:53) Aligned. Score: 99.9214
Sequences (50:54) Aligned. Score: 100
Sequences (50:55) Aligned. Score: 100
Sequences (50:56) Aligned. Score: 100
Sequences (50:57) Aligned. Score: 99.9214
Sequences (50:58) Aligned. Score: 100
Sequences (50:59) Aligned. Score: 100
Sequences (50:60) Aligned. Score: 99.9214
Sequences (50:61) Aligned. Score: 99.9214
Sequences (50:62) Aligned. Score: 100
Sequences (50:63) Aligned. Score: 99.9214
Sequences (50:64) Aligned. Score: 99.9214
Sequences (50:65) Aligned. Score: 99.9214
```

```
Sequences (50:66) Aligned. Score: 99.9214
Sequences (50:67) Aligned. Score: 99.9214
Sequences (50:68) Aligned. Score: 99.9214
Sequences (50:69) Aligned. Score: 99.9214
Sequences (50:70) Aligned. Score: 99.9214
Sequences (50:71) Aligned. Score: 100
Sequences (50:72) Aligned. Score: 100
Sequences (50:73) Aligned. Score: 99.9214
Sequences (50:74) Aligned. Score: 99.9214
Sequences (50:75) Aligned. Score: 99.9214
Sequences (50:76) Aligned. Score: 99.9214
Sequences (50:77) Aligned. Score: 99.9214
Sequences (50:78) Aligned. Score: 100
Sequences (50:79) Aligned. Score: 99.9214
Sequences (50:80) Aligned. Score: 99.9214
Sequences (50:81) Aligned. Score: 99.9214
Sequences (50:82) Aligned. Score: 99.9214
Sequences (50:83) Aligned. Score: 100
Sequences (50:84) Aligned. Score: 99.9214
Sequences (50:85) Aligned. Score: 100
Sequences (50:86) Aligned. Score: 99.9214
Sequences (50:87) Aligned. Score: 99.9214
Sequences (50:88) Aligned. Score: 100
Sequences (50:89) Aligned. Score: 100
Sequences (50:90) Aligned. Score: 99.9214
Sequences (50:91) Aligned. Score: 99.9214
Sequences (50:92) Aligned. Score: 99.9214
Sequences (51:52) Aligned. Score: 99.8429
Sequences (51:53) Aligned. Score: 100
Sequences (51:54) Aligned. Score: 99.9214
Sequences (51:55) Aligned. Score: 99.9214
Sequences (51:56) Aligned. Score: 99.9214
Sequences (51:57) Aligned. Score: 100
Sequences (51:58) Aligned. Score: 99.9214
Sequences (51:59) Aligned. Score: 99.9214
Sequences (51:60) Aligned. Score: 100
Sequences (51:61) Aligned. Score: 100
Sequences (51:62) Aligned. Score: 99.9214
Sequences (51:63) Aligned. Score: 100
Sequences (51:64) Aligned. Score: 100
Sequences (51:65) Aligned. Score: 100
Sequences (51:66) Aligned. Score: 100
Sequences (51:67) Aligned. Score: 100
Sequences (51:68) Aligned. Score: 100
Sequences (51:69) Aligned. Score: 99.8429
Sequences (51:70) Aligned. Score: 100
Sequences (51:71) Aligned. Score: 99.9214
Sequences (51:72) Aligned. Score: 99.9214
Sequences (51:73) Aligned. Score: 100
Sequences (51:74) Aligned. Score: 100
Sequences (51:75) Aligned. Score: 100
Sequences (51:76) Aligned. Score: 100
Sequences (51:77) Aligned. Score: 100
Sequences (51:78) Aligned. Score: 99.9214
Sequences (51:79) Aligned. Score: 99.8429
Sequences (51:80) Aligned. Score: 100
Sequences (51:81) Aligned. Score: 100
Sequences (51:82) Aligned. Score: 100
Sequences (51:83) Aligned. Score: 99.9214
Sequences (51:84) Aligned. Score: 100
Sequences (51:85) Aligned. Score: 99.9214
Sequences (51:86) Aligned. Score: 100
```

Sequences (51:87) Aligned. Score: 100
Sequences (51:88) Aligned. Score: 99.9214
Sequences (51:89) Aligned. Score: 99.9214
Sequences (51:90) Aligned. Score: 100
Sequences (51:91) Aligned. Score: 100
Sequences (51:92) Aligned. Score: 100
Sequences (52:53) Aligned. Score: 99.8429
Sequences (52:54) Aligned. Score: 99.9214
Sequences (52:55) Aligned. Score: 99.9214
Sequences (52:56) Aligned. Score: 99.9214
Sequences (52:57) Aligned. Score: 99.8429
Sequences (52:58) Aligned. Score: 99.9214
Sequences (52:59) Aligned. Score: 99.9214
Sequences (52:60) Aligned. Score: 99.8429
Sequences (52:61) Aligned. Score: 99.8429
Sequences (52:62) Aligned. Score: 99.9214
Sequences (52:63) Aligned. Score: 99.8429
Sequences (52:64) Aligned. Score: 99.8429
Sequences (52:65) Aligned. Score: 99.8429
Sequences (52:66) Aligned. Score: 99.8429
Sequences (52:67) Aligned. Score: 99.8429
Sequences (52:68) Aligned. Score: 99.8429
Sequences (52:69) Aligned. Score: 99.8429
Sequences (52:70) Aligned. Score: 99.8429
Sequences (52:71) Aligned. Score: 99.9214
Sequences (52:72) Aligned. Score: 99.9214
Sequences (52:73) Aligned. Score: 99.8429
Sequences (52:74) Aligned. Score: 99.8429
Sequences (52:75) Aligned. Score: 99.8429
Sequences (52:76) Aligned. Score: 99.8429
Sequences (52:77) Aligned. Score: 99.8429
Sequences (52:78) Aligned. Score: 99.9214
Sequences (52:79) Aligned. Score: 99.8429
Sequences (52:80) Aligned. Score: 99.8429
Sequences (52:81) Aligned. Score: 99.8429
Sequences (52:82) Aligned. Score: 99.8429
Sequences (52:83) Aligned. Score: 99.9214
Sequences (52:84) Aligned. Score: 99.8429
Sequences (52:85) Aligned. Score: 99.9214
Sequences (52:86) Aligned. Score: 99.8429
Sequences (52:87) Aligned. Score: 99.8429
Sequences (52:88) Aligned. Score: 99.9214
Sequences (52:89) Aligned. Score: 99.9214
Sequences (52:90) Aligned. Score: 99.8429
Sequences (52:91) Aligned. Score: 99.8429
Sequences (52:92) Aligned. Score: 99.8429
Sequences (53:54) Aligned. Score: 99.9214
Sequences (53:55) Aligned. Score: 99.9214
Sequences (53:56) Aligned. Score: 99.9214
Sequences (53:57) Aligned. Score: 100
Sequences (53:58) Aligned. Score: 99.9214
Sequences (53:59) Aligned. Score: 99.9214
Sequences (53:60) Aligned. Score: 100
Sequences (53:61) Aligned. Score: 100
Sequences (53:62) Aligned. Score: 99.9214
Sequences (53:63) Aligned. Score: 100
Sequences (53:64) Aligned. Score: 100
Sequences (53:65) Aligned. Score: 100
Sequences (53:66) Aligned. Score: 100
Sequences (53:67) Aligned. Score: 100
Sequences (53:68) Aligned. Score: 100
Sequences (53:69) Aligned. Score: 99.8429

```
Sequences (53:70) Aligned. Score: 100
Sequences (53:71) Aligned. Score: 99.9214
Sequences (53:72) Aligned. Score: 99.9214
Sequences (53:73) Aligned. Score: 100
Sequences (53:74) Aligned. Score: 100
Sequences (53:75) Aligned. Score: 100
Sequences (53:76) Aligned. Score: 100
Sequences (53:77) Aligned. Score: 100
Sequences (53:78) Aligned. Score: 99.9214
Sequences (53:79) Aligned. Score: 99.8429
Sequences (53:80) Aligned. Score: 100
Sequences (53:81) Aligned. Score: 100
Sequences (53:82) Aligned. Score: 100
Sequences (53:83) Aligned. Score: 99.9214
Sequences (53:84) Aligned. Score: 100
Sequences (53:85) Aligned. Score: 99.9214
Sequences (53:86) Aligned. Score: 100
Sequences (53:87) Aligned. Score: 100
Sequences (53:88) Aligned. Score: 99.9214
Sequences (53:89) Aligned. Score: 99.9214
Sequences (53:90) Aligned. Score: 100
Sequences (53:91) Aligned. Score: 100
Sequences (53:92) Aligned. Score: 100
Sequences (54:55) Aligned. Score: 100
Sequences (54:56) Aligned. Score: 100
Sequences (54:57) Aligned. Score: 99.9214
Sequences (54:58) Aligned. Score: 100
Sequences (54:59) Aligned. Score: 100
Sequences (54:60) Aligned. Score: 99.9214
Sequences (54:61) Aligned. Score: 99.9214
Sequences (54:62) Aligned. Score: 100
Sequences (54:63) Aligned. Score: 99.9214
Sequences (54:64) Aligned. Score: 99.9214
Sequences (54:65) Aligned. Score: 99.9214
Sequences (54:66) Aligned. Score: 99.9214
Sequences (54:67) Aligned. Score: 99.9214
Sequences (54:68) Aligned. Score: 99.9214
Sequences (54:69) Aligned. Score: 99.9214
Sequences (54:70) Aligned. Score: 99.9214
Sequences (54:71) Aligned. Score: 100
Sequences (54:72) Aligned. Score: 100
Sequences (54:73) Aligned. Score: 99.9214
Sequences (54:74) Aligned. Score: 99.9214
Sequences (54:75) Aligned. Score: 99.9214
Sequences (54:76) Aligned. Score: 99.9214
Sequences (54:77) Aligned. Score: 99.9214
Sequences (54:78) Aligned. Score: 100
Sequences (54:79) Aligned. Score: 99.9214
Sequences (54:80) Aligned. Score: 99.9214
Sequences (54:81) Aligned. Score: 99.9214
Sequences (54:82) Aligned. Score: 99.9214
Sequences (54:83) Aligned. Score: 100
Sequences (54:84) Aligned. Score: 99.9214
Sequences (54:85) Aligned. Score: 100
Sequences (54:86) Aligned. Score: 99.9214
Sequences (54:87) Aligned. Score: 99.9214
Sequences (54:88) Aligned. Score: 100
Sequences (54:89) Aligned. Score: 100
Sequences (54:90) Aligned. Score: 99.9214
Sequences (54:91) Aligned. Score: 99.9214
Sequences (54:92) Aligned. Score: 99.9214
Sequences (55:56) Aligned. Score: 100
```

```
Sequences (55:57) Aligned. Score: 99.9214
Sequences (55:58) Aligned. Score: 100
Sequences (55:59) Aligned. Score: 100
Sequences (55:60) Aligned. Score: 99.9214
Sequences (55:61) Aligned. Score: 99.9214
Sequences (55:62) Aligned. Score: 100
Sequences (55:63) Aligned. Score: 99.9214
Sequences (55:64) Aligned. Score: 99.9214
Sequences (55:65) Aligned. Score: 99.9214
Sequences (55:66) Aligned. Score: 99.9214
Sequences (55:67) Aligned. Score: 99.9214
Sequences (55:68) Aligned. Score: 99.9214
Sequences (55:69) Aligned. Score: 99.9214
Sequences (55:70) Aligned. Score: 99.9214
Sequences (55:71) Aligned. Score: 100
Sequences (55:72) Aligned. Score: 100
Sequences (55:73) Aligned. Score: 99.9214
Sequences (55:74) Aligned. Score: 99.9214
Sequences (55:75) Aligned. Score: 99.9214
Sequences (55:76) Aligned. Score: 99.9214
Sequences (55:77) Aligned. Score: 99.9214
Sequences (55:78) Aligned. Score: 100
Sequences (55:79) Aligned. Score: 99.9214
Sequences (55:80) Aligned. Score: 99.9214
Sequences (55:81) Aligned. Score: 99.9214
Sequences (55:82) Aligned. Score: 99.9214
Sequences (55:83) Aligned. Score: 100
Sequences (55:84) Aligned. Score: 99.9214
Sequences (55:85) Aligned. Score: 100
Sequences (55:86) Aligned. Score: 99.9214
Sequences (55:87) Aligned. Score: 99.9214
Sequences (55:88) Aligned. Score: 100
Sequences (55:89) Aligned. Score: 100
Sequences (55:90) Aligned. Score: 99.9214
Sequences (55:91) Aligned. Score: 99.9214
Sequences (55:92) Aligned. Score: 99.9214
Sequences (56:57) Aligned. Score: 99.9214
Sequences (56:58) Aligned. Score: 100
Sequences (56:59) Aligned. Score: 100
Sequences (56:60) Aligned. Score: 99.9214
Sequences (56:61) Aligned. Score: 99.9214
Sequences (56:62) Aligned. Score: 100
Sequences (56:63) Aligned. Score: 99.9214
Sequences (56:64) Aligned. Score: 99.9214
Sequences (56:65) Aligned. Score: 99.9214
Sequences (56:66) Aligned. Score: 99.9214
Sequences (56:67) Aligned. Score: 99.9214
Sequences (56:68) Aligned. Score: 99.9214
Sequences (56:69) Aligned. Score: 99.9214
Sequences (56:70) Aligned. Score: 99.9214
Sequences (56:71) Aligned. Score: 100
Sequences (56:72) Aligned. Score: 100
Sequences (56:73) Aligned. Score: 99.9214
Sequences (56:74) Aligned. Score: 99.9214
Sequences (56:75) Aligned. Score: 99.9214
Sequences (56:76) Aligned. Score: 99.9214
Sequences (56:77) Aligned. Score: 99.9214
Sequences (56:78) Aligned. Score: 100
Sequences (56:79) Aligned. Score: 99.9214
Sequences (56:80) Aligned. Score: 99.9214
Sequences (56:81) Aligned. Score: 99.9214
Sequences (56:82) Aligned. Score: 99.9214
```

Sequences (56:83) Aligned. Score: 100
Sequences (56:84) Aligned. Score: 99.9214
Sequences (56:85) Aligned. Score: 100
Sequences (56:86) Aligned. Score: 99.9214
Sequences (56:87) Aligned. Score: 99.9214
Sequences (56:88) Aligned. Score: 100
Sequences (56:89) Aligned. Score: 100
Sequences (56:90) Aligned. Score: 99.9214
Sequences (56:91) Aligned. Score: 99.9214
Sequences (56:92) Aligned. Score: 99.9214
Sequences (57:58) Aligned. Score: 99.9214
Sequences (57:59) Aligned. Score: 99.9214
Sequences (57:60) Aligned. Score: 100
Sequences (57:61) Aligned. Score: 100
Sequences (57:62) Aligned. Score: 99.9214
Sequences (57:63) Aligned. Score: 100
Sequences (57:64) Aligned. Score: 100
Sequences (57:65) Aligned. Score: 100
Sequences (57:66) Aligned. Score: 100
Sequences (57:67) Aligned. Score: 100
Sequences (57:68) Aligned. Score: 100
Sequences (57:69) Aligned. Score: 99.8429
Sequences (57:70) Aligned. Score: 100
Sequences (57:71) Aligned. Score: 99.9214
Sequences (57:72) Aligned. Score: 99.9214
Sequences (57:73) Aligned. Score: 100
Sequences (57:74) Aligned. Score: 100
Sequences (57:75) Aligned. Score: 100
Sequences (57:76) Aligned. Score: 100
Sequences (57:77) Aligned. Score: 100
Sequences (57:78) Aligned. Score: 99.9214
Sequences (57:79) Aligned. Score: 99.8429
Sequences (57:80) Aligned. Score: 100
Sequences (57:81) Aligned. Score: 100
Sequences (57:82) Aligned. Score: 100
Sequences (57:83) Aligned. Score: 99.9214
Sequences (57:84) Aligned. Score: 100
Sequences (57:85) Aligned. Score: 99.9214
Sequences (57:86) Aligned. Score: 100
Sequences (57:87) Aligned. Score: 100
Sequences (57:88) Aligned. Score: 99.9214
Sequences (57:89) Aligned. Score: 99.9214
Sequences (57:90) Aligned. Score: 100
Sequences (57:91) Aligned. Score: 100
Sequences (57:92) Aligned. Score: 100
Sequences (58:59) Aligned. Score: 100
Sequences (58:60) Aligned. Score: 99.9214
Sequences (58:61) Aligned. Score: 99.9214
Sequences (58:62) Aligned. Score: 100
Sequences (58:63) Aligned. Score: 99.9214
Sequences (58:64) Aligned. Score: 99.9214
Sequences (58:65) Aligned. Score: 99.9214
Sequences (58:66) Aligned. Score: 99.9214
Sequences (58:67) Aligned. Score: 99.9214
Sequences (58:68) Aligned. Score: 99.9214
Sequences (58:69) Aligned. Score: 99.9214
Sequences (58:70) Aligned. Score: 99.9214
Sequences (58:71) Aligned. Score: 100
Sequences (58:72) Aligned. Score: 100
Sequences (58:73) Aligned. Score: 99.9214
Sequences (58:74) Aligned. Score: 99.9214
Sequences (58:75) Aligned. Score: 99.9214

