Theoretical Cure for HIV by Internal Nuclear Pressures of ^{64}Zn and ^{62}Zn and Little Effect

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Abstract

In 2018, it was proposed by RBL that HIV fractionates some isotopes during its infection, dormant stage and advancement to AIDS. In 2023, scientists led by Balter measured fractionation of Zn isotopes during HIV infection and advancement of the disease, whereby the HIV and the HIV infected cells enrich in the least massive stable Zn isotope: ^{64}Zn. Surrounding media of the HIV infected cells and HIV itself enrich in the heavier stable isotopes: ^{66}Zn, ^{67}Zn, ^{68}Zn and ^{70}Zn. The author (RBL) previously proposed general mechanism of feeding viruses particular enriched isotopes and use of electromagnetic fields, magnetic fields, electric fields and agitations for inducing isotopic replacement during proliferation of the virus and infection to mutate and inactivate the virus. This work outlines details of application of such for intrinsic light isotopic enrichment of unstable ^{62}Zn into HIV and HIV infected cells with the rapid electron capture reactions transmuting the ^{62}Zn to ^{62}Cu and to ^{62}Ni for altering interactions of zinc fingers and other binding of zinc in HIV and HIV infected viruses to kill the HIV infected virus and inactivate the HIV with specific emphasis on previously hidden HIV reservoirs. These hidden HIV reservoirs contain Zn fingers and this theoretical cure internally mutate and inactivate these hidden HIV reservoirs throughout the patients' bodies by nuclei of ^{62}Zn, ^{62}Cu and ^{62}Ni.

Introduction

In 2018, the author (RBL) wrote a book wherein it was proposed that multiple stable isotopes of nonzero nuclear magnetic moments (NMMs) play essential roles in living organisms [1]. Prior scientists [2-6] had reasoned nuclei with spin angular momentum could in some instances be involved in life and affect biomolecules and organisms thereby, but RBL first in 2002 proposed an nuclear orbital angular momentum with such nuclear spin angular momentum as expressed by NMMs and the import of parity of NMMs by positive and negative NMMs by bare protons and bare neutrons [7]. On the basis of such, RBL later in 2013 proposed unusual isotopic distributions in molecules can causes diseases [8]. In 2018, in his book RBL proposed that HIV and some other viruses fractionate stable isotopes for the origin of the virus and infectivity and advancement of the HIV and some other viruses [1]. In 2023 a group of scientists led by Dr. Vincent Balters in France [9] proved RBL theory of HIV fractionating stable isotopes correct as they measured HIV infecting cells fractionates zinc isotopes with HIV infected cells enriching in ^{64}Zn and the HIV virus in the infected cell expressing similar ^{64}Zn enrichment. These scientists led by Balters [9] measured the surrounding media and non-HIV cells enriching in heavier zinc isotope ^{66}Zn, ^{67}Zn and ^{68}Zn. In 2024, the author (RBL) developed more my theory from March 2020 of using static magnetic fields, electric fields and electromagnetic waves to stimulate the virus in this case HIV in presence of feeding

particular stable isotope (in this case ^{64}Zn and ^{62}Zn for HIV) to induce mutating the virus, in this case mutating the HIV virus and killing HIV infected cells. This work outlines details of curing HIV thereby.

Theory for Curing HIV

It is good at this point to note the author previously noted in reference [1] use of nonprimordial isotopes of (^{2}D, ^{13}C, ^{15}N, ^{17}O, ^{18}O, ^{25}Mg, and ^{33}S with nonzero NMMs for treating and possibly curing HIV. Here the author briefly develops such possible HIV treatment in more detail. Current HIV medication can reduce HIV virus in blood below detectable levels, but the residual HIV engraved in the immune nucleic acids of immune molecules provide a reservoir that can allow re-development if the medication is stopped [10]. The author here notes the possibility of eliminating HIV in such reservoirs theoretically by using zinc (Zn) isotopes (of differing NMMs), neutrons, and neutrinos and antineutrinos from nuclear reactors and nuclear waste. It was previously predicted by this paper that HIV fractionates stable isotopes during infectivity and advancement [1]. It is known that HIV infection fractionates Zn isotopes [9]. The HIV infected cells accumulate zinc and enrich in lighter isotope of Zn or ^{64}Zn. The surrounding media enrich in heavier isotope ^{66}Zn, ^{67}Zn, ^{68}Zn and ^{70}Zn. Such sensitivity of HIV proliferation and infection from undetectability by reservoirs are used here by the author to possibly cure HIV. By the author's theory [1, 11], Zn isotopes have nuclei that are half between magic number stable nuclei and such gives Zn nuclei proclivity to neutrino and antineutrino stimulations. The author here predicts antineutrino selectively stimulating ^{64}Zn nuclei in HIV infected host for disrupting the HIV and HIV in reservoirs for potential cure for HIV in theory. The source of the antineutrino can be a nuclear reactor or nuclear waste undergoing fission reactions and releasing antineutrinos. The HIV hosts and patients can be protected from dangerous radioactive particles by thick lead shield. But the neutrinos and antineutrinos pass through the lead shield as they are not reactive and scattered well by the stationary atoms in the lead shield. But by the author's theory, the neutrinos and antineutrinos by their wave natures have fractional interactions with dynamical biomolecules in living organisms so the antineutrinos can fractionally interact with the ^{64}Zn isotopes in the HIV and HIV in reservoirs to disrupt the HIV and possibly cure the HIV.