```
Sequences (58:76) Aligned. Score: 99.9214
Sequences (58:77) Aligned. Score: 99.9214
Sequences (58:78) Aligned. Score: 100
Sequences (58:79) Aligned. Score: 99.9214
Sequences (58:80) Aligned. Score: 99.9214
Sequences (58:81) Aligned. Score: 99.9214
Sequences (58:82) Aligned. Score: 99.9214
Sequences (58:83) Aligned. Score: 100
Sequences (58:84) Aligned. Score: 99.9214
Sequences (58:85) Aligned. Score: 100
Sequences (58:86) Aligned. Score: 99.9214
Sequences (58:87) Aligned. Score: 99.9214
Sequences (58:88) Aligned. Score: 100
Sequences (58:89) Aligned. Score: 100
Sequences (58:90) Aligned. Score: 99.9214
Sequences (58:91) Aligned. Score: 99.9214
Sequences (58:92) Aligned. Score: 99.9214
Sequences (59:60) Aligned. Score: 99.9214
Sequences (59:61) Aligned. Score: 99.9214
Sequences (59:62) Aligned. Score: 100
Sequences (59:63) Aligned. Score: 99.9214
Sequences (59:64) Aligned. Score: 99.9214
Sequences (59:65) Aligned. Score: 99.9214
Sequences (59:66) Aligned. Score: 99.9214
Sequences (59:67) Aligned. Score: 99.9214
Sequences (59:68) Aligned. Score: 99.9214
Sequences (59:69) Aligned. Score: 99.9214
Sequences (59:70) Aligned. Score: 99.9214
Sequences (59:71) Aligned. Score: 100
Sequences (59:72) Aligned. Score: 100
Sequences (59:73) Aligned. Score: 99.9214
Sequences (59:74) Aligned. Score: 99.9214
Sequences (59:75) Aligned. Score: 99.9214
Sequences (59:76) Aligned. Score: 99.9214
Sequences (59:77) Aligned. Score: 99.9214
Sequences (59:78) Aligned. Score: 100
Sequences (59:79) Aligned. Score: 99.9214
Sequences (59:80) Aligned. Score: 99.9214
Sequences (59:81) Aligned. Score: 99.9214
Sequences (59:82) Aligned. Score: 99.9214
Sequences (59:83) Aligned. Score: 100
Sequences (59:84) Aligned. Score: 99.9214
Sequences (59:85) Aligned. Score: 100
Sequences (59:86) Aligned. Score: 99.9214
Sequences (59:87) Aligned. Score: 99.9214
Sequences (59:88) Aligned. Score: 100
Sequences (59:89) Aligned. Score: 100
Sequences (59:90) Aligned. Score: 99.9214
Sequences (59:91) Aligned. Score: 99.9214
Sequences (59:92) Aligned. Score: 99.9214
Sequences (60:61) Aligned. Score: 100
Sequences (60:62) Aligned. Score: 99.9214
Sequences (60:63) Aligned. Score: 100
Sequences (60:64) Aligned. Score: 100
Sequences (60:65) Aligned. Score: 100
Sequences (60:66) Aligned. Score: 100
Sequences (60:67) Aligned. Score: 100
Sequences (60:68) Aligned. Score: 100
Sequences (60:69) Aligned. Score: 99.8429
Sequences (60:70) Aligned. Score: 100
Sequences (60:71) Aligned. Score: 99.9214
Sequences (60:72) Aligned. Score: 99.9214
```

Sequences (60:73) Aligned. Score: 100
Sequences (60:74) Aligned. Score: 100
Sequences (60:75) Aligned. Score: 100
Sequences (60:76) Aligned. Score: 100
Sequences (60:77) Aligned. Score: 100
Sequences (60:78) Aligned. Score: 99.9214
Sequences (60:79) Aligned. Score: 99.8429
Sequences (60:80) Aligned. Score: 100
Sequences (60:81) Aligned. Score: 100
Sequences (60:82) Aligned. Score: 100
Sequences (60:83) Aligned. Score: 99.9214
Sequences (60:84) Aligned. Score: 100
Sequences (60:85) Aligned. Score: 99.9214
Sequences (60:86) Aligned. Score: 100
Sequences (60:87) Aligned. Score: 100
Sequences (60:88) Aligned. Score: 99.9214
Sequences (60:89) Aligned. Score: 99.9214
Sequences (60:90) Aligned. Score: 100
Sequences (60:91) Aligned. Score: 100
Sequences (60:92) Aligned. Score: 100
Sequences (61:62) Aligned. Score: 99.9214
Sequences (61:63) Aligned. Score: 100
Sequences (61:64) Aligned. Score: 100
Sequences (61:65) Aligned. Score: 100
Sequences (61:66) Aligned. Score: 100
Sequences (61:67) Aligned. Score: 100
Sequences (61:68) Aligned. Score: 100
Sequences (61:69) Aligned. Score: 99.8429
Sequences (61:70) Aligned. Score: 100
Sequences (61:71) Aligned. Score: 99.9214
Sequences (61:72) Aligned. Score: 99.9214
Sequences (61:73) Aligned. Score: 100
Sequences (61:74) Aligned. Score: 100
Sequences (61:75) Aligned. Score: 100
Sequences (61:76) Aligned. Score: 100
Sequences (61:77) Aligned. Score: 100
Sequences (61:78) Aligned. Score: 99.9214
Sequences (61:79) Aligned. Score: 99.8429
Sequences (61:80) Aligned. Score: 100
Sequences (61:81) Aligned. Score: 100
Sequences (61:82) Aligned. Score: 100
Sequences (61:83) Aligned. Score: 99.9214
Sequences (61:84) Aligned. Score: 100
Sequences (61:85) Aligned. Score: 99.9214
Sequences (61:86) Aligned. Score: 100
Sequences (61:87) Aligned. Score: 100
Sequences (61:88) Aligned. Score: 99.9214
Sequences (61:89) Aligned. Score: 99.9214
Sequences (61:90) Aligned. Score: 100
Sequences (61:91) Aligned. Score: 100
Sequences (61:92) Aligned. Score: 100
Sequences (62:63) Aligned. Score: 99.9214
Sequences (62:64) Aligned. Score: 99.9214
Sequences (62:65) Aligned. Score: 99.9214
Sequences (62:66) Aligned. Score: 99.9214
Sequences (62:67) Aligned. Score: 99.9214
Sequences (62:68) Aligned. Score: 99.9214
Sequences (62:69) Aligned. Score: 99.9214
Sequences (62:70) Aligned. Score: 99.9214
Sequences (62:71) Aligned. Score: 100
Sequences (62:72) Aligned. Score: 100
Sequences (62:73) Aligned. Score: 99.9214

```
Sequences (62:74) Aligned. Score: 99.9214
Sequences (62:75) Aligned. Score: 99.9214
Sequences (62:76) Aligned. Score: 99.9214
Sequences (62:77) Aligned. Score: 99.9214
Sequences (62:78) Aligned. Score: 100
Sequences (62:79) Aligned. Score: 99.9214
Sequences (62:80) Aligned. Score: 99.9214
Sequences (62:81) Aligned. Score: 99.9214
Sequences (62:82) Aligned. Score: 99.9214
Sequences (62:83) Aligned. Score: 100
Sequences (62:84) Aligned. Score: 99.9214
Sequences (62:85) Aligned. Score: 100
Sequences (62:86) Aligned. Score: 99.9214
Sequences (62:87) Aligned. Score: 99.9214
Sequences (62:88) Aligned. Score: 100
Sequences (62:89) Aligned. Score: 100
Sequences (62:90) Aligned. Score: 99.9214
Sequences (62:91) Aligned. Score: 99.9214
Sequences (62:92) Aligned. Score: 99.9214
Sequences (63:64) Aligned. Score: 100
Sequences (63:65) Aligned. Score: 100
Sequences (63:66) Aligned. Score: 100
Sequences (63:67) Aligned. Score: 100
Sequences (63:68) Aligned. Score: 100
Sequences (63:69) Aligned. Score: 99.8429
Sequences (63:70) Aligned. Score: 100
Sequences (63:71) Aligned. Score: 99.9214
Sequences (63:72) Aligned. Score: 99.9214
Sequences (63:73) Aligned. Score: 100
Sequences (63:74) Aligned. Score: 100
Sequences (63:75) Aligned. Score: 100
Sequences (63:76) Aligned. Score: 100
Sequences (63:77) Aligned. Score: 100
Sequences (63:78) Aligned. Score: 99.9214
Sequences (63:79) Aligned. Score: 99.8429
Sequences (63:80) Aligned. Score: 100
Sequences (63:81) Aligned. Score: 100
Sequences (63:82) Aligned. Score: 100
Sequences (63:83) Aligned. Score: 99.9214
Sequences (63:84) Aligned. Score: 100
Sequences (63:85) Aligned. Score: 99.9214
Sequences (63:86) Aligned. Score: 100
Sequences (63:87) Aligned. Score: 100
Sequences (63:88) Aligned. Score: 99.9214
Sequences (63:89) Aligned. Score: 99.9214
Sequences (63:90) Aligned. Score: 100
Sequences (63:91) Aligned. Score: 100
Sequences (63:92) Aligned. Score: 100
Sequences (64:65) Aligned. Score: 100
Sequences (64:66) Aligned. Score: 100
Sequences (64:67) Aligned. Score: 100
Sequences (64:68) Aligned. Score: 100
Sequences (64:69) Aligned. Score: 99.8429
Sequences (64:70) Aligned. Score: 100
Sequences (64:71) Aligned. Score: 99.9214
Sequences (64:72) Aligned. Score: 99.9214
Sequences (64:73) Aligned. Score: 100
Sequences (64:74) Aligned. Score: 100
Sequences (64:75) Aligned. Score: 100
Sequences (64:76) Aligned. Score: 100
Sequences (64:77) Aligned. Score: 100
Sequences (64:78) Aligned. Score: 99.9214
```

Sequences (64:79) Aligned. Score: 99.8429
Sequences (64:80) Aligned. Score: 100
Sequences (64:81) Aligned. Score: 100
Sequences (64:82) Aligned. Score: 100
Sequences (64:83) Aligned. Score: 99.9214
Sequences (64:84) Aligned. Score: 100
Sequences (64:85) Aligned. Score: 99.9214
Sequences (64:86) Aligned. Score: 100
Sequences (64:87) Aligned. Score: 100
Sequences (64:88) Aligned. Score: 99.9214
Sequences (64:89) Aligned. Score: 99.9214
Sequences (64:90) Aligned. Score: 100
Sequences (64:91) Aligned. Score: 100
Sequences (64:92) Aligned. Score: 100
Sequences (65:66) Aligned. Score: 100
Sequences (65:67) Aligned. Score: 100
Sequences (65:68) Aligned. Score: 100
Sequences (65:69) Aligned. Score: 99.8429
Sequences (65:70) Aligned. Score: 100
Sequences (65:71) Aligned. Score: 99.9214
Sequences (65:72) Aligned. Score: 99.9214
Sequences (65:73) Aligned. Score: 100
Sequences (65:74) Aligned. Score: 100
Sequences (65:75) Aligned. Score: 100
Sequences (65:76) Aligned. Score: 100
Sequences (65:77) Aligned. Score: 100
Sequences (65:78) Aligned. Score: 99.9214
Sequences (65:79) Aligned. Score: 99.8429
Sequences (65:80) Aligned. Score: 100
Sequences (65:81) Aligned. Score: 100
Sequences (65:82) Aligned. Score: 100
Sequences (65:83) Aligned. Score: 99.9214
Sequences (65:84) Aligned. Score: 100
Sequences (65:85) Aligned. Score: 99.9214
Sequences (65:86) Aligned. Score: 100
Sequences (65:87) Aligned. Score: 100
Sequences (65:88) Aligned. Score: 99.9214
Sequences (65:89) Aligned. Score: 99.9214
Sequences (65:90) Aligned. Score: 100
Sequences (65:91) Aligned. Score: 100
Sequences (65:92) Aligned. Score: 100
Sequences (66:67) Aligned. Score: 100
Sequences (66:68) Aligned. Score: 100
Sequences (66:69) Aligned. Score: 99.8429
Sequences (66:70) Aligned. Score: 100
Sequences (66:71) Aligned. Score: 99.9214
Sequences (66:72) Aligned. Score: 99.9214
Sequences (66:73) Aligned. Score: 100
Sequences (66:74) Aligned. Score: 100
Sequences (66:75) Aligned. Score: 100
Sequences (66:76) Aligned. Score: 100
Sequences (66:77) Aligned. Score: 100
Sequences (66:78) Aligned. Score: 99.9214
Sequences (66:79) Aligned. Score: 99.8429
Sequences (66:80) Aligned. Score: 100
Sequences (66:81) Aligned. Score: 100
Sequences (66:82) Aligned. Score: 100
Sequences (66:83) Aligned. Score: 99.9214
Sequences (66:84) Aligned. Score: 100
Sequences (66:85) Aligned. Score: 99.9214
Sequences (66:86) Aligned. Score: 100
Sequences (66:87) Aligned. Score: 100

```
Sequences (66:88) Aligned. Score: 99.9214
Sequences (66:89) Aligned. Score: 99.9214
Sequences (66:90) Aligned. Score: 100
Sequences (66:91) Aligned. Score: 100
Sequences (66:92) Aligned. Score: 100
Sequences (67:68) Aligned. Score: 100
Sequences (67:69) Aligned. Score: 99.8429
Sequences (67:70) Aligned. Score: 100
Sequences (67:71) Aligned. Score: 99.9214
Sequences (67:72) Aligned. Score: 99.9214
Sequences (67:73) Aligned. Score: 100
Sequences (67:74) Aligned. Score: 100
Sequences (67:75) Aligned. Score: 100
Sequences (67:76) Aligned. Score: 100
Sequences (67:77) Aligned. Score: 100
Sequences (67:78) Aligned. Score: 99.9214
Sequences (67:79) Aligned. Score: 99.8429
Sequences (67:80) Aligned. Score: 100
Sequences (67:81) Aligned. Score: 100
Sequences (67:82) Aligned. Score: 100
Sequences (67:83) Aligned. Score: 99.9214
Sequences (67:84) Aligned. Score: 100
Sequences (67:85) Aligned. Score: 99.9214
Sequences (67:86) Aligned. Score: 100
Sequences (67:87) Aligned. Score: 100
Sequences (67:88) Aligned. Score: 99.9214
Sequences (67:89) Aligned. Score: 99.9214
Sequences (67:90) Aligned. Score: 100
Sequences (67:91) Aligned. Score: 100
Sequences (67:92) Aligned. Score: 100
Sequences (68:69) Aligned. Score: 99.8429
Sequences (68:70) Aligned. Score: 100
Sequences (68:71) Aligned. Score: 99.9214
Sequences (68:72) Aligned. Score: 99.9214
Sequences (68:73) Aligned. Score: 100
Sequences (68:74) Aligned. Score: 100
Sequences (68:75) Aligned. Score: 100
Sequences (68:76) Aligned. Score: 100
Sequences (68:77) Aligned. Score: 100
Sequences (68:78) Aligned. Score: 99.9214
Sequences (68:79) Aligned. Score: 99.8429
Sequences (68:80) Aligned. Score: 100
Sequences (68:81) Aligned. Score: 100
Sequences (68:82) Aligned. Score: 100
Sequences (68:83) Aligned. Score: 99.9214
Sequences (68:84) Aligned. Score: 100
Sequences (68:85) Aligned. Score: 99.9214
Sequences (68:86) Aligned. Score: 100
Sequences (68:87) Aligned. Score: 100
Sequences (68:88) Aligned. Score: 99.9214
Sequences (68:89) Aligned. Score: 99.9214
Sequences (68:90) Aligned. Score: 100
Sequences (68:91) Aligned. Score: 100
Sequences (68:92) Aligned. Score: 100
Sequences (69:70) Aligned. Score: 99.8429
Sequences (69:71) Aligned. Score: 99.9214
Sequences (69:72) Aligned. Score: 99.9214
Sequences (69:73) Aligned. Score: 99.8429
Sequences (69:74) Aligned. Score: 99.8429
Sequences (69:75) Aligned. Score: 99.8429
Sequences (69:76) Aligned. Score: 99.8429
Sequences (69:77) Aligned. Score: 99.8429
```

```
Sequences (69:78) Aligned. Score: 99.9214
Sequences (69:79) Aligned. Score: 99.8429
Sequences (69:80) Aligned. Score: 99.8429
Sequences (69:81) Aligned. Score: 99.8429
Sequences (69:82) Aligned. Score: 99.8429
Sequences (69:83) Aligned. Score: 99.9214
Sequences (69:84) Aligned. Score: 99.8429
Sequences (69:85) Aligned. Score: 99.9214
Sequences (69:86) Aligned. Score: 99.8429
Sequences (69:87) Aligned. Score: 99.8429
Sequences (69:88) Aligned. Score: 99.9214
Sequences (69:89) Aligned. Score: 99.9214
Sequences (69:90) Aligned. Score: 99.8429
Sequences (69:91) Aligned. Score: 99.8429
Sequences (69:92) Aligned. Score: 99.8429
Sequences (70:71) Aligned. Score: 99.9214
Sequences (70:72) Aligned. Score: 99.9214
Sequences (70:73) Aligned. Score: 100
Sequences (70:74) Aligned. Score: 100
Sequences (70:75) Aligned. Score: 100
Sequences (70:76) Aligned. Score: 100
Sequences (70:77) Aligned. Score: 100
Sequences (70:78) Aligned. Score: 99.9214
Sequences (70:79) Aligned. Score: 99.8429
Sequences (70:80) Aligned. Score: 100
Sequences (70:81) Aligned. Score: 100
Sequences (70:82) Aligned. Score: 100
Sequences (70:83) Aligned. Score: 99.9214
Sequences (70:84) Aligned. Score: 100
Sequences (70:85) Aligned. Score: 99.9214
Sequences (70:86) Aligned. Score: 100
Sequences (70:87) Aligned. Score: 100
Sequences (70:88) Aligned. Score: 99.9214
Sequences (70:89) Aligned. Score: 99.9214
Sequences (70:90) Aligned. Score: 100
Sequences (70:91) Aligned. Score: 100
Sequences (70:92) Aligned. Score: 100
Sequences (71:72) Aligned. Score: 100
Sequences (71:73) Aligned. Score: 99.9214
Sequences (71:74) Aligned. Score: 99.9214
Sequences (71:75) Aligned. Score: 99.9214
Sequences (71:76) Aligned. Score: 99.9214
Sequences (71:77) Aligned. Score: 99.9214
Sequences (71:78) Aligned. Score: 100
Sequences (71:79) Aligned. Score: 99.9214
Sequences (71:80) Aligned. Score: 99.9214
Sequences (71:81) Aligned. Score: 99.9214
Sequences (71:82) Aligned. Score: 99.9214
Sequences (71:83) Aligned. Score: 100
Sequences (71:84) Aligned. Score: 99.9214
Sequences (71:85) Aligned. Score: 100
Sequences (71:86) Aligned. Score: 99.9214
Sequences (71:87) Aligned. Score: 99.9214
Sequences (71:88) Aligned. Score: 100
Sequences (71:89) Aligned. Score: 100
Sequences (71:90) Aligned. Score: 99.9214
Sequences (71:91) Aligned. Score: 99.9214
Sequences (71:92) Aligned. Score: 99.9214
Sequences (72:73) Aligned. Score: 99.9214
Sequences (72:74) Aligned. Score: 99.9214
Sequences (72:75) Aligned. Score: 99.9214
Sequences (72:76) Aligned. Score: 99.9214
```

Sequences (72:77) Aligned. Score: 99.9214
Sequences (72:78) Aligned. Score: 100
Sequences (72:79) Aligned. Score: 99.9214
Sequences (72:80) Aligned. Score: 99.9214
Sequences (72:81) Aligned. Score: 99.9214
Sequences (72:82) Aligned. Score: 99.9214
Sequences (72:83) Aligned. Score: 100
Sequences (72:84) Aligned. Score: 99.9214
Sequences (72:85) Aligned. Score: 100
Sequences (72:86) Aligned. Score: 99.9214
Sequences (72:87) Aligned. Score: 99.9214
Sequences (72:88) Aligned. Score: 100
Sequences (72:89) Aligned. Score: 100
Sequences (72:90) Aligned. Score: 99.9214
Sequences (72:91) Aligned. Score: 99.9214
Sequences (72:92) Aligned. Score: 99.9214
Sequences (73:74) Aligned. Score: 100
Sequences (73:75) Aligned. Score: 100
Sequences (73:76) Aligned. Score: 100
Sequences (73:77) Aligned. Score: 100
Sequences (73:78) Aligned. Score: 99.9214
Sequences (73:79) Aligned. Score: 99.8429
Sequences (73:80) Aligned. Score: 100
Sequences (73:81) Aligned. Score: 100
Sequences (73:82) Aligned. Score: 100
Sequences (73:83) Aligned. Score: 99.9214
Sequences (73:84) Aligned. Score: 100
Sequences (73:85) Aligned. Score: 99.9214
Sequences (73:86) Aligned. Score: 100
Sequences (73:87) Aligned. Score: 100
Sequences (73:88) Aligned. Score: 99.9214
Sequences (73:89) Aligned. Score: 99.9214
Sequences (73:90) Aligned. Score: 100
Sequences (73:91) Aligned. Score: 100
Sequences (73:92) Aligned. Score: 100
Sequences (74:75) Aligned. Score: 100
Sequences (74:76) Aligned. Score: 100
Sequences (74:77) Aligned. Score: 100
Sequences (74:78) Aligned. Score: 99.9214
Sequences (74:79) Aligned. Score: 99.8429
Sequences (74:80) Aligned. Score: 100
Sequences (74:81) Aligned. Score: 100
Sequences (74:82) Aligned. Score: 100
Sequences (74:83) Aligned. Score: 99.9214
Sequences (74:84) Aligned. Score: 100
Sequences (74:85) Aligned. Score: 99.9214
Sequences (74:86) Aligned. Score: 100
Sequences (74:87) Aligned. Score: 100
Sequences (74:88) Aligned. Score: 99.9214
Sequences (74:89) Aligned. Score: 99.9214
Sequences (74:90) Aligned. Score: 100
Sequences (74:91) Aligned. Score: 100
Sequences (74:92) Aligned. Score: 100
Sequences (75:76) Aligned. Score: 100
Sequences (75:77) Aligned. Score: 100
Sequences (75:78) Aligned. Score: 99.9214
Sequences (75:79) Aligned. Score: 99.8429
Sequences (75:80) Aligned. Score: 100
Sequences (75:81) Aligned. Score: 100
Sequences (75:82) Aligned. Score: 100
Sequences (75:83) Aligned. Score: 99.9214
Sequences (75:84) Aligned. Score: 100

```
Sequences (75:85) Aligned. Score: 99.9214
Sequences (75:86) Aligned. Score: 100
Sequences (75:87) Aligned. Score: 100
Sequences (75:88) Aligned. Score: 99.9214
Sequences (75:89) Aligned. Score: 99.9214
Sequences (75:90) Aligned. Score: 100
Sequences (75:91) Aligned. Score: 100
Sequences (75:92) Aligned. Score: 100
Sequences (76:77) Aligned. Score: 100
Sequences (76:78) Aligned. Score: 99.9214
Sequences (76:79) Aligned. Score: 99.8429
Sequences (76:80) Aligned. Score: 100
Sequences (76:81) Aligned. Score: 100
Sequences (76:82) Aligned. Score: 100
Sequences (76:83) Aligned. Score: 99.9214
Sequences (76:84) Aligned. Score: 100
Sequences (76:85) Aligned. Score: 99.9214
Sequences (76:86) Aligned. Score: 100
Sequences (76:87) Aligned. Score: 100
Sequences (76:88) Aligned. Score: 99.9214
Sequences (76:89) Aligned. Score: 99.9214
Sequences (76:90) Aligned. Score: 100
Sequences (76:91) Aligned. Score: 100
Sequences (76:92) Aligned. Score: 100
Sequences (77:78) Aligned. Score: 99.9214
Sequences (77:79) Aligned. Score: 99.8429
Sequences (77:80) Aligned. Score: 100
Sequences (77:81) Aligned. Score: 100
Sequences (77:82) Aligned. Score: 100
Sequences (77:83) Aligned. Score: 99.9214
Sequences (77:84) Aligned. Score: 100
Sequences (77:85) Aligned. Score: 99.9214
Sequences (77:86) Aligned. Score: 100
Sequences (77:87) Aligned. Score: 100
Sequences (77:88) Aligned. Score: 99.9214
Sequences (77:89) Aligned. Score: 99.9214
Sequences (77:90) Aligned. Score: 100
Sequences (77:91) Aligned. Score: 100
Sequences (77:92) Aligned. Score: 100
Sequences (78:79) Aligned. Score: 99.9214
Sequences (78:80) Aligned. Score: 99.9214
Sequences (78:81) Aligned. Score: 99.9214
Sequences (78:82) Aligned. Score: 99.9214
Sequences (78:83) Aligned. Score: 100
Sequences (78:84) Aligned. Score: 99.9214
Sequences (78:85) Aligned. Score: 100
Sequences (78:86) Aligned. Score: 99.9214
Sequences (78:87) Aligned. Score: 99.9214
Sequences (78:88) Aligned. Score: 100
Sequences (78:89) Aligned. Score: 100
Sequences (78:90) Aligned. Score: 99.9214
Sequences (78:91) Aligned. Score: 99.9214
Sequences (78:92) Aligned. Score: 99.9214
Sequences (79:80) Aligned. Score: 99.8429
Sequences (79:81) Aligned. Score: 99.8429
Sequences (79:82) Aligned. Score: 99.8429
Sequences (79:83) Aligned. Score: 99.9214
Sequences (79:84) Aligned. Score: 99.8429
Sequences (79:85) Aligned. Score: 99.9214
Sequences (79:86) Aligned. Score: 99.8429
Sequences (79:87) Aligned. Score: 99.8429
Sequences (79:88) Aligned. Score: 99.9214
```

Sequences (79:89) Aligned. Score: 99.9214
Sequences (79:90) Aligned. Score: 99.8429
Sequences (79:91) Aligned. Score: 99.8429
Sequences (79:92) Aligned. Score: 99.8429
Sequences (80:81) Aligned. Score: 100
Sequences (80:82) Aligned. Score: 100
Sequences (80:83) Aligned. Score: 99.9214
Sequences (80:84) Aligned. Score: 100
Sequences (80:85) Aligned. Score: 99.9214
Sequences (80:86) Aligned. Score: 100
Sequences (80:87) Aligned. Score: 100
Sequences (80:88) Aligned. Score: 99.9214
Sequences (80:89) Aligned. Score: 99.9214
Sequences (80:90) Aligned. Score: 100
Sequences (80:91) Aligned. Score: 100
Sequences (80:92) Aligned. Score: 100
Sequences (81:82) Aligned. Score: 100
Sequences (81:83) Aligned. Score: 99.9214
Sequences (81:84) Aligned. Score: 100
Sequences (81:85) Aligned. Score: 99.9214
Sequences (81:86) Aligned. Score: 100
Sequences (81:87) Aligned. Score: 100
Sequences (81:88) Aligned. Score: 99.9214
Sequences (81:89) Aligned. Score: 99.9214
Sequences (81:90) Aligned. Score: 100
Sequences (81:91) Aligned. Score: 100
Sequences (81:92) Aligned. Score: 100
Sequences (82:83) Aligned. Score: 99.9214
Sequences (82:84) Aligned. Score: 100
Sequences (82:85) Aligned. Score: 99.9214
Sequences (82:86) Aligned. Score: 100
Sequences (82:87) Aligned. Score: 100
Sequences (82:88) Aligned. Score: 99.9214
Sequences (82:89) Aligned. Score: 99.9214
Sequences (82:90) Aligned. Score: 100
Sequences (82:91) Aligned. Score: 100
Sequences (82:92) Aligned. Score: 100
Sequences (83:84) Aligned. Score: 99.9214
Sequences (83:85) Aligned. Score: 100
Sequences (83:86) Aligned. Score: 99.9214
Sequences (83:87) Aligned. Score: 99.9214
Sequences (83:88) Aligned. Score: 100
Sequences (83:89) Aligned. Score: 100
Sequences (83:90) Aligned. Score: 99.9214
Sequences (83:91) Aligned. Score: 99.9214
Sequences (83:92) Aligned. Score: 99.9214
Sequences (84:85) Aligned. Score: 99.9214
Sequences (84:86) Aligned. Score: 100
Sequences (84:87) Aligned. Score: 100
Sequences (84:88) Aligned. Score: 99.9214
Sequences (84:89) Aligned. Score: 99.9214
Sequences (84:90) Aligned. Score: 100
Sequences (84:91) Aligned. Score: 100
Sequences (84:92) Aligned. Score: 100
Sequences (85:86) Aligned. Score: 99.9214
Sequences (85:87) Aligned. Score: 99.9214
Sequences (85:88) Aligned. Score: 100
Sequences (85:89) Aligned. Score: 100
Sequences (85:90) Aligned. Score: 99.9214
Sequences (85:91) Aligned. Score: 99.9214
Sequences (85:92) Aligned. Score: 99.9214
Sequences (86:87) Aligned. Score: 100

```
Sequences (86:88) Aligned. Score: 99.9214
Sequences (86:89) Aligned. Score: 99.9214
Sequences (86:90) Aligned. Score: 100
Sequences (86:91) Aligned. Score: 100
Sequences (86:92) Aligned. Score: 100
Sequences (87:88) Aligned. Score: 99.9214
Sequences (87:89) Aligned. Score: 99.9214
Sequences (87:90) Aligned. Score: 100
Sequences (87:91) Aligned. Score: 100
Sequences (87:92) Aligned. Score: 100
Sequences (88:89) Aligned. Score: 100
Sequences (88:90) Aligned. Score: 99.9214
Sequences (88:91) Aligned. Score: 99.9214
Sequences (88:92) Aligned. Score: 99.9214
Sequences (89:90) Aligned. Score: 99.9214
Sequences (89:91) Aligned. Score: 99.9214
Sequences (89:92) Aligned. Score: 99.9214
Sequences (90:91) Aligned. Score: 100
Sequences (90:92) Aligned. Score: 100
Sequences (91:92) Aligned. Score: 100
Guide tree file created:   [clustalw.dnd]

There are 91 groups
Start of Multiple Alignment

Aligning...
Group 1: Sequences:   2      Score:21097
Group 2: Sequences:   2      Score:21125
Group 3: Sequences:   4      Score:21111
Group 4: Sequences:   2      Score:21124
Group 5: Sequences:   3      Score:21124
Group 6: Sequences:   4      Score:21124
Group 7: Sequences:   5      Score:21124
Group 8: Sequences:   6      Score:21124
Group 9: Sequences:   7      Score:21124
Group 10: Sequences:   8      Score:21124
Group 11: Sequences:   9      Score:21124
Group 12: Sequences:  10      Score:21124
Group 13: Sequences:  11      Score:21124
Group 14: Sequences:  12      Score:21124
Group 15: Sequences:  13      Score:21124
Group 16: Sequences:  14      Score:21124
Group 17: Sequences:  15      Score:21124
Group 18: Sequences:  16      Score:21124
Group 19: Sequences:  17      Score:21124
Group 20: Sequences:  18      Score:21124
Group 21: Sequences:  19      Score:21124
Group 22: Sequences:  20      Score:21124
Group 23: Sequences:  21      Score:21124
Group 24: Sequences:  22      Score:21124
Group 25: Sequences:  23      Score:21124
Group 26: Sequences:  24      Score:21124
Group 27: Sequences:  25      Score:21124
Group 28: Sequences:  26      Score:21124
Group 29: Sequences:  27      Score:21124
Group 30: Sequences:  28      Score:21124
Group 31: Sequences:  29      Score:21124
Group 32: Sequences:  30      Score:21124
Group 33: Sequences:  31      Score:21124
Group 34: Sequences:  32      Score:21124
Group 35: Sequences:  33      Score:21124
Group 36: Sequences:  34      Score:21124
```

```
Group 37: Sequences:  35      Score:21124
Group 38: Sequences:  36      Score:21124
Group 39: Sequences:  37      Score:21124
Group 40: Sequences:  38      Score:21124
Group 41: Sequences:  39      Score:21104
Group 42: Sequences:  43      Score:21102
Group 43: Sequences:   2      Score:21116
Group 44: Sequences:  45      Score:21108
Group 45: Sequences:   2      Score:21103
Group 46: Sequences:   2      Score:21102
Group 47: Sequences:   4      Score:21102
Group 48: Sequences:  49      Score:21097
Group 49: Sequences:   2      Score:21125
Group 50: Sequences:  51      Score:21113
Group 51: Sequences:  52      Score:21104
Group 52: Sequences:  53      Score:21104
Group 53: Sequences:  54      Score:21113
Group 54: Sequences:  55      Score:21113
Group 55: Sequences:  56      Score:21114
Group 56: Sequences:  57      Score:21114
Group 57: Sequences:  58      Score:21114
Group 58: Sequences:  59      Score:21114
Group 59: Sequences:  60      Score:21114
Group 60: Sequences:  61      Score:21114
Group 61: Sequences:  62      Score:21115
Group 62: Sequences:  63      Score:21115
Group 63: Sequences:  64      Score:21115
Group 64: Sequences:  65      Score:21115
Group 65: Sequences:  66      Score:21115
Group 66: Sequences:  67      Score:21115
Group 67: Sequences:  68      Score:21115
Group 68: Sequences:  69      Score:21116
Group 69: Sequences:  70      Score:21116
Group 70: Sequences:  71      Score:21116
Group 71: Sequences:  72      Score:21116
Group 72: Sequences:  73      Score:21116
Group 73: Sequences:  74      Score:21116
Group 74: Sequences:  75      Score:21116
Group 75: Sequences:  76      Score:21116
Group 76: Sequences:  77      Score:21117
Group 77: Sequences:  78      Score:21117
Group 78: Sequences:  79      Score:21117
Group 79: Sequences:  80      Score:21117
Group 80: Sequences:  81      Score:21117
Group 81: Sequences:  82      Score:21117
Group 82: Sequences:  83      Score:21117
Group 83: Sequences:  84      Score:21117
Group 84: Sequences:  85      Score:21117
Group 85: Sequences:  86      Score:21117
Group 86: Sequences:  87      Score:21117
Group 87: Sequences:  88      Score:21118
Group 88: Sequences:  89      Score:21118
Group 89: Sequences:  90      Score:21118
Group 90: Sequences:  91      Score:21118
Group 91: Sequences:  92      Score:20996
Alignment Score -9676132

CLUSTAL-Alignment file created  [clustalw.aln]
```

---

clustalw.aln

```
CLUSTAL 2.1 multiple sequence alignment


MT304489.1TexasFebruary             MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT325575.1GeorgiaMarch              MFVFLVLLLLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT344949.1HawaiiMarch               MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT246472.1WashingtonStateMarch      MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT318827.1GermanyMarch              MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT396266.1NetherlandsApril          MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT263074.1PeruMarch                 MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT300186.2NorthCarolinaApril        MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT371574.1CzechRepublicMarch        MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT320538.2FranceMarch               MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT328035.1GreeceMarch               MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT276598.1IsraelMarch               MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT359231.1SerbiaApril               MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT324062.1SouthAfricaMarch          MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT359866.1SpainMarch                MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT374112.1TaiwanMarch               MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT304484.1NewHampshireFebruary      MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT276330.1FloridaFebruary           MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT276323.1RhodeIslandFebruary       MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT325629.1MassachusettsMArch        MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT325627.1NewYorkMarch              MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT325622.1NewJerseyMarch            MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT325621.1IowaMarch                 MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT325610.1UtahMarch                 MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT325605.1RhodeIslandMarch          MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT325604.1PennsylvaniaMarch         MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT325598.1OhioMarch                 MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT325595.1NewHampshireMarch          MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT325588.1MontanaMarch              MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT325587.1MarylandMarch             MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT325581.1LouisianaMarch            MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT325580.1KansasMarch               MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT325579.1IndianaMarch              MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT308700.1MichiganMarch             MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT304478.1FLoridaMarch              MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT304477.1ArizonaMarch              MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT304491.1TexasMarch                MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT192765.1CaliforniaMarch            MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT251974.1ConnecticutMarch          MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT358744.1WashingtonStateApril      MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT365033.1NewYorkApril              MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT415909.1VirginiaApril             MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT415320.1IndiaMarch                MFVFLVLLPLVSSQCVNLTTRTQLPPAHTNSFTRGVYYPDKVFRSSVLHS
MT327745.1TurkiyeMarch              MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT325597.1NevadaMarch               MFVFFVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT020781.2FinlandJanuary            MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLYS
MT039890.1SouthKoreaJanuary         MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT007544.1AustraliaJanuary          MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT093571.1SwedenFebruary            MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT304487.1OregonMarch               MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT188341.1MinnesotaMarch            MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT230904.1HongKongJanuary           MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT350282.1BrazilMarch               MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT325578.1IllinoisMarch             MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT325591.1NorthCarolinaMarch        MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT325593.1NebraskaMarch             MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT325625.1SouthCarolinaMarch        MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT325628.1VirginiaMarch             MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT163716.1WashingtonStateFebru      MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
```

```
MT276324.1CaliforniaFebruary        MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT276326.1GeorgiaFebruary           MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT276328.1OregonFebruary            MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT039887.1WisconsinJanuary          MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT039888.1MassachusettsJanuary      MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MN994468.1CaliforniaJanuary         MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MN997409.1ArizonaJanuary            MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MN988713.1IllinoisJanuary           MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT233526.1WashingtonStateJanua      MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT192773.1VietNamJanuary            MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT066175.1TaiwanJanuary             MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT066176.1TaiwanFebruary            MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT371050.1SriLankaMarch             MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT233519.1SpainFebruary             MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT304476.1SouthKoreaFebruary        MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT240479.1PakistanMArch             MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT072688.1NepalJanuary              MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
LC529905.1JapanJanuary              MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
LC542976.1JapanFebruary             MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
LC542809.1JapanMarch                MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT077125.1ItalyJanuary              MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT276597.1IsraelFebruary            MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT320891.2IranMarch                 MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
LC528233.1CruseShipFebruary         MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT256924.2ColombiaMarch             MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT126808.1BrazilFebruary            MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT372481.1MalaysiaMarch             MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT396241.1ChinaMarch                MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT291831.1ChinaBeijingJanuary       MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT291830.1ChinaWuhanDec2019         MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT434757.1IndiaApril                MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT019529.1WuhanFirstIsolateDec      MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
MT012098.1IndiaJanuary              MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS
                                    ****:*** ******************:**********************:*

MT304489.1TexasFebruary             TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT325575.1GeorgiaMarch              TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT344949.1HawaiiMarch               TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT246472.1WashingtonStateMarch      TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT318827.1GermanyMarch              TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT396266.1NetherlandsApril          TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT263074.1PeruMarch                 TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT300186.2NorthCarolinaApril        TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT371574.1CzechRepublicMarch        TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT320538.2FranceMarch               TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT328035.1GreeceMarch               TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT276598.1IsraelMarch               TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT359231.1SerbiaApril               TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT324062.1SouthAfricaMarch          TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT359866.1SpainMarch                TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT374112.1TaiwanMarch               TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT304484.1NewHampshireFebruary      TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT276330.1FloridaFebruary           TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT276323.1RhodeIslandFebruary       TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT325629.1MassachusettsMArch        TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT325627.1NewYorkMarch              TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT325622.1NewJerseyMarch            TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT325621.1IowaMarch                 TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT325610.1UtahMarch                 TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT325605.1RhodeIslandMarch          TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT325604.1PennsylvaniaMarch         TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT325598.1OhioMarch                 TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
```

```
MT325595.1NewHampshireMarch          TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT325588.1MontanaMarch               TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT325587.1MarylandMarch              TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT325581.1LouisianaMarch             TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT325580.1KansasMarch                TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT325579.1IndianaMarch               TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT308700.1MichiganMarch              TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT304478.1FLoridaMarch               TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT304477.1ArizonaMarch               TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT304491.1TexasMarch                 TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT192765.1CaliforniaMarch             TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT251974.1ConnecticutMarch           TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT358744.1WashingtonStateApril       TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT365033.1NewYorkApril               TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT415909.1VirginiaApril              TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT415320.1IndiaMarch                 TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT327745.1TurkiyeMarch               TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT325597.1NevadaMarch                TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT020781.2FinlandJanuary             TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT039890.1SouthKoreaJanuary          TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT007544.1AustraliaJanuary           TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT093571.1SwedenFebruary             TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT304487.1OregonMarch                TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT188341.1MinnesotaMarch             TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT230904.1HongKongJanuary            TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT350282.1BrazilMarch                TQDLFLPFFSNVTWFHAIHVSGTKGTKRFDNPVLPFNDGVYFASTEKSNI
MT325578.1IllinoisMarch              TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT325591.1NorthCarolinaMarch         TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT325593.1NebraskaMarch              TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT325625.1SouthCarolinaMarch         TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT325628.1VirginiaMarch              TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT163716.1WashingtonStateFebru       TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT276324.1CaliforniaFebruary         TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT276326.1GeorgiaFebruary            TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT276328.1OregonFebruary             TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT039887.1WisconsinJanuary           TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT039888.1MassachusettsJanuary       TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MN994468.1CaliforniaJanuary          TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MN997409.1ArizonaJanuary             TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MN988713.1IllinoisJanuary            TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT233526.1WashingtonStateJanua       TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT192773.1VietNamJanuary             TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT066175.1TaiwanJanuary              TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT066176.1TaiwanFebruary             TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT371050.1SriLankaMarch              TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT233519.1SpainFebruary              TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT304476.1SouthKoreaFebruary         TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT240479.1PakistanMArch              TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT072688.1NepalJanuary               TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
LC529905.1JapanJanuary               TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
LC542976.1JapanFebruary              TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
LC542809.1JapanMarch                 TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT077125.1ItalyJanuary               TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT276597.1IsraelFebruary             TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT320891.2IranMarch                  TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
LC528233.1CruseShipFebruary          TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT256924.2ColombiaMarch              TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT126808.1BrazilFebruary             TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT372481.1MalaysiaMarch              TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT396241.1ChinaMarch                 TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT291831.1ChinaBeijingJanuary        TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT291830.1ChinaWuhanDec2019          TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
```

```
MT434757.1IndiaApril                TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT019529.1WuhanFirstIsolateDec      TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
MT012098.1IndiaJanuary              TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI
                                    **********************:**************************

MT304489.1TexasFebruary             IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT325575.1GeorgiaMarch              IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT344949.1HawaiiMarch               IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT246472.1WashingtonStateMarch      IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT318827.1GermanyMarch              IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT396266.1NetherlandsApril          IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT263074.1PeruMarch                 IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT300186.2NorthCarolinaApril        IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT371574.1CzechRepublicMarch        IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT320538.2FranceMarch               IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT328035.1GreeceMarch               IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT276598.1IsraelMarch               IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT359231.1SerbiaApril               IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT324062.1SouthAfricaMarch          IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT359866.1SpainMarch                IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT374112.1TaiwanMarch               IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT304484.1NewHampshireFebruary      IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT276330.1FloridaFebruary           IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT276323.1RhodeIslandFebruary       IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT325629.1MassachusettsMArch        IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT325627.1NewYorkMarch              IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT325622.1NewJerseyMarch            IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT325621.1IowaMarch                 IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT325610.1UtahMarch                 IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT325605.1RhodeIslandMarch          IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT325604.1PennsylvaniaMarch         IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT325598.1OhioMarch                 IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT325595.1NewHampshireMarch         IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT325588.1MontanaMarch              IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT325587.1MarylandMarch             IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT325581.1LouisianaMarch            IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT325580.1KansasMarch               IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT325579.1IndianaMarch              IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT308700.1MichiganMarch             IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT304478.1FLoridaMarch              IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT304477.1ArizonaMarch              IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT304491.1TexasMarch                IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT192765.1CaliforniaMarch           IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT251974.1ConnecticutMarch          IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT358744.1WashingtonStateApril      IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT365033.1NewYorkApril              IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT415909.1VirginiaApril             IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT415320.1IndiaMarch                IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT327745.1TurkiyeMarch              IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT325597.1NevadaMarch               IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT020781.2FinlandJanuary            IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT039890.1SouthKoreaJanuary         IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT007544.1AustraliaJanuary          IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT093571.1SwedenFebruary            IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT304487.1OregonMarch               IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT188341.1MinnesotaMarch            IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT230904.1HongKongJanuary           IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT350282.1BrazilMarch               IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT325578.1IllinoisMarch             IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT325591.1NorthCarolinaMarch        IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT325593.1NebraskaMarch             IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT325625.1SouthCarolinaMarch        IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
```