Second Approach

In a second approach, the author (RBL) propose using gamma rays to irradiate HIV host for selective inducing resonance in the ^{64}Zn to selectively stimulate ^{64}Zn enriched HIV infected cells and ^{64}Zn enriched zinc fingers in the HIV virus and capsid in such infected cells for altering the biochemistry by the gamma stimulating of ^{64}Zn in the HIV infected cells and HIV therein for killing the infected cells and mutating the HIV in the cells and even in hard to reach reservoirs. High levels of gamma rays of course can lead to cancer while trying to stimulate the giant dipole resonance of ^{64}Zn. But it has been known for years that ^{64}Zn is a special nuclide for manifesting giant dipole resonance [12].

Third and Most Successful Approach

In addition to these two approaches, the author (RBL) reasoned for a third approach with greater confidence, no external gamma rays, and a better likelihood of success for curing HIV with fewer side effects. The third approach by the author's (RBL) theory for curing HIV involves feeding the patient or injecting a digestible compound having ^{62}Zn. ^{62}Zn is readily available in industrial radionuclide industry [13]. ^{62}Zn (with 0 nuclear spin and NMM) is unstable and will undergo nuclear reactions with half-life of 9.22 hours by electron capture and antineutrino capture and inverse beta process to form ^{62}Cu. The ^{62}Cu with spin = 1 and -0.38 NMM will severely alter binding of the zinc finger to inactive HIV and likely kill HIV infected cells for curing HIV as the ^{62}Zn to ^{62}Cu will alter Zn binding in the HIV infected cells and in the zinc fingers of HIV itself. Such will not affect normal cells as the normal cells are intrinsically enriched with heavier isotope

^{66}Zn. The HIV intrinsically during infection and advancement to AIDS depletes normal cells of zinc and ^{64}Zn leaving the normal cells with heavier zinc isotopes ^{66}Zn, ^{67}Zn, ^{68}Zn and ^{70}Zn. The author (RBL) reasons that perhaps the heavier Zn isotopes bind more strongly in normal cells as the HIV takes over the cells so the less massive Zn isotopes having weaker binding are more rapidly taken up and used by HIV. So the less massive ^{64}Zn enriches in the HIV and HIV infected cells. The unstable ^{62}Zn is hypothesized here by the author to also enrich in the HIV cells as the stable light ^{64}Zn enriches due ^{62}Zn also having lower mass number, fewer neutron and 0 NMM. The author reasons that such properties of ^{62}Zn like ^{64}Zn cause preference for Sulfur in Cysteine in zinc fingers of HIV as it evolves, develops and advances. The heavier Zn isotopes (^{66}Zn, ^{67}Zn, ^{68}Zn and ^{70}Zn) prefer Oxygen and Nitrogen binding in histidine and aspartic acid [9].

By the author's (RBL) theory the transmutation to Cu in this HIV cure is not harmful overall to the patient as trace Cu is a nutrient in humans. But the ^{62}Cu (with its nuclear spin = 1 and -0.38 NMM) is unstable and has half-life of 9.74 minutes and it transmutes by electron capture to ^{62}Ni which is stable and magnetic. The change from Zn to Cu to Ni (with change from nonmagnetic to magnetic valence electronic shell) will severely alter the binding of proteins and RNA in the zinc fingers in the HIV infected cells and in the HIV in those cells and especially in the trace HIV hidden reservoirs that have been hard to reach by other scientists. This new theoretical cure given here by the author (RBL) reaches all those hidden HIV reservoirs and internally by nuclei and internal nuclear pressures inactivates all hidden reservoirs. The author (RBL) here introduces the solution to the HIV reservoir problem that has stumped scientists and doctors for last 20 years as the author (RBL) solves the reservoir problems internally by transmuting the metal centers in these hidden reservoirs in an innocuous way (to surrounding organs and tissues) to but inactive the HIV reservoirs but not cause vast harm to surrounding organs and tissues and the patient. Such altered binding of amino acids and altered protein structures and interactions with nucleic acid and other biomolecules by transmuting the Zn to Cu and then to Ni will sicken HIV infected cells and inactivate HIV even in the hidden HIV reservoirs! The intrinsic nature of HIV to harbor and enrich ^{64}Zn and ^{62}Zn inherent limits such inactivation of Zn sites to HIV and not affect normal cells. The transmutation to ^{62}Ni causes stability as ^{62}Ni is a stable isotope of Ni. Such stability in forming ^{62}Ni ends the internal induced electron captures and nuclear transmutations forming a stable product within minutes and hours with no further transmutations for less probable large scale radiation damage from internal nuclear reactions. Trace nickel in the human body is not toxic as humans are constantly exposed to trace amounts of Ni in foods. But accumulation of Ni in the body over long periods of time can cause toxicity and health effects like lung fibrosis, kidney disease and cardiovascular disease. But this cure of HIV involves ^{62}Zn and intermediate ^{62}Cu which have half-lives of 9.22 hours and 9.74 minutes so the treatment will not be prolong maybe in a few days for cure before high levels of nickel generate in the patient for affecting lung, kidneys and cardiovascular organs. The author notes the relatively short but sufficient half-lives of these transmutations are rapid enough to mutate the HIV and HIV cells before they can uptake fresh ^{64}Zn, but not too slow for prolong accumulations and transmutations side effects.