```
MT325628.1VirginiaMarch             IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT163716.1WashingtonStateFebru      IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT276324.1CaliforniaFebruary        IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT276326.1GeorgiaFebruary           IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT276328.1OregonFebruary            IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT039887.1WisconsinJanuary          IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT039888.1MassachusettsJanuary      IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MN994468.1CaliforniaJanuary         IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MN997409.1ArizonaJanuary            IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MN988713.1IllinoisJanuary           IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT233526.1WashingtonStateJanua      IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT192773.1VietNamJanuary            IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT066175.1TaiwanJanuary             IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT066176.1TaiwanFebruary            IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT371050.1SriLankaMarch             IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT233519.1SpainFebruary             IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT304476.1SouthKoreaFebruary        IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT240479.1PakistanMArch             IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT072688.1NepalJanuary              IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
LC529905.1JapanJanuary              IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
LC542976.1JapanFebruary             IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
LC542809.1JapanMarch                IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT077125.1ItalyJanuary              IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT276597.1IsraelFebruary            IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT320891.2IranMarch                 IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
LC528233.1CruseShipFebruary         IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT256924.2ColombiaMarch             IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT126808.1BrazilFebruary            IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT372481.1MalaysiaMarch             IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT396241.1ChinaMarch                IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT291831.1ChinaBeijingJanuary       IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT291830.1ChinaWuhanDec2019         IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT434757.1IndiaApril                IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT019529.1WuhanFirstIsolateDec      IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNK
MT012098.1IndiaJanuary              IRGWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYHK-NNK
                                    ****************************************:: ***

MT304489.1TexasFebruary             SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT325575.1GeorgiaMarch              SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT344949.1HawaiiMarch               SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT246472.1WashingtonStateMarch      SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT318827.1GermanyMarch              SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT396266.1NetherlandsApril          SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT263074.1PeruMarch                 SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT300186.2NorthCarolinaApril        SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT371574.1CzechRepublicMarch        SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT320538.2FranceMarch               SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT328035.1GreeceMarch               SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT276598.1IsraelMarch               SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT359231.1SerbiaApril               SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT324062.1SouthAfricaMarch          SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT359866.1SpainMarch                SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT374112.1TaiwanMarch               SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT304484.1NewHampshireFebruary      SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT276330.1FloridaFebruary           SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT276323.1RhodeIslandFebruary       SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT325629.1MassachusettsMArch        SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT325627.1NewYorkMarch              SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT325622.1NewJerseyMarch            SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT325621.1IowaMarch                 SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT325610.1UtahMarch                 SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT325605.1RhodeIslandMarch          SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
```

```
MT325604.1PennsylvaniaMarch          SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT325598.1OhioMarch                  SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT325595.1NewHampshireMarch          SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT325588.1MontanaMarch               SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT325587.1MarylandMarch              SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT325581.1LouisianaMarch             SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT325580.1KansasMarch                SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT325579.1IndianaMarch               SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT308700.1MichiganMarch              SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT304478.1FLoridaMarch               SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT304477.1ArizonaMarch               SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT304491.1TexasMarch                 SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT192765.1CaliforniaMarch             SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT251974.1ConnecticutMarch           SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT358744.1WashingtonStateApril       SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT365033.1NewYorkApril               SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT415909.1VirginiaApril              SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT415320.1IndiaMarch                 SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT327745.1TurkiyeMarch               SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT325597.1NevadaMarch                SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT020781.2FinlandJanuary             SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT039890.1SouthKoreaJanuary          SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT007544.1AustraliaJanuary           SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT093571.1SwedenFebruary             SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT304487.1OregonMarch                SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT188341.1MinnesotaMarch             SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT230904.1HongKongJanuary            SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT350282.1BrazilMarch                SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT325578.1IllinoisMarch              SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT325591.1NorthCarolinaMarch         SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT325593.1NebraskaMarch              SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT325625.1SouthCarolinaMarch         SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT325628.1VirginiaMarch              SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT163716.1WashingtonStateFebru       SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT276324.1CaliforniaFebruary         SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT276326.1GeorgiaFebruary            SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT276328.1OregonFebruary             SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT039887.1WisconsinJanuary           SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT039888.1MassachusettsJanuary       SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MN994468.1CaliforniaJanuary          SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MN997409.1ArizonaJanuary             SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MN988713.1IllinoisJanuary            SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT233526.1WashingtonStateJanua       SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT192773.1VietNamJanuary             SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT066175.1TaiwanJanuary              SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT066176.1TaiwanFebruary             SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT371050.1SriLankaMarch              SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT233519.1SpainFebruary              SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT304476.1SouthKoreaFebruary         SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT240479.1PakistanMArch              SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT072688.1NepalJanuary               SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
LC529905.1JapanJanuary               SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
LC542976.1JapanFebruary              SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
LC542809.1JapanMarch                 SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT077125.1ItalyJanuary               SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT276597.1IsraelFebruary             SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT320891.2IranMarch                  SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
LC528233.1CruseShipFebruary          SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT256924.2ColombiaMarch              SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT126808.1BrazilFebruary             SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT372481.1MalaysiaMarch              SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT396241.1ChinaMarch                 SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
```

```
MT291831.1ChinaBeijingJanuary       SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT291830.1ChinaWuhanDec2019         SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT434757.1IndiaApril                SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT019529.1WuhanFirstIsolateDec      SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
MT012098.1IndiaJanuary              SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY
                                    **********************************************

MT304489.1TexasFebruary             FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT325575.1GeorgiaMarch              FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT344949.1HawaiiMarch               FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT246472.1WashingtonStateMarch      FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT318827.1GermanyMarch              FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT396266.1NetherlandsApril          FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT263074.1PeruMarch                 FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT300186.2NorthCarolinaApril        FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT371574.1CzechRepublicMarch        FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT320538.2FranceMarch               FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT328035.1GreeceMarch               FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT276598.1IsraelMarch               FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT359231.1SerbiaApril               FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT324062.1SouthAfricaMarch          FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT359866.1SpainMarch                FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT374112.1TaiwanMarch               FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT304484.1NewHampshireFebruary      FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT276330.1FloridaFebruary           FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT276323.1RhodeIslandFebruary       FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT325629.1MassachusettsMArch        FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT325627.1NewYorkMarch              FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT325622.1NewJerseyMarch            FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT325621.1IowaMarch                 FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT325610.1UtahMarch                 FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT325605.1RhodeIslandMarch          FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT325604.1PennsylvaniaMarch         FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT325598.1OhioMarch                 FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT325595.1NewHampshireMarch         FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT325588.1MontanaMarch              FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT325587.1MarylandMarch             FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT325581.1LouisianaMarch            FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT325580.1KansasMarch               FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT325579.1IndianaMarch              FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT308700.1MichiganMarch             FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT304478.1FLoridaMarch              FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT304477.1ArizonaMarch              FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT304491.1TexasMarch                FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT192765.1CaliforniaMarch           FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT251974.1ConnecticutMarch          FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT358744.1WashingtonStateApril      FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT365033.1NewYorkApril              FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT415909.1VirginiaApril             FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT415320.1IndiaMarch                FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT327745.1TurkiyeMarch              FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT325597.1NevadaMarch               FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT020781.2FinlandJanuary            FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT039890.1SouthKoreaJanuary         FKIYSKHTPINLVRDLPQGFWALEPLVDLPIGINITRFQTLLALHRSYLT
MT007544.1AustraliaJanuary          FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRRYLT
MT093571.1SwedenFebruary            FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT304487.1OregonMarch               FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT188341.1MinnesotaMarch            FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT230904.1HongKongJanuary           FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT350282.1BrazilMarch               FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT325578.1IllinoisMarch             FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT325591.1NorthCarolinaMarch        FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
```

```
MT325593.1NebraskaMarch             FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT325625.1SouthCarolinaMarch        FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT325628.1VirginiaMarch             FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT163716.1WashingtonStateFebru      FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT276324.1CaliforniaFebruary        FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT276326.1GeorgiaFebruary           FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT276328.1OregonFebruary            FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT039887.1WisconsinJanuary          FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT039888.1MassachusettsJanuary      FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MN994468.1CaliforniaJanuary         FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MN997409.1ArizonaJanuary            FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MN988713.1IllinoisJanuary           FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT233526.1WashingtonStateJanua      FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT192773.1VietNamJanuary            FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT066175.1TaiwanJanuary             FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT066176.1TaiwanFebruary            FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT371050.1SriLankaMarch             FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT233519.1SpainFebruary             FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT304476.1SouthKoreaFebruary        FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT240479.1PakistanMArch             FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT072688.1NepalJanuary              FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
LC529905.1JapanJanuary              FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
LC542976.1JapanFebruary             FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
LC542809.1JapanMarch                FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT077125.1ItalyJanuary              FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT276597.1IsraelFebruary            FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT320891.2IranMarch                 FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
LC528233.1CruseShipFebruary         FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT256924.2ColombiaMarch             FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT126808.1BrazilFebruary            FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT372481.1MalaysiaMarch             FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT396241.1ChinaMarch                FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT291831.1ChinaBeijingJanuary       FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT291830.1ChinaWuhanDec2019         FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT434757.1IndiaApril                FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT019529.1WuhanFirstIsolateDec      FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
MT012098.1IndiaJanuary              FKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQTLLALHRSYLT
                                    ******************* ********************** ***

MT304489.1TexasFebruary             PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT325575.1GeorgiaMarch              PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT344949.1HawaiiMarch               PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT246472.1WashingtonStateMarch      PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT318827.1GermanyMarch              PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT396266.1NetherlandsApril          PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT263074.1PeruMarch                 PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT300186.2NorthCarolinaApril        PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT371574.1CzechRepublicMarch        PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT320538.2FranceMarch               PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT328035.1GreeceMarch               PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT276598.1IsraelMarch               PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT359231.1SerbiaApril               PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT324062.1SouthAfricaMarch          PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT359866.1SpainMarch                PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT374112.1TaiwanMarch               PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT304484.1NewHampshireFebruary      PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT276330.1FloridaFebruary           PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT276323.1RhodeIslandFebruary       PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT325629.1MassachusettsMArch        PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT325627.1NewYorkMarch              PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT325622.1NewJerseyMarch            PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT325621.1IowaMarch                 PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
```

```
MT325610.1UtahMarch                 PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT325605.1RhodeIslandMarch          PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT325604.1PennsylvaniaMarch         PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT325598.1OhioMarch                 PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT325595.1NewHampshireMarch         PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT325588.1MontanaMarch              PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT325587.1MarylandMarch             PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT325581.1LouisianaMarch            PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT325580.1KansasMarch               PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT325579.1IndianaMarch              PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT308700.1MichiganMarch             PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT304478.1FLoridaMarch              PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT304477.1ArizonaMarch              PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT304491.1TexasMarch                PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT192765.1CaliforniaMarch            PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT251974.1ConnecticutMarch          PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT358744.1WashingtonStateApril      PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT365033.1NewYorkApril              PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT415909.1VirginiaApril             PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT415320.1IndiaMarch                PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT327745.1TurkiyeMarch              PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT325597.1NevadaMarch               PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT020781.2FinlandJanuary            PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT039890.1SouthKoreaJanuary         PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT007544.1AustraliaJanuary          PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT093571.1SwedenFebruary            PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT304487.1OregonMarch               PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT188341.1MinnesotaMarch            PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT230904.1HongKongJanuary           PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT350282.1BrazilMarch               PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT325578.1IllinoisMarch             PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT325591.1NorthCarolinaMarch        PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT325593.1NebraskaMarch             PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT325625.1SouthCarolinaMarch        PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT325628.1VirginiaMarch             PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT163716.1WashingtonStateFebru      PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT276324.1CaliforniaFebruary        PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT276326.1GeorgiaFebruary           PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT276328.1OregonFebruary            PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT039887.1WisconsinJanuary          PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT039888.1MassachusettsJanuary      PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MN994468.1CaliforniaJanuary         PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MN997409.1ArizonaJanuary            PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MN988713.1IllinoisJanuary           PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT233526.1WashingtonStateJanua      PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT192773.1VietNamJanuary            PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT066175.1TaiwanJanuary             PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT066176.1TaiwanFebruary            PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT371050.1SriLankaMarch             PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT233519.1SpainFebruary             PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT304476.1SouthKoreaFebruary        PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT240479.1PakistanMArch             PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT072688.1NepalJanuary              PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
LC529905.1JapanJanuary              PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
LC542976.1JapanFebruary             PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
LC542809.1JapanMarch                PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT077125.1ItalyJanuary              PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT276597.1IsraelFebruary            PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT320891.2IranMarch                 PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
LC528233.1CruseShipFebruary         PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT256924.2ColombiaMarch             PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT126808.1BrazilFebruary            PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
```

```
MT372481.1MalaysiaMarch             PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT396241.1ChinaMarch                PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT291831.1ChinaBeijingJanuary       PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT291830.1ChinaWuhanDec2019         PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT434757.1IndiaApril                PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT019529.1WuhanFirstIsolateDec      PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
MT012098.1IndiaJanuary              PGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETK
                                    **********************************************

MT304489.1TexasFebruary             CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT325575.1GeorgiaMarch              CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT344949.1HawaiiMarch               CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT246472.1WashingtonStateMarch      CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT318827.1GermanyMarch              CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT396266.1NetherlandsApril          CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT263074.1PeruMarch                 CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT300186.2NorthCarolinaApril        CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT371574.1CzechRepublicMarch        CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT320538.2FranceMarch               CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT328035.1GreeceMarch               CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT276598.1IsraelMarch               CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT359231.1SerbiaApril               CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT324062.1SouthAfricaMarch          CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT359866.1SpainMarch                CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT374112.1TaiwanMarch               CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT304484.1NewHampshireFebruary      CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT276330.1FloridaFebruary           CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT276323.1RhodeIslandFebruary       CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT325629.1MassachusettsMArch        CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT325627.1NewYorkMarch              CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT325622.1NewJerseyMarch            CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT325621.1IowaMarch                 CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT325610.1UtahMarch                 CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT325605.1RhodeIslandMarch          CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT325604.1PennsylvaniaMarch         CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT325598.1OhioMarch                 CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT325595.1NewHampshireMarch         CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT325588.1MontanaMarch              CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT325587.1MarylandMarch             CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT325581.1LouisianaMarch            CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT325580.1KansasMarch               CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT325579.1IndianaMarch              CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT308700.1MichiganMarch             CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT304478.1FLoridaMarch              CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT304477.1ArizonaMarch              CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT304491.1TexasMarch                CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT192765.1CaliforniaMarch           CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT251974.1ConnecticutMarch          CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT358744.1WashingtonStateApril      CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT365033.1NewYorkApril              CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT415909.1VirginiaApril             CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT415320.1IndiaMarch                CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT327745.1TurkiyeMarch              CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT325597.1NevadaMarch               CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT020781.2FinlandJanuary            CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT039890.1SouthKoreaJanuary         CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT007544.1AustraliaJanuary          CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT093571.1SwedenFebruary            CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT304487.1OregonMarch               CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT188341.1MinnesotaMarch            CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT230904.1HongKongJanuary           CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT350282.1BrazilMarch               CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
```

```
MT325578.1IllinoisMarch              CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT325591.1NorthCarolinaMarch         CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT325593.1NebraskaMarch              CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT325625.1SouthCarolinaMarch         CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT325628.1VirginiaMarch              CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT163716.1WashingtonStateFebru       CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT276324.1CaliforniaFebruary         CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT276326.1GeorgiaFebruary            CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT276328.1OregonFebruary             CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT039887.1WisconsinJanuary           CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT039888.1MassachusettsJanuary       CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MN994468.1CaliforniaJanuary          CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MN997409.1ArizonaJanuary             CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MN988713.1IllinoisJanuary            CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT233526.1WashingtonStateJanua       CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT192773.1VietNamJanuary             CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT066175.1TaiwanJanuary              CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT066176.1TaiwanFebruary             CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT371050.1SriLankaMarch              CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT233519.1SpainFebruary              CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT304476.1SouthKoreaFebruary         CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT240479.1PakistanMArch              CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT072688.1NepalJanuary               CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
LC529905.1JapanJanuary               CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
LC542976.1JapanFebruary              CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
LC542809.1JapanMarch                 CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT077125.1ItalyJanuary               CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT276597.1IsraelFebruary             CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT320891.2IranMarch                  CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
LC528233.1CruseShipFebruary          CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT256924.2ColombiaMarch              CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT126808.1BrazilFebruary             CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT372481.1MalaysiaMarch              CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT396241.1ChinaMarch                 CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT291831.1ChinaBeijingJanuary        CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT291830.1ChinaWuhanDec2019          CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT434757.1IndiaApril                 CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT019529.1WuhanFirstIsolateDec       CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
MT012098.1IndiaJanuary               CTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASV
                                     **************************************************

MT304489.1TexasFebruary              YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT325575.1GeorgiaMarch               YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT344949.1HawaiiMarch                YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT246472.1WashingtonStateMarch       YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT318827.1GermanyMarch               YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT396266.1NetherlandsApril           YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT263074.1PeruMarch                  YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT300186.2NorthCarolinaApril         YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT371574.1CzechRepublicMarch         YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT320538.2FranceMarch                YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT328035.1GreeceMarch                YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT276598.1IsraelMarch                YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT359231.1SerbiaApril                YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT324062.1SouthAfricaMarch           YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT359866.1SpainMarch                 YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT374112.1TaiwanMarch                YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT304484.1NewHampshireFebruary       YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT276330.1FloridaFebruary            YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT276323.1RhodeIslandFebruary        YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT325629.1MassachusettsMArch         YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT325627.1NewYorkMarch               YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
```

```
MT325622.1NewJerseyMarch            YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT325621.1IowaMarch                 YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT325610.1UtahMarch                 YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT325605.1RhodeIslandMarch          YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT325604.1PennsylvaniaMarch         YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT325598.1OhioMarch                 YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT325595.1NewHampshireMarch         YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT325588.1MontanaMarch              YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT325587.1MarylandMarch             YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT325581.1LouisianaMarch            YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT325580.1KansasMarch               YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT325579.1IndianaMarch              YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT308700.1MichiganMarch             YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT304478.1FLoridaMarch              YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT304477.1ArizonaMarch              YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT304491.1TexasMarch                YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT192765.1CaliforniaMarch            YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT251974.1ConnecticutMarch          YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT358744.1WashingtonStateApril      YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT365033.1NewYorkApril              YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT415909.1VirginiaApril             YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT415320.1IndiaMarch                YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT327745.1TurkiyeMarch              YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT325597.1NevadaMarch               YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT020781.2FinlandJanuary            YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT039890.1SouthKoreaJanuary         YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT007544.1AustraliaJanuary          YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT093571.1SwedenFebruary            YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT304487.1OregonMarch               YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT188341.1MinnesotaMarch            YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT230904.1HongKongJanuary           YAWNRKRISNCVADYSFLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT350282.1BrazilMarch               YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT325578.1IllinoisMarch             YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT325591.1NorthCarolinaMarch        YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT325593.1NebraskaMarch             YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT325625.1SouthCarolinaMarch        YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT325628.1VirginiaMarch             YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT163716.1WashingtonStateFebru      YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT276324.1CaliforniaFebruary        YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT276326.1GeorgiaFebruary           YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT276328.1OregonFebruary            YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT039887.1WisconsinJanuary          YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT039888.1MassachusettsJanuary      YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MN994468.1CaliforniaJanuary         YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MN997409.1ArizonaJanuary            YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MN988713.1IllinoisJanuary           YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT233526.1WashingtonStateJanua      YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT192773.1VietNamJanuary            YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT066175.1TaiwanJanuary             YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT066176.1TaiwanFebruary            YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT371050.1SriLankaMarch             YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT233519.1SpainFebruary             YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT304476.1SouthKoreaFebruary        YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT240479.1PakistanMArch             YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT072688.1NepalJanuary              YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
LC529905.1JapanJanuary              YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
LC542976.1JapanFebruary             YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
LC542809.1JapanMarch                YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT077125.1ItalyJanuary              YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT276597.1IsraelFebruary            YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT320891.2IranMarch                 YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
LC528233.1CruseShipFebruary         YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
```

```
MT256924.2ColombiaMarch             YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT126808.1BrazilFebruary            YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT372481.1MalaysiaMarch             YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT396241.1ChinaMarch                YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT291831.1ChinaBeijingJanuary       YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT291830.1ChinaWuhanDec2019         YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT434757.1IndiaApril                YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT019529.1WuhanFirstIsolateDec      YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
MT012098.1IndiaJanuary              YAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSF
                                    ***************.********************************

MT304489.1TexasFebruary             VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT325575.1GeorgiaMarch              VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT344949.1HawaiiMarch               VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT246472.1WashingtonStateMarch      VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT318827.1GermanyMarch              VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT396266.1NetherlandsApril          VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT263074.1PeruMarch                 VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT300186.2NorthCarolinaApril        VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT371574.1CzechRepublicMarch        VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT320538.2FranceMarch               VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT328035.1GreeceMarch               VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT276598.1IsraelMarch               VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT359231.1SerbiaApril               VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT324062.1SouthAfricaMarch          VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT359866.1SpainMarch                VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT374112.1TaiwanMarch               VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT304484.1NewHampshireFebruary      VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT276330.1FloridaFebruary           VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT276323.1RhodeIslandFebruary       VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT325629.1MassachusettsMArch        VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT325627.1NewYorkMarch              VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT325622.1NewJerseyMarch            VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT325621.1IowaMarch                 VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT325610.1UtahMarch                 VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT325605.1RhodeIslandMarch          VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT325604.1PennsylvaniaMarch         VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT325598.1OhioMarch                 VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT325595.1NewHampshireMarch         VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT325588.1MontanaMarch              VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT325587.1MarylandMarch             VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT325581.1LouisianaMarch            VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT325580.1KansasMarch               VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT325579.1IndianaMarch              VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT308700.1MichiganMarch             VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT304478.1FLoridaMarch              VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT304477.1ArizonaMarch              VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT304491.1TexasMarch                VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT192765.1CaliforniaMarch           VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT251974.1ConnecticutMarch          VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT358744.1WashingtonStateApril      VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT365033.1NewYorkApril              VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT415909.1VirginiaApril             VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT415320.1IndiaMarch                VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT327745.1TurkiyeMarch              VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT325597.1NevadaMarch               VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT020781.2FinlandJanuary            VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT039890.1SouthKoreaJanuary         VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT007544.1AustraliaJanuary          VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT093571.1SwedenFebruary            VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT304487.1OregonMarch               VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT188341.1MinnesotaMarch            VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
```

```
MT230904.1HongKongJanuary           VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT350282.1BrazilMarch               VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT325578.1IllinoisMarch             VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT325591.1NorthCarolinaMarch        VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT325593.1NebraskaMarch             VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT325625.1SouthCarolinaMarch        VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT325628.1VirginiaMarch             VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT163716.1WashingtonStateFebru      VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT276324.1CaliforniaFebruary        VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT276326.1GeorgiaFebruary           VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT276328.1OregonFebruary            VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT039887.1WisconsinJanuary          VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT039888.1MassachusettsJanuary      VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MN994468.1CaliforniaJanuary         VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MN997409.1ArizonaJanuary            VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MN988713.1IllinoisJanuary           VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT233526.1WashingtonStateJanua      VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT192773.1VietNamJanuary            VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT066175.1TaiwanJanuary             VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT066176.1TaiwanFebruary            VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT371050.1SriLankaMarch             VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT233519.1SpainFebruary             VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT304476.1SouthKoreaFebruary        VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT240479.1PakistanMArch             VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT072688.1NepalJanuary              VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
LC529905.1JapanJanuary              VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
LC542976.1JapanFebruary             VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
LC542809.1JapanMarch                VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT077125.1ItalyJanuary              VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT276597.1IsraelFebruary            VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT320891.2IranMarch                 VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
LC528233.1CruseShipFebruary         VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT256924.2ColombiaMarch             VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT126808.1BrazilFebruary            VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT372481.1MalaysiaMarch             VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT396241.1ChinaMarch                VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT291831.1ChinaBeijingJanuary       VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT291830.1ChinaWuhanDec2019         VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT434757.1IndiaApril                VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT019529.1WuhanFirstIsolateDec      VIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
MT012098.1IndiaJanuary              VIRGDEVIQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN
                                    ******* ****************************************

MT304489.1TexasFebruary             YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT325575.1GeorgiaMarch              YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT344949.1HawaiiMarch               YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT246472.1WashingtonStateMarch      YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT318827.1GermanyMarch              YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT396266.1NetherlandsApril          YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT263074.1PeruMarch                 YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT300186.2NorthCarolinaApril        YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT371574.1CzechRepublicMarch        YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT320538.2FranceMarch               YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT328035.1GreeceMarch               YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT276598.1IsraelMarch               YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT359231.1SerbiaApril               YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT324062.1SouthAfricaMarch          YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT359866.1SpainMarch                YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT374112.1TaiwanMarch               YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT304484.1NewHampshireFebruary      YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT276330.1FloridaFebruary           YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT276323.1RhodeIslandFebruary       YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
```

```
MT325629.1MassachusettsMArch        YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT325627.1NewYorkMarch              YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT325622.1NewJerseyMarch            YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT325621.1IowaMarch                 YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT325610.1UtahMarch                 YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT325605.1RhodeIslandMarch          YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT325604.1PennsylvaniaMarch         YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT325598.1OhioMarch                 YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT325595.1NewHampshireMarch         YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT325588.1MontanaMarch              YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT325587.1MarylandMarch             YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT325581.1LouisianaMarch            YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT325580.1KansasMarch               YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT325579.1IndianaMarch              YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT308700.1MichiganMarch             YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT304478.1FLoridaMarch              YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT304477.1ArizonaMarch              YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT304491.1TexasMarch                YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT192765.1CaliforniaMarch            YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT251974.1ConnecticutMarch           YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT358744.1WashingtonStateApril      YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT365033.1NewYorkApril              YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT415909.1VirginiaApril             YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT415320.1IndiaMarch                YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT327745.1TurkiyeMarch              YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT325597.1NevadaMarch               YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT020781.2FinlandJanuary            YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT039890.1SouthKoreaJanuary         YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT007544.1AustraliaJanuary          YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT093571.1SwedenFebruary            YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT304487.1OregonMarch               YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT188341.1MinnesotaMarch            YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT230904.1HongKongJanuary           YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT350282.1BrazilMarch               YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT325578.1IllinoisMarch             YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT325591.1NorthCarolinaMarch        YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT325593.1NebraskaMarch             YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT325625.1SouthCarolinaMarch        YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT325628.1VirginiaMarch             YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT163716.1WashingtonStateFebru      YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT276324.1CaliforniaFebruary        YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT276326.1GeorgiaFebruary           YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT276328.1OregonFebruary            YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT039887.1WisconsinJanuary          YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT039888.1MassachusettsJanuary      YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MN994468.1CaliforniaJanuary         YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MN997409.1ArizonaJanuary            YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MN988713.1IllinoisJanuary           YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT233526.1WashingtonStateJanua      YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT192773.1VietNamJanuary            YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT066175.1TaiwanJanuary             YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT066176.1TaiwanFebruary            YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT371050.1SriLankaMarch             YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT233519.1SpainFebruary             YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT304476.1SouthKoreaFebruary        YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT240479.1PakistanMArch             YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT072688.1NepalJanuary              YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
LC529905.1JapanJanuary              YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
LC542976.1JapanFebruary             YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
LC542809.1JapanMarch                YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT077125.1ItalyJanuary              YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT276597.1IsraelFebruary            YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
```

```
MT320891.2IranMarch                 YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
LC528233.1CruseShipFebruary         YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT256924.2ColombiaMarch             YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT126808.1BrazilFebruary            YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT372481.1MalaysiaMarch             YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT396241.1ChinaMarch                YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT291831.1ChinaBeijingJanuary       YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT291830.1ChinaWuhanDec2019         YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT434757.1IndiaApril                YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT019529.1WuhanFirstIsolateDec      YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
MT012098.1IndiaJanuary              YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPT
                                    **********************************************

MT304489.1TexasFebruary             NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT325575.1GeorgiaMarch              NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT344949.1HawaiiMarch               NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT246472.1WashingtonStateMarch      NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT318827.1GermanyMarch              NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT396266.1NetherlandsApril          NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT263074.1PeruMarch                 NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT300186.2NorthCarolinaApril        NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT371574.1CzechRepublicMarch        NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT320538.2FranceMarch               NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT328035.1GreeceMarch               NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT276598.1IsraelMarch               NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT359231.1SerbiaApril               NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT324062.1SouthAfricaMarch          NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT359866.1SpainMarch                NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT374112.1TaiwanMarch               NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT304484.1NewHampshireFebruary      NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT276330.1FloridaFebruary           NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT276323.1RhodeIslandFebruary       NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT325629.1MassachusettsMArch        NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT325627.1NewYorkMarch              NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT325622.1NewJerseyMarch            NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT325621.1IowaMarch                 NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT325610.1UtahMarch                 NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT325605.1RhodeIslandMarch          NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT325604.1PennsylvaniaMarch         NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT325598.1OhioMarch                 NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT325595.1NewHampshireMarch         NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT325588.1MontanaMarch              NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT325587.1MarylandMarch             NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT325581.1LouisianaMarch            NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT325580.1KansasMarch               NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT325579.1IndianaMarch              NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT308700.1MichiganMarch             NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT304478.1FLoridaMarch              NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT304477.1ArizonaMarch              NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT304491.1TexasMarch                NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT192765.1CaliforniaMarch           NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT251974.1ConnecticutMarch          NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT358744.1WashingtonStateApril      NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT365033.1NewYorkApril              NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT415909.1VirginiaApril             NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT415320.1IndiaMarch                NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT327745.1TurkiyeMarch              NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT325597.1NevadaMarch               NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT020781.2FinlandJanuary            NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT039890.1SouthKoreaJanuary         NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT007544.1AustraliaJanuary          NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT093571.1SwedenFebruary            NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
```

```
MT304487.1OregonMarch                NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT188341.1MinnesotaMarch             NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT230904.1HongKongJanuary            NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT350282.1BrazilMarch                NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT325578.1IllinoisMarch              NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT325591.1NorthCarolinaMarch         NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT325593.1NebraskaMarch              NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT325625.1SouthCarolinaMarch         NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT325628.1VirginiaMarch              NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT163716.1WashingtonStateFebru       NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT276324.1CaliforniaFebruary         NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT276326.1GeorgiaFebruary            NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT276328.1OregonFebruary             NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT039887.1WisconsinJanuary           NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT039888.1MassachusettsJanuary       NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MN994468.1CaliforniaJanuary          NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MN997409.1ArizonaJanuary             NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MN988713.1IllinoisJanuary            NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT233526.1WashingtonStateJanua       NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT192773.1VietNamJanuary             NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT066175.1TaiwanJanuary              NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT066176.1TaiwanFebruary             NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT371050.1SriLankaMarch              NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT233519.1SpainFebruary              NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT304476.1SouthKoreaFebruary         NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT240479.1PakistanMArch              NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT072688.1NepalJanuary               NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
LC529905.1JapanJanuary               NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
LC542976.1JapanFebruary              NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
LC542809.1JapanMarch                 NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT077125.1ItalyJanuary               NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT276597.1IsraelFebruary             NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT320891.2IranMarch                  NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
LC528233.1CruseShipFebruary          NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT256924.2ColombiaMarch              NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT126808.1BrazilFebruary             NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT372481.1MalaysiaMarch              NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT396241.1ChinaMarch                 NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT291831.1ChinaBeijingJanuary        NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT291830.1ChinaWuhanDec2019          NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT434757.1IndiaApril                 NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT019529.1WuhanFirstIsolateDec       NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
MT012098.1IndiaJanuary               NGVGYQPYRVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTG
                                     **************************************************

MT304489.1TexasFebruary              VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT325575.1GeorgiaMarch               VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT344949.1HawaiiMarch                VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT246472.1WashingtonStateMarch       VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT318827.1GermanyMarch               VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT396266.1NetherlandsApril           VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT263074.1PeruMarch                  VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT300186.2NorthCarolinaApril         VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT371574.1CzechRepublicMarch         VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT320538.2FranceMarch                VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT328035.1GreeceMarch                VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT276598.1IsraelMarch                VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT359231.1SerbiaApril                VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT324062.1SouthAfricaMarch           VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT359866.1SpainMarch                 VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT374112.1TaiwanMarch                VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT304484.1NewHampshireFebruary       VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
```

```
MT276330.1FloridaFebruary            VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT276323.1RhodeIslandFebruary        VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT325629.1MassachusettsMArch         VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT325627.1NewYorkMarch               VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT325622.1NewJerseyMarch             VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT325621.1IowaMarch                  VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT325610.1UtahMarch                  VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT325605.1RhodeIslandMarch           VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT325604.1PennsylvaniaMarch          VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT325598.1OhioMarch                  VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT325595.1NewHampshireMarch          VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT325588.1MontanaMarch               VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT325587.1MarylandMarch              VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT325581.1LouisianaMarch             VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT325580.1KansasMarch                VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT325579.1IndianaMarch               VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT308700.1MichiganMarch              VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT304478.1FLoridaMarch               VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT304477.1ArizonaMarch               VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT304491.1TexasMarch                 VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT192765.1CaliforniaMarch            VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT251974.1ConnecticutMarch           VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT358744.1WashingtonStateApril       VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT365033.1NewYorkApril               VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT415909.1VirginiaApril              VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT415320.1IndiaMarch                 VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT327745.1TurkiyeMarch               VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT325597.1NevadaMarch                VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT020781.2FinlandJanuary             VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT039890.1SouthKoreaJanuary          VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT007544.1AustraliaJanuary           VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT093571.1SwedenFebruary             VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT304487.1OregonMarch                VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT188341.1MinnesotaMarch             VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT230904.1HongKongJanuary            VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT350282.1BrazilMarch                VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT325578.1IllinoisMarch              VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT325591.1NorthCarolinaMarch         VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT325593.1NebraskaMarch              VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT325625.1SouthCarolinaMarch         VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT325628.1VirginiaMarch              VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT163716.1WashingtonStateFebru       VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT276324.1CaliforniaFebruary         VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT276326.1GeorgiaFebruary            VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT276328.1OregonFebruary             VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT039887.1WisconsinJanuary           VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT039888.1MassachusettsJanuary       VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MN994468.1CaliforniaJanuary          VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MN997409.1ArizonaJanuary             VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MN988713.1IllinoisJanuary            VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT233526.1WashingtonStateJanua       VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT192773.1VietNamJanuary             VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT066175.1TaiwanJanuary              VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT066176.1TaiwanFebruary             VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT371050.1SriLankaMarch              VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT233519.1SpainFebruary              VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT304476.1SouthKoreaFebruary         VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT240479.1PakistanMArch              VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT072688.1NepalJanuary               VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
LC529905.1JapanJanuary               VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
LC542976.1JapanFebruary              VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
LC542809.1JapanMarch                 VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
```

```
MT077125.1ItalyJanuary              VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT276597.1IsraelFebruary            VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT320891.2IranMarch                 VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
LC528233.1CruseShipFebruary         VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT256924.2ColombiaMarch             VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT126808.1BrazilFebruary            VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT372481.1MalaysiaMarch             VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT396241.1ChinaMarch                VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT291831.1ChinaBeijingJanuary       VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT291830.1ChinaWuhanDec2019         VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT434757.1IndiaApril                VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT019529.1WuhanFirstIsolateDec      VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
MT012098.1IndiaJanuary              VLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITP
                                    **************************************************

MT304489.1TexasFebruary             GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFXTRAGCL
MT325575.1GeorgiaMarch              GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT344949.1HawaiiMarch               GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT246472.1WashingtonStateMarch      GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT318827.1GermanyMarch              GTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT396266.1NetherlandsApril          GTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT263074.1PeruMarch                 GTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT300186.2NorthCarolinaApril        GTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT371574.1CzechRepublicMarch        GTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT320538.2FranceMarch               GTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT328035.1GreeceMarch               GTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT276598.1IsraelMarch               GTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT359231.1SerbiaApril               GTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT324062.1SouthAfricaMarch          GTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT359866.1SpainMarch                GTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT374112.1TaiwanMarch               GTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT304484.1NewHampshireFebruary      GTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT276330.1FloridaFebruary           GTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT276323.1RhodeIslandFebruary       GTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT325629.1MassachusettsMArch        GTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT325627.1NewYorkMarch              GTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT325622.1NewJerseyMarch            GTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT325621.1IowaMarch                 GTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT325610.1UtahMarch                 GTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT325605.1RhodeIslandMarch          GTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT325604.1PennsylvaniaMarch         GTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT325598.1OhioMarch                 GTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT325595.1NewHampshireMarch         GTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT325588.1MontanaMarch              GTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT325587.1MarylandMarch             GTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT325581.1LouisianaMarch            GTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT325580.1KansasMarch               GTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT325579.1IndianaMarch              GTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT308700.1MichiganMarch             GTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT304478.1FLoridaMarch              GTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT304477.1ArizonaMarch              GTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT304491.1TexasMarch                GTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT192765.1CaliforniaMarch           GTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT251974.1ConnecticutMarch          GTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT358744.1WashingtonStateApril      GTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT365033.1NewYorkApril              GTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT415909.1VirginiaApril             GTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT415320.1IndiaMarch                GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT327745.1TurkiyeMarch              GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT325597.1NevadaMarch               GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT020781.2FinlandJanuary            GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT039890.1SouthKoreaJanuary         GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
```

```
MT007544.1AustraliaJanuary          GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT093571.1SwedenFebruary            GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT304487.1OregonMarch               GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT188341.1MinnesotaMarch            GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT230904.1HongKongJanuary           GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT350282.1BrazilMarch               GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT325578.1IllinoisMarch             GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT325591.1NorthCarolinaMarch        GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT325593.1NebraskaMarch             GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT325625.1SouthCarolinaMarch        GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT325628.1VirginiaMarch             GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT163716.1WashingtonStateFebru      GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT276324.1CaliforniaFebruary        GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT276326.1GeorgiaFebruary           GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT276328.1OregonFebruary            GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT039887.1WisconsinJanuary          GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT039888.1MassachusettsJanuary      GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MN994468.1CaliforniaJanuary         GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MN997409.1ArizonaJanuary            GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MN988713.1IllinoisJanuary           GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT233526.1WashingtonStateJanua      GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT192773.1VietNamJanuary            GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT066175.1TaiwanJanuary             GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT066176.1TaiwanFebruary            GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT371050.1SriLankaMarch             GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT233519.1SpainFebruary             GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT304476.1SouthKoreaFebruary        GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT240479.1PakistanMArch             GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT072688.1NepalJanuary              GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
LC529905.1JapanJanuary              GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
LC542976.1JapanFebruary             GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
LC542809.1JapanMarch                GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT077125.1ItalyJanuary              GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT276597.1IsraelFebruary            GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT320891.2IranMarch                 GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
LC528233.1CruseShipFebruary         GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT256924.2ColombiaMarch             GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT126808.1BrazilFebruary            GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT372481.1MalaysiaMarch             GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT396241.1ChinaMarch                GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT291831.1ChinaBeijingJanuary       GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT291830.1ChinaWuhanDec2019         GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT434757.1IndiaApril                GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT019529.1WuhanFirstIsolateDec      GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
MT012098.1IndiaJanuary              GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCL
                                    ************.*************************** ******