It is important to note that this cure may also involve ^{61}Zn and ^{61}Zn rather than ^{62}Zn. It is currently unknown whether ^{62}Zn, ^{61}Zn or ^{60}Zn will accumulate in HIV infected cells and HIV itself (but enrichment is hypothesized for these less massive unstable zinc isotopes in HIV and HIV infected cells). The trend of lower mass numbers and neutron deficiency of ^{64}Zn (zero nuclear spin and 0 NMM), ^{62}Zn (zero nuclear spin and 0 NMM) ^{61}Zn (+3/2 nuclear spin and 0 NMM) and ^{60}Zn (zero nuclear spin and 0 NMM) encourages the author (RBL) to hypothesize that one or all of these unstable isotopes (^{62}Zn, ^{61}Zn or ^{60}Zn) will behave as ^{64}Zn and accumulate in the HIV infected cells and HIV itself. The author reasons that the +3/2 nuclear spin of ^{61}Zn may cause different interactions of ^{61}Zn with HIV infected cells and HIV itself relative to the favorable interactions

and enrichment of ^{64}Zn with HIV infected cells and HIV itself. RBL here first point to ^{62}Zn for this HIV cure as ^{62}Zn has longer half-life (but not too long) of 9.22 hours for its effective circulation in the patient and greater uptake by HIV cells and HIV itself for transmuting to ^{62}Cu and ^{62}Ni to kill the HIV cells and inactivate the HIV for curing the HIV. The ^{61}Zn and ^{60}Zn have shorter half-lives of 1.485 minutes and 2.40 minutes, respectively; so the author (RBL) thinks the ^{61}Zn and ^{60}Zn will transmute before they are up taken into HIV and HIV infected cells after administering to HIV patient.

The ^{61}Zn (with its 3/2 spin and 0 NMM) that does get into HIV zinc fingers is transmuted to ^{61}Cu by electron capture to inactive the HIV and kill the HIV infected cells. The ^{61}Cu (and its 3/2 nuclear spin and 2.14 NMM) is unstable with half-life of 3.35 hours and ^{61}Cu transmutes by electron capture and antineutrino capture to magnetic ^{61}Ni (with its nuclear spin of 3/2 and -0.75 NMM), which is stable, has magnetic valence electronic shell and has negative NMM that will alter bonding in the zinc fingers to inactivate HIV and kill HIV infected cells for those few ^{61}Zn that do get into HIV and HIV infected cells. The ^{60}Zn (with its 0 nuclear spin and 0 NMM) is unstable and transmutes to ^{60}Cu by electron capture and antineutrino capture. ^{60}Cu (with its nuclear spin of 2 and 1.219 NMM) is unstable with half-live of 23.7 minutes and transmutes to ^{60}Ni by electron capture and antineutrino capture. The ^{60}Ni is also stable, magnetic and has 0 NMM and nuclear spin of 0. The electron captures are involved in all these processes and involve large intrinsic pulling in of antineutrinos for electron and proton to form neutron internally. The author reasons an induced large cross-section for antineutrinos and neutrinos by sub-hydrogen distances of electron and proton or compressed hydrogen bonds [14]. The electron capture processes may lead to Bremsstrahlung emission having x-rays, gamma rays and auger electrons within the zinc fingers and zinc binding cysteines in the HIV and HIV infected cells. But such radiation will be sporadic and brief. Such can kill the infected HIV cell in which the electron capture occurs and also locally inactivate HIV within hidden hard to reach HIV reservoirs to CURE HIV! But such radiation is sporadic and not over the whole body like external flux of gamma rays like the prior approach.

Conclusion

On the basis of these approaches in particular feeding ^{62}Zn (or possible ^{61}Zn and ^{60}Zn) with minutes to hour transmuting of these Zn isotopes to unstable Cu isotopes and transmuting unstable Cu isotopes to stable Ni isotopes with magnetic valence shells for altered binding in the Zn fingers for inacting HIV and killing HIV infected cells, the author (RBL) determines a new theoretical cure for HIV.

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