MT304489.1TexasFebruary             IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT325575.1GeorgiaMarch              IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT344949.1HawaiiMarch               IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT246472.1WashingtonStateMarch      IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT318827.1GermanyMarch              IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT396266.1NetherlandsApril          IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT263074.1PeruMarch                 IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT300186.2NorthCarolinaApril        IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT371574.1CzechRepublicMarch        IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT320538.2FranceMarch               IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT328035.1GreeceMarch               IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT276598.1IsraelMarch               IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT359231.1SerbiaApril               IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT324062.1SouthAfricaMarch          IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT359866.1SpainMarch                IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
```

```
MT374112.1TaiwanMarch                IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT304484.1NewHampshireFebruary       IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT276330.1FloridaFebruary            IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT276323.1RhodeIslandFebruary        IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT325629.1MassachusettsMArch         IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT325627.1NewYorkMarch               IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT325622.1NewJerseyMarch             IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT325621.1IowaMarch                  IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT325610.1UtahMarch                  IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT325605.1RhodeIslandMarch           IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT325604.1PennsylvaniaMarch          IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT325598.1OhioMarch                  IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT325595.1NewHampshireMarch          IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT325588.1MontanaMarch               IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT325587.1MarylandMarch              IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT325581.1LouisianaMarch             IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT325580.1KansasMarch                IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT325579.1IndianaMarch               IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT308700.1MichiganMarch              IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT304478.1FLoridaMarch               IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT304477.1ArizonaMarch               IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT304491.1TexasMarch                 IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT192765.1CaliforniaMarch            IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT251974.1ConnecticutMarch           IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT358744.1WashingtonStateApril       IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT365033.1NewYorkApril               IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT415909.1VirginiaApril              IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT415320.1IndiaMarch                 IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT327745.1TurkiyeMarch               IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT325597.1NevadaMarch                IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT020781.2FinlandJanuary             IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT039890.1SouthKoreaJanuary          IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT007544.1AustraliaJanuary           IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT093571.1SwedenFebruary             IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT304487.1OregonMarch                IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT188341.1MinnesotaMarch             IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT230904.1HongKongJanuary            IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT350282.1BrazilMarch                IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT325578.1IllinoisMarch              IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT325591.1NorthCarolinaMarch         IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT325593.1NebraskaMarch              IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT325625.1SouthCarolinaMarch         IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT325628.1VirginiaMarch              IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT163716.1WashingtonStateFebru       IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT276324.1CaliforniaFebruary         IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT276326.1GeorgiaFebruary            IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT276328.1OregonFebruary             IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT039887.1WisconsinJanuary           IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT039888.1MassachusettsJanuary       IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MN994468.1CaliforniaJanuary          IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MN997409.1ArizonaJanuary             IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MN988713.1IllinoisJanuary            IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT233526.1WashingtonStateJanua       IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT192773.1VietNamJanuary             IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT066175.1TaiwanJanuary              IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT066176.1TaiwanFebruary             IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT371050.1SriLankaMarch              IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT233519.1SpainFebruary              IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT304476.1SouthKoreaFebruary         IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT240479.1PakistanMArch              IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT072688.1NepalJanuary               IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
LC529905.1JapanJanuary               IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
```

```
LC542976.1JapanFebruary              IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
LC542809.1JapanMarch                 IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT077125.1ItalyJanuary               IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT276597.1IsraelFebruary             IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT320891.2IranMarch                  IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
LC528233.1CruseShipFebruary          IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT256924.2ColombiaMarch              IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT126808.1BrazilFebruary             IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT372481.1MalaysiaMarch              IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT396241.1ChinaMarch                 IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT291831.1ChinaBeijingJanuary        IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT291830.1ChinaWuhanDec2019          IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT434757.1IndiaApril                 IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT019529.1WuhanFirstIsolateDec       IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
MT012098.1IndiaJanuary               IGAEHVNNSYECDIPIGAGICASYQTQTNSPRRARSVASQSIIAYTMSLG
                                     **************************************************

MT304489.1TexasFebruary              AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT325575.1GeorgiaMarch               AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT344949.1HawaiiMarch                AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT246472.1WashingtonStateMarch       AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT318827.1GermanyMarch               AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT396266.1NetherlandsApril           AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT263074.1PeruMarch                  AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT300186.2NorthCarolinaApril         AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT371574.1CzechRepublicMarch         AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT320538.2FranceMarch                AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT328035.1GreeceMarch                AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT276598.1IsraelMarch                AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT359231.1SerbiaApril                AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT324062.1SouthAfricaMarch           AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT359866.1SpainMarch                 AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT374112.1TaiwanMarch                AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT304484.1NewHampshireFebruary       AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT276330.1FloridaFebruary            AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT276323.1RhodeIslandFebruary        AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT325629.1MassachusettsMArch         AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT325627.1NewYorkMarch               AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT325622.1NewJerseyMarch             AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT325621.1IowaMarch                  AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT325610.1UtahMarch                  AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT325605.1RhodeIslandMarch           AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT325604.1PennsylvaniaMarch          AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT325598.1OhioMarch                  AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT325595.1NewHampshireMarch          AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT325588.1MontanaMarch               AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT325587.1MarylandMarch              AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT325581.1LouisianaMarch             AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT325580.1KansasMarch                AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT325579.1IndianaMarch               AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT308700.1MichiganMarch              AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT304478.1FLoridaMarch               AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT304477.1ArizonaMarch               AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT304491.1TexasMarch                 AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT192765.1CaliforniaMarch            AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT251974.1ConnecticutMarch           AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT358744.1WashingtonStateApril       AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT365033.1NewYorkApril               AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT415909.1VirginiaApril              AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT415320.1IndiaMarch                 AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT327745.1TurkiyeMarch               AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT325597.1NevadaMarch                AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
```

```
MT020781.2FinlandJanuary            AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT039890.1SouthKoreaJanuary         AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT007544.1AustraliaJanuary          AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT093571.1SwedenFebruary            AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT304487.1OregonMarch               AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT188341.1MinnesotaMarch            AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT230904.1HongKongJanuary           AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT350282.1BrazilMarch               AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT325578.1IllinoisMarch             AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT325591.1NorthCarolinaMarch        AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT325593.1NebraskaMarch             AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT325625.1SouthCarolinaMarch        AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT325628.1VirginiaMarch             AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT163716.1WashingtonStateFebru      AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT276324.1CaliforniaFebruary        AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT276326.1GeorgiaFebruary           AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT276328.1OregonFebruary            AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT039887.1WisconsinJanuary          AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT039888.1MassachusettsJanuary      AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MN994468.1CaliforniaJanuary         AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MN997409.1ArizonaJanuary            AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MN988713.1IllinoisJanuary           AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT233526.1WashingtonStateJanua      AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT192773.1VietNamJanuary            AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT066175.1TaiwanJanuary             AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT066176.1TaiwanFebruary            AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT371050.1SriLankaMarch             AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT233519.1SpainFebruary             AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT304476.1SouthKoreaFebruary        AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT240479.1PakistanMArch             AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT072688.1NepalJanuary              AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
LC529905.1JapanJanuary              AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
LC542976.1JapanFebruary             AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
LC542809.1JapanMarch                AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT077125.1ItalyJanuary              AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT276597.1IsraelFebruary            AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT320891.2IranMarch                 AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
LC528233.1CruseShipFebruary         AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT256924.2ColombiaMarch             AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT126808.1BrazilFebruary            AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT372481.1MalaysiaMarch             AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT396241.1ChinaMarch                AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT291831.1ChinaBeijingJanuary       AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT291830.1ChinaWuhanDec2019         AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT434757.1IndiaApril                AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT019529.1WuhanFirstIsolateDec      AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
MT012098.1IndiaJanuary              AENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTECS
                                    **********************************************

MT304489.1TexasFebruary             NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT325575.1GeorgiaMarch              NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT344949.1HawaiiMarch               NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT246472.1WashingtonStateMarch      NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT318827.1GermanyMarch              NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT396266.1NetherlandsApril          NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT263074.1PeruMarch                 NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT300186.2NorthCarolinaApril        NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT371574.1CzechRepublicMarch        NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT320538.2FranceMarch               NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT328035.1GreeceMarch               NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT276598.1IsraelMarch               NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT359231.1SerbiaApril               NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
```

```
MT324062.1SouthAfricaMarch          NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT359866.1SpainMarch                NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT374112.1TaiwanMarch               NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT304484.1NewHampshireFebruary      NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT276330.1FloridaFebruary           NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT276323.1RhodeIslandFebruary       NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT325629.1MassachusettsMArch        NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT325627.1NewYorkMarch              NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT325622.1NewJerseyMarch            NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT325621.1IowaMarch                 NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT325610.1UtahMarch                 NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT325605.1RhodeIslandMarch          NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT325604.1PennsylvaniaMarch         NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT325598.1OhioMarch                 NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT325595.1NewHampshireMarch          NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT325588.1MontanaMarch              NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT325587.1MarylandMarch             NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT325581.1LouisianaMarch            NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT325580.1KansasMarch               NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT325579.1IndianaMarch              NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT308700.1MichiganMarch             NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT304478.1FLoridaMarch              NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT304477.1ArizonaMarch              NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT304491.1TexasMarch                NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT192765.1CaliforniaMarch            NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT251974.1ConnecticutMarch          NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT358744.1WashingtonStateApril      NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT365033.1NewYorkApril              NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT415909.1VirginiaApril             NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT415320.1IndiaMarch                NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT327745.1TurkiyeMarch              NLLLQYGSFCTQLNRALTGIAIEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT325597.1NevadaMarch               NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT020781.2FinlandJanuary            NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT039890.1SouthKoreaJanuary         NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT007544.1AustraliaJanuary          NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT093571.1SwedenFebruary            NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDCGGF
MT304487.1OregonMarch               NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT188341.1MinnesotaMarch            NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT230904.1HongKongJanuary           NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT350282.1BrazilMarch               NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT325578.1IllinoisMarch             NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT325591.1NorthCarolinaMarch        NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT325593.1NebraskaMarch             NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT325625.1SouthCarolinaMarch        NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT325628.1VirginiaMarch             NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT163716.1WashingtonStateFebru      NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT276324.1CaliforniaFebruary        NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT276326.1GeorgiaFebruary           NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT276328.1OregonFebruary            NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT039887.1WisconsinJanuary          NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT039888.1MassachusettsJanuary      NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MN994468.1CaliforniaJanuary         NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MN997409.1ArizonaJanuary            NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MN988713.1IllinoisJanuary           NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT233526.1WashingtonStateJanua      NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT192773.1VietNamJanuary            NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT066175.1TaiwanJanuary             NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT066176.1TaiwanFebruary            NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT371050.1SriLankaMarch             NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT233519.1SpainFebruary             NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT304476.1SouthKoreaFebruary        NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT240479.1PakistanMArch             NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
```

```
MT072688.1NepalJanuary              NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
LC529905.1JapanJanuary              NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
LC542976.1JapanFebruary             NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
LC542809.1JapanMarch                NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT077125.1ItalyJanuary              NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT276597.1IsraelFebruary            NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT320891.2IranMarch                 NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
LC528233.1CruseShipFebruary         NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT256924.2ColombiaMarch             NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT126808.1BrazilFebruary            NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT372481.1MalaysiaMarch             NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT396241.1ChinaMarch                NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT291831.1ChinaBeijingJanuary       NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT291830.1ChinaWuhanDec2019         NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT434757.1IndiaApril                NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT019529.1WuhanFirstIsolateDec      NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
MT012098.1IndiaJanuary              NLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF
                                    ********************:********************** ***

MT304489.1TexasFebruary             NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT325575.1GeorgiaMarch              NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT344949.1HawaiiMarch               NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT246472.1WashingtonStateMarch      NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT318827.1GermanyMarch              NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT396266.1NetherlandsApril          NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT263074.1PeruMarch                 NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT300186.2NorthCarolinaApril        NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT371574.1CzechRepublicMarch        NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT320538.2FranceMarch               NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT328035.1GreeceMarch               NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT276598.1IsraelMarch               NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT359231.1SerbiaApril               NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT324062.1SouthAfricaMarch          NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT359866.1SpainMarch                NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT374112.1TaiwanMarch               NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT304484.1NewHampshireFebruary      NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT276330.1FloridaFebruary           NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT276323.1RhodeIslandFebruary       NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT325629.1MassachusettsMArch        NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT325627.1NewYorkMarch              NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT325622.1NewJerseyMarch            NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT325621.1IowaMarch                 NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT325610.1UtahMarch                 NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT325605.1RhodeIslandMarch          NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT325604.1PennsylvaniaMarch         NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT325598.1OhioMarch                 NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT325595.1NewHampshireMarch         NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT325588.1MontanaMarch              NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT325587.1MarylandMarch             NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT325581.1LouisianaMarch            NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT325580.1KansasMarch               NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT325579.1IndianaMarch              NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT308700.1MichiganMarch             NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT304478.1FLoridaMarch              NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT304477.1ArizonaMarch              NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT304491.1TexasMarch                NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT192765.1CaliforniaMarch           NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT251974.1ConnecticutMarch          NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT358744.1WashingtonStateApril      NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT365033.1NewYorkApril              NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT415909.1VirginiaApril             NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT415320.1IndiaMarch                NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
```

```
MT327745.1TurkiyeMarch              NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT325597.1NevadaMarch               NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT020781.2FinlandJanuary            NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT039890.1SouthKoreaJanuary         NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT007544.1AustraliaJanuary          NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT093571.1SwedenFebruary            NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT304487.1OregonMarch               NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT188341.1MinnesotaMarch            NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT230904.1HongKongJanuary           NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT350282.1BrazilMarch               NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT325578.1IllinoisMarch             NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT325591.1NorthCarolinaMarch        NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT325593.1NebraskaMarch             NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT325625.1SouthCarolinaMarch        NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT325628.1VirginiaMarch             NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT163716.1WashingtonStateFebru      NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT276324.1CaliforniaFebruary        NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT276326.1GeorgiaFebruary           NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT276328.1OregonFebruary            NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT039887.1WisconsinJanuary          NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT039888.1MassachusettsJanuary      NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MN994468.1CaliforniaJanuary         NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MN997409.1ArizonaJanuary            NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MN988713.1IllinoisJanuary           NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT233526.1WashingtonStateJanua      NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT192773.1VietNamJanuary            NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT066175.1TaiwanJanuary             NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT066176.1TaiwanFebruary            NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT371050.1SriLankaMarch             NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT233519.1SpainFebruary             NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT304476.1SouthKoreaFebruary        NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT240479.1PakistanMArch             NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT072688.1NepalJanuary              NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
LC529905.1JapanJanuary              NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
LC542976.1JapanFebruary             NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
LC542809.1JapanMarch                NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT077125.1ItalyJanuary              NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT276597.1IsraelFebruary            NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT320891.2IranMarch                 NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
LC528233.1CruseShipFebruary         NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT256924.2ColombiaMarch             NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT126808.1BrazilFebruary            NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT372481.1MalaysiaMarch             NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT396241.1ChinaMarch                NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT291831.1ChinaBeijingJanuary       NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT291830.1ChinaWuhanDec2019         NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT434757.1IndiaApril                NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT019529.1WuhanFirstIsolateDec      NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
MT012098.1IndiaJanuary              NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLI
                                    **************************************************

MT304489.1TexasFebruary             CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT325575.1GeorgiaMarch              CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT344949.1HawaiiMarch               CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT246472.1WashingtonStateMarch      CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT318827.1GermanyMarch              CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT396266.1NetherlandsApril          CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT263074.1PeruMarch                 CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT300186.2NorthCarolinaApril        CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT371574.1CzechRepublicMarch        CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT320538.2FranceMarch               CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT328035.1GreeceMarch               CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
```

```
MT276598.1IsraelMarch                CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT359231.1SerbiaApril                CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT324062.1SouthAfricaMarch           CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT359866.1SpainMarch                 CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT374112.1TaiwanMarch                CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT304484.1NewHampshireFebruary       CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT276330.1FloridaFebruary            CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT276323.1RhodeIslandFebruary        CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT325629.1MassachusettsMArch         CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT325627.1NewYorkMarch               CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT325622.1NewJerseyMarch             CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT325621.1IowaMarch                  CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT325610.1UtahMarch                  CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT325605.1RhodeIslandMarch           CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT325604.1PennsylvaniaMarch          CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT325598.1OhioMarch                  CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT325595.1NewHampshireMarch          CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT325588.1MontanaMarch               CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT325587.1MarylandMarch              CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT325581.1LouisianaMarch             CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT325580.1KansasMarch                CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT325579.1IndianaMarch               CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT308700.1MichiganMarch              CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT304478.1FLoridaMarch               CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT304477.1ArizonaMarch               CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT304491.1TexasMarch                 CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT192765.1CaliforniaMarch             CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT251974.1ConnecticutMarch           CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT358744.1WashingtonStateApril       CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT365033.1NewYorkApril               CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT415909.1VirginiaApril              CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT415320.1IndiaMarch                 CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT327745.1TurkiyeMarch               CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT325597.1NevadaMarch                CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT020781.2FinlandJanuary             CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT039890.1SouthKoreaJanuary          CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT007544.1AustraliaJanuary           CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT093571.1SwedenFebruary             CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT304487.1OregonMarch                CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT188341.1MinnesotaMarch             CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT230904.1HongKongJanuary            CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT350282.1BrazilMarch                CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT325578.1IllinoisMarch              CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT325591.1NorthCarolinaMarch         CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT325593.1NebraskaMarch              CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT325625.1SouthCarolinaMarch         CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT325628.1VirginiaMarch              CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT163716.1WashingtonStateFebru       CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT276324.1CaliforniaFebruary         CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT276326.1GeorgiaFebruary            CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT276328.1OregonFebruary             CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT039887.1WisconsinJanuary           CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT039888.1MassachusettsJanuary       CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MN994468.1CaliforniaJanuary          CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MN997409.1ArizonaJanuary             CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MN988713.1IllinoisJanuary            CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT233526.1WashingtonStateJanua       CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT192773.1VietNamJanuary             CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT066175.1TaiwanJanuary              CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT066176.1TaiwanFebruary             CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT371050.1SriLankaMarch              CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT233519.1SpainFebruary              CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
```

```
MT304476.1SouthKoreaFebruary        CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT240479.1PakistanMArch             CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT072688.1NepalJanuary              CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
LC529905.1JapanJanuary              CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
LC542976.1JapanFebruary             CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
LC542809.1JapanMarch                CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT077125.1ItalyJanuary              CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT276597.1IsraelFebruary            CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT320891.2IranMarch                 CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
LC528233.1CruseShipFebruary         CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT256924.2ColombiaMarch             CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT126808.1BrazilFebruary            CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT372481.1MalaysiaMarch             CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT396241.1ChinaMarch                CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT291831.1ChinaBeijingJanuary       CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT291830.1ChinaWuhanDec2019         CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT434757.1IndiaApril                CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT019529.1WuhanFirstIsolateDec      CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
MT012098.1IndiaJanuary              CAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAM
                                    **************************************************

MT304489.1TexasFebruary             QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT325575.1GeorgiaMarch              QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT344949.1HawaiiMarch               QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT246472.1WashingtonStateMarch      QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT318827.1GermanyMarch              QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT396266.1NetherlandsApril          QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT263074.1PeruMarch                 QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT300186.2NorthCarolinaApril        QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT371574.1CzechRepublicMarch        QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT320538.2FranceMarch               QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT328035.1GreeceMarch               QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT276598.1IsraelMarch               QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT359231.1SerbiaApril               QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT324062.1SouthAfricaMarch          QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT359866.1SpainMarch                QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT374112.1TaiwanMarch               QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT304484.1NewHampshireFebruary      QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT276330.1FloridaFebruary           QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT276323.1RhodeIslandFebruary       QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT325629.1MassachusettsMArch        QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT325627.1NewYorkMarch              QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT325622.1NewJerseyMarch            QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT325621.1IowaMarch                 QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT325610.1UtahMarch                 QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT325605.1RhodeIslandMarch          QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT325604.1PennsylvaniaMarch         QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT325598.1OhioMarch                 QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT325595.1NewHampshireMarch          QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT325588.1MontanaMarch              QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT325587.1MarylandMarch             QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT325581.1LouisianaMarch            QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT325580.1KansasMarch               QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT325579.1IndianaMarch              QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT308700.1MichiganMarch             QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT304478.1FLoridaMarch              QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT304477.1ArizonaMarch              QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT304491.1TexasMarch                QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT192765.1CaliforniaMarch            QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT251974.1ConnecticutMarch          QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT358744.1WashingtonStateApril      QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT365033.1NewYorkApril              QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
```

```
MT415909.1VirginiaApril             QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT415320.1IndiaMarch                QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT327745.1TurkiyeMarch              QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT325597.1NevadaMarch               QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT020781.2FinlandJanuary            QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT039890.1SouthKoreaJanuary         QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT007544.1AustraliaJanuary          QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT093571.1SwedenFebruary            QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT304487.1OregonMarch               QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT188341.1MinnesotaMarch            QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT230904.1HongKongJanuary           QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT350282.1BrazilMarch               QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT325578.1IllinoisMarch             QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT325591.1NorthCarolinaMarch        QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT325593.1NebraskaMarch             QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT325625.1SouthCarolinaMarch        QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT325628.1VirginiaMarch             QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT163716.1WashingtonStateFebru      QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT276324.1CaliforniaFebruary        QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT276326.1GeorgiaFebruary           QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT276328.1OregonFebruary            QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT039887.1WisconsinJanuary          QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT039888.1MassachusettsJanuary      QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MN994468.1CaliforniaJanuary         QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MN997409.1ArizonaJanuary            QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MN988713.1IllinoisJanuary           QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT233526.1WashingtonStateJanua      QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT192773.1VietNamJanuary            QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT066175.1TaiwanJanuary             QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT066176.1TaiwanFebruary            QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT371050.1SriLankaMarch             QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT233519.1SpainFebruary             QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT304476.1SouthKoreaFebruary        QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT240479.1PakistanMArch             QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT072688.1NepalJanuary              QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
LC529905.1JapanJanuary              QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
LC542976.1JapanFebruary             QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
LC542809.1JapanMarch                QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT077125.1ItalyJanuary              QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT276597.1IsraelFebruary            QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT320891.2IranMarch                 QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
LC528233.1CruseShipFebruary         QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT256924.2ColombiaMarch             QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT126808.1BrazilFebruary            QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT372481.1MalaysiaMarch             QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT396241.1ChinaMarch                QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT291831.1ChinaBeijingJanuary       QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT291830.1ChinaWuhanDec2019         QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT434757.1IndiaApril                QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT019529.1WuhanFirstIsolateDec      QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
MT012098.1IndiaJanuary              QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQD
                                    **********************************************

MT304489.1TexasFebruary             VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT325575.1GeorgiaMarch              VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT344949.1HawaiiMarch               VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT246472.1WashingtonStateMarch      VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT318827.1GermanyMarch              VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT396266.1NetherlandsApril          VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT263074.1PeruMarch                 VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT300186.2NorthCarolinaApril        VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT371574.1CzechRepublicMarch        VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
```

```
MT320538.2FranceMarch                VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT328035.1GreeceMarch                VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT276598.1IsraelMarch                VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT359231.1SerbiaApril                VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT324062.1SouthAfricaMarch           VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT359866.1SpainMarch                 VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT374112.1TaiwanMarch                VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT304484.1NewHampshireFebruary       VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT276330.1FloridaFebruary            VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT276323.1RhodeIslandFebruary        VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT325629.1MassachusettsMArch         VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT325627.1NewYorkMarch               VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT325622.1NewJerseyMarch             VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT325621.1IowaMarch                  VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT325610.1UtahMarch                  VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT325605.1RhodeIslandMarch           VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT325604.1PennsylvaniaMarch          VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT325598.1OhioMarch                  VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT325595.1NewHampshireMarch          VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT325588.1MontanaMarch               VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT325587.1MarylandMarch              VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT325581.1LouisianaMarch             VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT325580.1KansasMarch                VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT325579.1IndianaMarch               VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT308700.1MichiganMarch              VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT304478.1FLoridaMarch               VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT304477.1ArizonaMarch               VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT304491.1TexasMarch                 VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT192765.1CaliforniaMarch             VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT251974.1ConnecticutMarch           VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT358744.1WashingtonStateApril       VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT365033.1NewYorkApril               VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT415909.1VirginiaApril              VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT415320.1IndiaMarch                 VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT327745.1TurkiyeMarch               VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT325597.1NevadaMarch                VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT020781.2FinlandJanuary             VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT039890.1SouthKoreaJanuary          VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT007544.1AustraliaJanuary           VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT093571.1SwedenFebruary             VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT304487.1OregonMarch                VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT188341.1MinnesotaMarch             VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT230904.1HongKongJanuary            VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT350282.1BrazilMarch                VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT325578.1IllinoisMarch              VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT325591.1NorthCarolinaMarch         VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT325593.1NebraskaMarch              VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT325625.1SouthCarolinaMarch         VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT325628.1VirginiaMarch              VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT163716.1WashingtonStateFebru       VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT276324.1CaliforniaFebruary          VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT276326.1GeorgiaFebruary            VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT276328.1OregonFebruary             VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT039887.1WisconsinJanuary           VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT039888.1MassachusettsJanuary       VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MN994468.1CaliforniaJanuary          VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MN997409.1ArizonaJanuary             VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MN988713.1IllinoisJanuary            VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT233526.1WashingtonStateJanua       VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT192773.1VietNamJanuary             VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT066175.1TaiwanJanuary              VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT066176.1TaiwanFebruary             VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
```

```
MT371050.1SriLankaMarch             VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT233519.1SpainFebruary             VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT304476.1SouthKoreaFebruary        VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT240479.1PakistanMArch             VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT072688.1NepalJanuary              VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
LC529905.1JapanJanuary              VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
LC542976.1JapanFebruary             VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
LC542809.1JapanMarch                VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT077125.1ItalyJanuary              VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT276597.1IsraelFebruary            VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT320891.2IranMarch                 VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
LC528233.1CruseShipFebruary         VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT256924.2ColombiaMarch             VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT126808.1BrazilFebruary            VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT372481.1MalaysiaMarch             VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT396241.1ChinaMarch                VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT291831.1ChinaBeijingJanuary       VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT291830.1ChinaWuhanDec2019         VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT434757.1IndiaApril                VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT019529.1WuhanFirstIsolateDec      VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
MT012098.1IndiaJanuary              VVNQNAQALNTLVKQLSSNFGAISSVLNDILSRLDKVEAEVQIDRLITGR
                                    **********************************************

MT304489.1TexasFebruary             LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT325575.1GeorgiaMarch              LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT344949.1HawaiiMarch               LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT246472.1WashingtonStateMarch      LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT318827.1GermanyMarch              LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT396266.1NetherlandsApril          LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT263074.1PeruMarch                 LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT300186.2NorthCarolinaApril        LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT371574.1CzechRepublicMarch        LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT320538.2FranceMarch               LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT328035.1GreeceMarch               LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT276598.1IsraelMarch               LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT359231.1SerbiaApril               LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT324062.1SouthAfricaMarch          LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT359866.1SpainMarch                LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT374112.1TaiwanMarch               LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT304484.1NewHampshireFebruary      LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT276330.1FloridaFebruary           LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT276323.1RhodeIslandFebruary       LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT325629.1MassachusettsMArch        LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT325627.1NewYorkMarch              LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT325622.1NewJerseyMarch            LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT325621.1IowaMarch                 LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT325610.1UtahMarch                 LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT325605.1RhodeIslandMarch          LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT325604.1PennsylvaniaMarch         LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT325598.1OhioMarch                 LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT325595.1NewHampshireMarch         LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT325588.1MontanaMarch              LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT325587.1MarylandMarch             LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT325581.1LouisianaMarch            LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT325580.1KansasMarch               LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT325579.1IndianaMarch              LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT308700.1MichiganMarch             LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT304478.1FLoridaMarch              LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT304477.1ArizonaMarch              LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT304491.1TexasMarch                LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT192765.1CaliforniaMarch           LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT251974.1ConnecticutMarch          LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
```

```
MT358744.1WashingtonStateApril      LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT365033.1NewYorkApril              LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT415909.1VirginiaApril             LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT415320.1IndiaMarch                LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT327745.1TurkiyeMarch              LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT325597.1NevadaMarch               LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT020781.2FinlandJanuary            LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT039890.1SouthKoreaJanuary         LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT007544.1AustraliaJanuary          LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT093571.1SwedenFebruary            LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT304487.1OregonMarch               LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT188341.1MinnesotaMarch            LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT230904.1HongKongJanuary           LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT350282.1BrazilMarch               LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT325578.1IllinoisMarch             LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT325591.1NorthCarolinaMarch        LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT325593.1NebraskaMarch             LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT325625.1SouthCarolinaMarch        LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT325628.1VirginiaMarch             LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT163716.1WashingtonStateFebru      LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT276324.1CaliforniaFebruary        LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT276326.1GeorgiaFebruary           LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT276328.1OregonFebruary            LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT039887.1WisconsinJanuary          LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT039888.1MassachusettsJanuary      LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MN994468.1CaliforniaJanuary         LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MN997409.1ArizonaJanuary            LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MN988713.1IllinoisJanuary           LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT233526.1WashingtonStateJanua      LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT192773.1VietNamJanuary            LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT066175.1TaiwanJanuary             LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT066176.1TaiwanFebruary            LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT371050.1SriLankaMarch             LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT233519.1SpainFebruary             LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT304476.1SouthKoreaFebruary        LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT240479.1PakistanMArch             LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT072688.1NepalJanuary              LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
LC529905.1JapanJanuary              LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
LC542976.1JapanFebruary             LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
LC542809.1JapanMarch                LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT077125.1ItalyJanuary              LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT276597.1IsraelFebruary            LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT320891.2IranMarch                 LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
LC528233.1CruseShipFebruary         LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT256924.2ColombiaMarch             LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT126808.1BrazilFebruary            LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT372481.1MalaysiaMarch             LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT396241.1ChinaMarch                LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT291831.1ChinaBeijingJanuary       LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT291830.1ChinaWuhanDec2019         LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT434757.1IndiaApril                LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT019529.1WuhanFirstIsolateDec      LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
MT012098.1IndiaJanuary              LQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYHLM
                                    **************************************************

MT304489.1TexasFebruary             SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT325575.1GeorgiaMarch              SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT344949.1HawaiiMarch               SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT246472.1WashingtonStateMarch      SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT318827.1GermanyMarch              SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT396266.1NetherlandsApril          SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT263074.1PeruMarch                 SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
```

```
MT300186.2NorthCarolinaApril        SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT371574.1CzechRepublicMarch        SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT320538.2FranceMarch               SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT328035.1GreeceMarch               SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT276598.1IsraelMarch               SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT359231.1SerbiaApril               SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT324062.1SouthAfricaMarch          SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT359866.1SpainMarch                SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT374112.1TaiwanMarch               SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT304484.1NewHampshireFebruary      SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT276330.1FloridaFebruary           SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT276323.1RhodeIslandFebruary       SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT325629.1MassachusettsMArch        SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT325627.1NewYorkMarch              SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT325622.1NewJerseyMarch            SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT325621.1IowaMarch                 SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT325610.1UtahMarch                 SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT325605.1RhodeIslandMarch          SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT325604.1PennsylvaniaMarch         SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT325598.1OhioMarch                 SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT325595.1NewHampshireMarch         SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT325588.1MontanaMarch              SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT325587.1MarylandMarch             SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT325581.1LouisianaMarch            SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT325580.1KansasMarch               SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT325579.1IndianaMarch              SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT308700.1MichiganMarch             SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT304478.1FLoridaMarch              SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT304477.1ArizonaMarch              SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT304491.1TexasMarch                SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT192765.1CaliforniaMarch            SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT251974.1ConnecticutMarch          SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT358744.1WashingtonStateApril      SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT365033.1NewYorkApril              SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT415909.1VirginiaApril             SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT415320.1IndiaMarch                SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT327745.1TurkiyeMarch              SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT325597.1NevadaMarch               SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT020781.2FinlandJanuary            SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT039890.1SouthKoreaJanuary         SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT007544.1AustraliaJanuary          SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT093571.1SwedenFebruary            SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT304487.1OregonMarch               SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT188341.1MinnesotaMarch            SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT230904.1HongKongJanuary           SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT350282.1BrazilMarch               SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT325578.1IllinoisMarch             SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT325591.1NorthCarolinaMarch        SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT325593.1NebraskaMarch             SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT325625.1SouthCarolinaMarch        SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT325628.1VirginiaMarch             SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT163716.1WashingtonStateFebru      SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT276324.1CaliforniaFebruary        SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT276326.1GeorgiaFebruary           SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT276328.1OregonFebruary            SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT039887.1WisconsinJanuary          SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT039888.1MassachusettsJanuary      SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MN994468.1CaliforniaJanuary         SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MN997409.1ArizonaJanuary            SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MN988713.1IllinoisJanuary           SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT233526.1WashingtonStateJanua      SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT192773.1VietNamJanuary            SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
```

```
MT066175.1TaiwanJanuary             SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT066176.1TaiwanFebruary            SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT371050.1SriLankaMarch             SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT233519.1SpainFebruary             SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT304476.1SouthKoreaFebruary        SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT240479.1PakistanMArch             SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT072688.1NepalJanuary              SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
LC529905.1JapanJanuary              SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
LC542976.1JapanFebruary             SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
LC542809.1JapanMarch                SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT077125.1ItalyJanuary              SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT276597.1IsraelFebruary            SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT320891.2IranMarch                 SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
LC528233.1CruseShipFebruary         SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT256924.2ColombiaMarch             SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT126808.1BrazilFebruary            SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT372481.1MalaysiaMarch             SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT396241.1ChinaMarch                SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT291831.1ChinaBeijingJanuary       SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT291830.1ChinaWuhanDec2019         SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT434757.1IndiaApril                SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT019529.1WuhanFirstIsolateDec      SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
MT012098.1IndiaJanuary              SFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPREGVFVSNGT
                                    **************************************************

MT304489.1TexasFebruary             HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT325575.1GeorgiaMarch              HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT344949.1HawaiiMarch               HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT246472.1WashingtonStateMarch      HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT318827.1GermanyMarch              HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT396266.1NetherlandsApril          HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT263074.1PeruMarch                 HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT300186.2NorthCarolinaApril        HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT371574.1CzechRepublicMarch        HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT320538.2FranceMarch               HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT328035.1GreeceMarch               HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT276598.1IsraelMarch               HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT359231.1SerbiaApril               HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT324062.1SouthAfricaMarch          HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT359866.1SpainMarch                HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT374112.1TaiwanMarch               HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT304484.1NewHampshireFebruary      HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT276330.1FloridaFebruary           HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT276323.1RhodeIslandFebruary       HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT325629.1MassachusettsMArch        HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT325627.1NewYorkMarch              HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT325622.1NewJerseyMarch            HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT325621.1IowaMarch                 HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT325610.1UtahMarch                 HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT325605.1RhodeIslandMarch          HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT325604.1PennsylvaniaMarch         HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT325598.1OhioMarch                 HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT325595.1NewHampshireMarch         HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT325588.1MontanaMarch              HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT325587.1MarylandMarch             HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT325581.1LouisianaMarch            HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT325580.1KansasMarch               HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT325579.1IndianaMarch              HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT308700.1MichiganMarch             HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT304478.1FLoridaMarch              HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT304477.1ArizonaMarch              HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT304491.1TexasMarch                HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
```

```
MT192765.1CaliforniaMarch          HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT251974.1ConnecticutMarch         HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT358744.1WashingtonStateApril     HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT365033.1NewYorkApril             HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT415909.1VirginiaApril            HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT415320.1IndiaMarch               HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT327745.1TurkiyeMarch             HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT325597.1NevadaMarch              HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT020781.2FinlandJanuary           HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT039890.1SouthKoreaJanuary        HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT007544.1AustraliaJanuary         HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT093571.1SwedenFebruary           HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT304487.1OregonMarch              HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT188341.1MinnesotaMarch           HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT230904.1HongKongJanuary          HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT350282.1BrazilMarch              HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT325578.1IllinoisMarch            HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT325591.1NorthCarolinaMarch       HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT325593.1NebraskaMarch            HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT325625.1SouthCarolinaMarch       HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT325628.1VirginiaMarch            HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT163716.1WashingtonStateFebru     HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT276324.1CaliforniaFebruary       HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT276326.1GeorgiaFebruary          HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT276328.1OregonFebruary           HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT039887.1WisconsinJanuary         HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT039888.1MassachusettsJanuary     HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MN994468.1CaliforniaJanuary        HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MN997409.1ArizonaJanuary           HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MN988713.1IllinoisJanuary          HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT233526.1WashingtonStateJanua     HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT192773.1VietNamJanuary           HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT066175.1TaiwanJanuary            HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT066176.1TaiwanFebruary           HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT371050.1SriLankaMarch            HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT233519.1SpainFebruary            HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT304476.1SouthKoreaFebruary       HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT240479.1PakistanMArch            HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT072688.1NepalJanuary             HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
LC529905.1JapanJanuary             HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
LC542976.1JapanFebruary            HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
LC542809.1JapanMarch               HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT077125.1ItalyJanuary             HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT276597.1IsraelFebruary           HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT320891.2IranMarch                HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
LC528233.1CruseShipFebruary        HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT256924.2ColombiaMarch            HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT126808.1BrazilFebruary           HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT372481.1MalaysiaMarch            HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT396241.1ChinaMarch               HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT291831.1ChinaBeijingJanuary      HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT291830.1ChinaWuhanDec2019        HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT434757.1IndiaApril               HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT019529.1WuhanFirstIsolateDec     HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
MT012098.1IndiaJanuary             HWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFKE
                                   **********************************************

MT304489.1TexasFebruary            ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT325575.1GeorgiaMarch             ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT344949.1HawaiiMarch              ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT246472.1WashingtonStateMarch     ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT318827.1GermanyMarch             ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
```

```
MT396266.1NetherlandsApril          ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT263074.1PeruMarch                 ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT300186.2NorthCarolinaApril        ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT371574.1CzechRepublicMarch        ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT320538.2FranceMarch               ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT328035.1GreeceMarch               ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT276598.1IsraelMarch               ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT359231.1SerbiaApril               ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT324062.1SouthAfricaMarch          ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT359866.1SpainMarch                ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT374112.1TaiwanMarch               ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT304484.1NewHampshireFebruary      ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT276330.1FloridaFebruary           ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT276323.1RhodeIslandFebruary       ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT325629.1MassachusettsMArch        ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT325627.1NewYorkMarch              ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT325622.1NewJerseyMarch            ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT325621.1IowaMarch                 ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT325610.1UtahMarch                 ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT325605.1RhodeIslandMarch          ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT325604.1PennsylvaniaMarch         ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT325598.1OhioMarch                 ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT325595.1NewHampshireMarch         ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT325588.1MontanaMarch              ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT325587.1MarylandMarch             ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT325581.1LouisianaMarch            ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT325580.1KansasMarch               ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT325579.1IndianaMarch              ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT308700.1MichiganMarch             ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT304478.1FLoridaMarch              ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT304477.1ArizonaMarch              ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT304491.1TexasMarch                ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT192765.1CaliforniaMarch           ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT251974.1ConnecticutMarch          ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT358744.1WashingtonStateApril      ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT365033.1NewYorkApril              ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT415909.1VirginiaApril             ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT415320.1IndiaMarch                ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT327745.1TurkiyeMarch              ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT325597.1NevadaMarch               ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT020781.2FinlandJanuary            ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT039890.1SouthKoreaJanuary         ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT007544.1AustraliaJanuary          ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT093571.1SwedenFebruary            ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT304487.1OregonMarch               ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT188341.1MinnesotaMarch            ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT230904.1HongKongJanuary           ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT350282.1BrazilMarch               ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT325578.1IllinoisMarch             ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT325591.1NorthCarolinaMarch        ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT325593.1NebraskaMarch             ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT325625.1SouthCarolinaMarch        ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT325628.1VirginiaMarch             ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT163716.1WashingtonStateFebru      ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT276324.1CaliforniaFebruary        ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT276326.1GeorgiaFebruary           ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT276328.1OregonFebruary            ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT039887.1WisconsinJanuary          ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT039888.1MassachusettsJanuary      ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MN994468.1CaliforniaJanuary         ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MN997409.1ArizonaJanuary            ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MN988713.1IllinoisJanuary           ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
```

```
MT233526.1WashingtonStateJanua      ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT192773.1VietNamJanuary            ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT066175.1TaiwanJanuary             ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT066176.1TaiwanFebruary            ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT371050.1SriLankaMarch             ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT233519.1SpainFebruary             ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT304476.1SouthKoreaFebruary        ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT240479.1PakistanMArch             ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT072688.1NepalJanuary              ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
LC529905.1JapanJanuary              ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
LC542976.1JapanFebruary             ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
LC542809.1JapanMarch                ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT077125.1ItalyJanuary              ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT276597.1IsraelFebruary            ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT320891.2IranMarch                 ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
LC528233.1CruseShipFebruary         ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT256924.2ColombiaMarch             ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT126808.1BrazilFebruary            ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT372481.1MalaysiaMarch             ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT396241.1ChinaMarch                ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT291831.1ChinaBeijingJanuary       ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT291830.1ChinaWuhanDec2019         ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT434757.1IndiaApril                ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT019529.1WuhanFirstIsolateDec      ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
MT012098.1IndiaJanuary              ELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDL
                                    **************************************************

MT304489.1TexasFebruary             QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT325575.1GeorgiaMarch              QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT344949.1HawaiiMarch               QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT246472.1WashingtonStateMarch      QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT318827.1GermanyMarch              QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT396266.1NetherlandsApril          QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT263074.1PeruMarch                 QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT300186.2NorthCarolinaApril        QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT371574.1CzechRepublicMarch        QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT320538.2FranceMarch               QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT328035.1GreeceMarch               QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT276598.1IsraelMarch               QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT359231.1SerbiaApril               QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT324062.1SouthAfricaMarch          QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT359866.1SpainMarch                QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT374112.1TaiwanMarch               QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT304484.1NewHampshireFebruary      QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT276330.1FloridaFebruary           QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT276323.1RhodeIslandFebruary       QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT325629.1MassachusettsMArch        QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT325627.1NewYorkMarch              QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT325622.1NewJerseyMarch            QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT325621.1IowaMarch                 QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT325610.1UtahMarch                 QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT325605.1RhodeIslandMarch          QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT325604.1PennsylvaniaMarch         QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT325598.1OhioMarch                 QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT325595.1NewHampshireMarch         QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT325588.1MontanaMarch              QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT325587.1MarylandMarch             QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT325581.1LouisianaMarch            QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT325580.1KansasMarch               QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT325579.1IndianaMarch              QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT308700.1MichiganMarch             QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT304478.1FLoridaMarch              QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
```

```
MT304477.1ArizonaMarch              QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT304491.1TexasMarch                QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT192765.1CaliforniaMarch           QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT251974.1ConnecticutMarch          QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT358744.1WashingtonStateApril      QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT365033.1NewYorkApril              QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT415909.1VirginiaApril             QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT415320.1IndiaMarch                QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT327745.1TurkiyeMarch              QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT325597.1NevadaMarch               QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT020781.2FinlandJanuary            QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT039890.1SouthKoreaJanuary         QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT007544.1AustraliaJanuary          QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT093571.1SwedenFebruary            QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT304487.1OregonMarch               QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT188341.1MinnesotaMarch            QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT230904.1HongKongJanuary           QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT350282.1BrazilMarch               QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT325578.1IllinoisMarch             QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT325591.1NorthCarolinaMarch        QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT325593.1NebraskaMarch             QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT325625.1SouthCarolinaMarch        QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT325628.1VirginiaMarch             QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT163716.1WashingtonStateFebru      QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT276324.1CaliforniaFebruary        QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT276326.1GeorgiaFebruary           QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT276328.1OregonFebruary            QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT039887.1WisconsinJanuary          QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT039888.1MassachusettsJanuary      QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MN994468.1CaliforniaJanuary         QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MN997409.1ArizonaJanuary            QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MN988713.1IllinoisJanuary           QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT233526.1WashingtonStateJanua      QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT192773.1VietNamJanuary            QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT066175.1TaiwanJanuary             QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT066176.1TaiwanFebruary            QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT371050.1SriLankaMarch             QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT233519.1SpainFebruary             QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT304476.1SouthKoreaFebruary        QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT240479.1PakistanMArch             QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT072688.1NepalJanuary              QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
LC529905.1JapanJanuary              QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
LC542976.1JapanFebruary             QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
LC542809.1JapanMarch                QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT077125.1ItalyJanuary              QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT276597.1IsraelFebruary            QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT320891.2IranMarch                 QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
LC528233.1CruseShipFebruary         QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT256924.2ColombiaMarch             QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT126808.1BrazilFebruary            QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT372481.1MalaysiaMarch             QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT396241.1ChinaMarch                QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT291831.1ChinaBeijingJanuary       QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT291830.1ChinaWuhanDec2019         QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT434757.1IndiaApril                QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT019529.1WuhanFirstIsolateDec      QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
MT012098.1IndiaJanuary              QELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSC
                                    **********************************************


MT304489.1TexasFebruary             GSCCKFDEDDSEPVLKGVKLHYT
MT325575.1GeorgiaMarch              GSCCKFDEDDSEPVLKGVKLHYT
MT344949.1HawaiiMarch               GSCCKFDEDDSEPVLKGVKLHYT
```

MT246472.1WashingtonStateMarch GSCCKFDEDDSEPVLKGVKLHYT
MT318827.1GermanyMarch GSCCKFDEDDSEPVLKGVKLHYT
MT396266.1NetherlandsApril GSCCKFDEDDSEPVLKGVKLHYT
MT263074.1PeruMarch GSCCKFDEDDSEPVLKGVKLHYT
MT300186.2NorthCarolinaApril GSCCKFDEDDSEPVLKGVKLHYT
MT371574.1CzechRepublicMarch GSCCKFDEDDSEPVLKGVKLHYT
MT320538.2FranceMarch GSCCKFDEDDSEPVLKGVKLHYT
MT328035.1GreeceMarch GSCCKFDEDDSEPVLKGVKLHYT
MT276598.1IsraelMarch GSCCKFDEDDSEPVLKGVKLHYT
MT359231.1SerbiaApril GSCCKFDEDDSEPVLKGVKLHYT
MT324062.1SouthAfricaMarch GSCCKFDEDDSEPVLKGVKLHYT
MT359866.1SpainMarch GSCCKFDEDDSEPVLKGVKLHYT
MT374112.1TaiwanMarch GSCCKFDEDDSEPVLKGVKLHYT
MT304484.1NewHampshireFebruary GSCCKFDEDDSEPVLKGVKLHYT
MT276330.1FloridaFebruary GSCCKFDEDDSEPVLKGVKLHYT
MT276323.1RhodeIslandFebruary GSCCKFDEDDSEPVLKGVKLHYT
MT325629.1MassachusettsMArch GSCCKFDEDDSEPVLKGVKLHYT
MT325627.1NewYorkMarch GSCCKFDEDDSEPVLKGVKLHYT
MT325622.1NewJerseyMarch GSCCKFDEDDSEPVLKGVKLHYT
MT325621.1IowaMarch GSCCKFDEDDSEPVLKGVKLHYT
MT325610.1UtahMarch GSCCKFDEDDSEPVLKGVKLHYT
MT325605.1RhodeIslandMarch GSCCKFDEDDSEPVLKGVKLHYT
MT325604.1PennsylvaniaMarch GSCCKFDEDDSEPVLKGVKLHYT
MT325598.1OhioMarch GSCCKFDEDDSEPVLKGVKLHYT
MT325595.1NewHampshireMarch GSCCKFDEDDSEPVLKGVKLHYT
MT325588.1MontanaMarch GSCCKFDEDDSEPVLKGVKLHYT
MT325587.1MarylandMarch GSCCKFDEDDSEPVLKGVKLHYT
MT325581.1LouisianaMarch GSCCKFDEDDSEPVLKGVKLHYT
MT325580.1KansasMarch GSCCKFDEDDSEPVLKGVKLHYT
MT325579.1IndianaMarch GSCCKFDEDDSEPVLKGVKLHYT
MT308700.1MichiganMarch GSCCKFDEDDSEPVLKGVKLHYT
MT304478.1FLoridaMarch GSCCKFDEDDSEPVLKGVKLHYT
MT304477.1ArizonaMarch GSCCKFDEDDSEPVLKGVKLHYT
MT304491.1TexasMarch GSCCKFDEDDSEPVLKGVKLHYT
MT192765.1CaliforniaMarch GSCCKFDEDDSEPVLKGVKLHYT
MT251974.1ConnecticutMarch GSCCKFDEDDSEPVLKGVKLHYT
MT358744.1WashingtonStateApril GSCCKFDEDDSEPVLKGVKLHYT
MT365033.1NewYorkApril GSCCKFDEDDSEPVLKGVKLHYT
MT415909.1VirginiaApril GSCCKFDEDDSEPVLKGVKLHYT
MT415320.1IndiaMarch GSCCKFDEDDSEPVLKGVKLHYT
MT327745.1TurkiyeMarch GSCCKFDEDDSEPVLKGVKLHYT
MT325597.1NevadaMarch GSCCKFDEDDSEPVLKGVKLHYT
MT020781.2FinlandJanuary GSCCKFDEDDSEPVLKGVKLHYT
MT039890.1SouthKoreaJanuary GSCCKFDEDDSEPVLKGVKLHYT
MT007544.1AustraliaJanuary GSCCKFDEDDSEPVLKGVKLHYT
MT093571.1SwedenFebruary GSCCKFDEDDSEPVLKGVKLHYT
MT304487.1OregonMarch GSCCKFDEDDSEPVLKGVKLHYT
MT188341.1MinnesotaMarch GSCCKFDEDDSEPVLKGVKLHYT
MT230904.1HongKongJanuary GSCCKFDEDDSEPVLKGVKLHYT
MT350282.1BrazilMarch GSCCKFDEDDSEPVLKGVKLHYT
MT325578.1IllinoisMarch GSCCKFDEDDSEPVLKGVKLHYT
MT325591.1NorthCarolinaMarch GSCCKFDEDDSEPVLKGVKLHYT
MT325593.1NebraskaMarch GSCCKFDEDDSEPVLKGVKLHYT
MT325625.1SouthCarolinaMarch GSCCKFDEDDSEPVLKGVKLHYT
MT325628.1VirginiaMarch GSCCKFDEDDSEPVLKGVKLHYT
MT163716.1WashingtonStateFebru GSCCKFDEDDSEPVLKGVKLHYT
MT276324.1CaliforniaFebruary GSCCKFDEDDSEPVLKGVKLHYT
MT276326.1GeorgiaFebruary GSCCKFDEDDSEPVLKGVKLHYT
MT276328.1OregonFebruary GSCCKFDEDDSEPVLKGVKLHYT
MT039887.1WisconsinJanuary GSCCKFDEDDSEPVLKGVKLHYT
MT039888.1MassachusettsJanuary GSCCKFDEDDSEPVLKGVKLHYT
MN994468.1CaliforniaJanuary GSCCKFDEDDSEPVLKGVKLHYT

```
MN997409.1ArizonaJanuary               GSCCKFDEDDSEPVLKGVKLHYT
MN988713.1IllinoisJanuary              GSCCKFDEDDSEPVLKGVKLHYT
MT233526.1WashingtonStateJanua         GSCCKFDEDDSEPVLKGVKLHYT
MT192773.1VietNamJanuary               GSCCKFDEDDSEPVLKGVKLHYT
MT066175.1TaiwanJanuary                GSCCKFDEDDSEPVLKGVKLHYT
MT066176.1TaiwanFebruary               GSCCKFDEDDSEPVLKGVKLHYT
MT371050.1SriLankaMarch                GSCCKFDEDDSEPVLKGVKLHYT
MT233519.1SpainFebruary                GSCCKFDEDDSEPVLKGVKLHYT
MT304476.1SouthKoreaFebruary           GSCCKFDEDDSEPVLKGVKLHYT
MT240479.1PakistanMArch                GSCCKFDEDDSEPVLKGVKLHYT
MT072688.1NepalJanuary                 GSCCKFDEDDSEPVLKGVKLHYT
LC529905.1JapanJanuary                 GSCCKFDEDDSEPVLKGVKLHYT
LC542976.1JapanFebruary                GSCCKFDEDDSEPVLKGVKLHYT
LC542809.1JapanMarch                   GSCCKFDEDDSEPVLKGVKLHYT
MT077125.1ItalyJanuary                 GSCCKFDEDDSEPVLKGVKLHYT
MT276597.1IsraelFebruary               GSCCKFDEDDSEPVLKGVKLHYT
MT320891.2IranMarch                    GSCCKFDEDDSEPVLKGVKLHYT
LC528233.1CruseShipFebruary            GSCCKFDEDDSEPVLKGVKLHYT
MT256924.2ColombiaMarch                 GSCCKFDEDDSEPVLKGVKLHYT
MT126808.1BrazilFebruary               GSCCKFDEDDSEPVLKGVKLHYT
MT372481.1MalaysiaMarch                GSCCKFDEDDSEPVLKGVKLHYT
MT396241.1ChinaMarch                   GSCCKFDEDDSEPVLKGVKLHYT
MT291831.1ChinaBeijingJanuary          GSCCKFDEDDSEPVLKGVKLHYT
MT291830.1ChinaWuhanDec2019            GSCCKFDEDDSEPVLKGVKLHYT
MT434757.1IndiaApril                   GSCCKFDEDDSEPVLKGVKLHYT
MT019529.1WuhanFirstIsolateDec         GSCCKFDEDDSEPVLKGVKLHYT
MT012098.1IndiaJanuary                 GSCCKFDEDDSEPVLKGVKLHYT
                                       ***********************
```

---

clustalw.dnd

```
(
(
(
(
(
(
(
(
(
(
(
(
(
(
(
(
(
(
(
(
(
(
(
(
(
(
(
(
(
(
(
```

(
(
(
(
(
(
(
(
(
(
(
(
(
MT019529.1WuhanFirstIsolateDecember:0.00000,
MT012098.1IndiaJanuary:0.00314)
:0.00000,
MT434757.1IndiaApril:0.00000)
:0.00000,
MT291830.1ChinaWuhanDec2019:0.00000)
:0.00000,
MT291831.1ChinaBeijingJanuary:0.00000)
:0.00000,
MT396241.1ChinaMarch:0.00000)
:0.00000,
MT372481.1MalaysiaMarch:0.00000)
:0.00000,
MT126808.1BrazilFebruary:0.00000)
:0.00000,
MT256924.2ColombiaMarch:0.00000)
:0.00000,
LC528233.1CruseShipFebruary:0.00000)
:0.00000,
MT320891.2IranMarch:0.00000)
:0.00000,
MT276597.1IsraelFebruary:0.00000)
:0.00000,
MT077125.1ItalyJanuary:0.00000)
:0.00000,
LC542809.1JapanMarch:0.00000)
:0.00000,
LC542976.1JapanFebruary:0.00000)
:0.00000,
LC529905.1JapanJanuary:0.00000)
:0.00000,
MT072688.1NepalJanuary:0.00000)
:0.00000,
MT240479.1PakistanMArch:0.00000)
:0.00000,
MT304476.1SouthKoreaFebruary:0.00000)
:0.00000,
MT233519.1SpainFebruary:0.00000)
:0.00000,
MT371050.1SriLankaMarch:0.00000)
:0.00000,
MT066176.1TaiwanFebruary:0.00000)
:0.00000,
MT066175.1TaiwanJanuary:0.00000)
:0.00000,
MT192773.1VietNamJanuary:0.00000)
:0.00000,
MT233526.1WashingtonStateJanuary:0.00000)
:0.00000,

```
MN988713.1IllinoisJanuary:0.00000)
:0.00000,
MN997409.1ArizonaJanuary:0.00000)
:0.00000,
MN994468.1CaliforniaJanuary:0.00000)
:0.00000,
MT039888.1MassachusettsJanuary:0.00000)
:0.00000,
MT039887.1WisconsinJanuary:0.00000)
:0.00000,
MT276328.1OregonFebruary:0.00000)
:0.00000,
MT276326.1GeorgiaFebruary:0.00000)
:0.00000,
MT276324.1CaliforniaFebruary:0.00000)
:0.00000,
MT163716.1WashingtonStateFebruary:0.00000)
:0.00000,
MT325628.1VirginiaMarch:0.00000)
:0.00000,
MT325625.1SouthCarolinaMarch:0.00000)
:0.00000,
MT325593.1NebraskaMarch:0.00000)
:0.00000,
MT325591.1NorthCarolinaMarch:0.00000)
:0.00000,
MT325578.1IllinoisMarch:0.00000)
:0.00000,
MT350282.1BrazilMarch:0.00079)
:0.00000,
MT230904.1HongKongJanuary:0.00079)
:0.00000,
(
MT304487.1OregonMarch:0.00000,
MT188341.1MinnesotaMarch:0.00000)
:0.00000)
:0.00000,
(
(
MT020781.2FinlandJanuary:0.00079,
MT039890.1SouthKoreaJanuary:0.00079)
:0.00000,
(
MT007544.1AustraliaJanuary:0.00079,
MT093571.1SwedenFebruary:0.00079)
:0.00000)
:0.00000)
:0.00000,
(
MT327745.1TurkiyeMarch:0.00079,
MT325597.1NevadaMarch:0.00079)
:0.00000)
:0.00000,
(
MT415320.1IndiaMarch:0.00079,
(
(
(
(
(
(
(
```

```
(
(
(
(
(
(
(
(
(
(
(
(
(
(
(
(
(
(
(
(
(
(
(
(
(
(
(
(
(
(
MT318827.1GermanyMarch:0.00000,
MT396266.1NetherlandsApril:0.00000)
:0.00000,
MT263074.1PeruMarch:0.00000)
:0.00000,
MT300186.2NorthCarolinaApril:0.00000)
:0.00000,
MT371574.1CzechRepublicMarch:0.00000)
:0.00000,
MT320538.2FranceMarch:0.00000)
:0.00000,
MT328035.1GreeceMarch:0.00000)
:0.00000,
MT276598.1IsraelMarch:0.00000)
:0.00000,
MT359231.1SerbiaApril:0.00000)
:0.00000,
MT324062.1SouthAfricaMarch:0.00000)
:0.00000,
MT359866.1SpainMarch:0.00000)
:0.00000,
MT374112.1TaiwanMarch:0.00000)
:0.00000,
MT304484.1NewHampshireFebruary:0.00000)
:0.00000,
MT276330.1FloridaFebruary:0.00000)
:0.00000,
MT276323.1RhodeIslandFebruary:0.00000)
:0.00000,
MT325629.1MassachusettsMArch:0.00000)
:0.00000,
MT325627.1NewYorkMarch:0.00000)
```

```
:0.00000,
MT325622.1NewJerseyMarch:0.00000)
:0.00000,
MT325621.1IowaMarch:0.00000)
:0.00000,
MT325610.1UtahMarch:0.00000)
:0.00000,
MT325605.1RhodeIslandMarch:0.00000)
:0.00000,
MT325604.1PennsylvaniaMarch:0.00000)
:0.00000,
MT325598.1OhioMarch:0.00000)
:0.00000,
MT325595.1NewHampshireMarch:0.00000)
:0.00000,
MT325588.1MontanaMarch:0.00000)
:0.00000,
MT325587.1MarylandMarch:0.00000)
:0.00000,
MT325581.1LouisianaMarch:0.00000)
:0.00000,
MT325580.1KansasMarch:0.00000)
:0.00000,
MT325579.1IndianaMarch:0.00000)
:0.00000,
MT308700.1MichiganMarch:0.00000)
:0.00000,
MT304478.1FLoridaMarch:0.00000)
:0.00000,
MT304477.1ArizonaMarch:0.00000)
:0.00000,
MT304491.1TexasMarch:0.00000)
:0.00000,
MT192765.1CaliforniaMarch:0.00000)
:0.00000,
MT251974.1ConnecticutMarch:0.00000)
:0.00000,
MT358744.1WashingtonStateApril:0.00000)
:0.00000,
MT365033.1NewYorkApril:0.00000)
:0.00000,
MT415909.1VirginiaApril:0.00000)
:0.00079)
:0.00000,
(
(
MT304489.1TexasFebruary:0.00079,
MT325575.1GeorgiaMarch:0.00079)
:0.00000,
(
MT344949.1HawaiiMarch:0.00000,
MT246472.1WashingtonStateMarch:0.00000)
:0.00000)
:0.00000);
```

Select tree menu ▼ Exec