Reconciliation between Pure Scientists and AIDS-Dissidents:

Could an ancient retrovirus, RNA-interference and stress be the answer to the divergent opinions?

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Summary:

In this article, based on compelling findings from the literature, I present a new theory on the cause of AIDS.
The latest findings and scientific research are combined with well-known facts and presented in a new context.
The stunning conclusion is that there is no infectious HI-Virus.
The provirus, described in scientific publications, seems to be an ancient retrovirus, established during evolution in our genome, normally acting as a nearly suppressed part of the genome that can be partly activated under certain circumstances like oxidative stress and malnutrition leading to T-cell decline and disease.
Aids diagnosis is a vague statement and testing for HIV is not evidence based and thus disapproved.
But if we all work together we can improve the situation for those suffering from health problems.

Overview:

I. Introduction: Testing for HIV

Since the initial claim that HIV is the cause of AIDS in the 1980s, the discussion between "AIDS dissidents" and scientists has led to endless controversy. Why?
The answer is that there are many facts that make it difficult to believe that there is a virus that causes the various multiple symptoms of AIDS. I will only address here claims that indicate reasonable scientific doubt:
1. The ELISA test for HIV antibodies has high sensitivity and low specificity as claimed by the company, Abbott, themselves. **[1]** Thus they recommend a second test in the case of positive testing.
2. The test serum of patients tested for HIV has to be highly diluted which differs from other laboratory tests for infective diseases like Measles, Varicella, Mumps, Cytomegalovirus and Epstein - Barr virus.
Shockingly, if the test serum of patients tested for HIV is not highly diluted then everyone tests positive! **[2]** According to Giraldo this outcome could mean:

- Everyone has the HIV infection?
- Everyone has antibodies to HIV?
- The test is not specific to HIV?

Indeed the test kit reacts positively to at least 50 other „substances" **[3].**
3. The second test –used in some countries after a positive result in the ELISA test for HIV is the "Western Blotting" test. The interpretation of the test results varies in different regions of the world. This means, having a positive result in one part of the world and travelling with these blotting test results to another part of the world could result in you being declared healthy in this other country. [**4,5,6].**
4. Regarding L. Montagnier, one of the two scientists that are recognized as the discoverers of HIV, he himself does not claim to have ever purified the virus **[7]** which is in fact the "gold standard" in virus proof in scientific work **[8].**
As a result of the aforementioned points, we have no solid test standards, no virus proof and no evidence that the "HIV" virus even exists.

THIS IS WHY WE SHOULD STOP TESTING FOR AIDS!
IN ADDITION: POSITIVE TEST RESULTS COULD UNNECESSARILY FRIGHTEN PEOPLE TO DEATH!

5. Concerning the high number of people said to suffer from AIDS worldwide, but specifically in Africa and the rapidly developing countries, most people are not tested at all. The WHO "Bangui definition" is sufficient to be diagnosed for AIDS due to criteria of having symptoms like itching, coughing and diarrhoea for more than 1 month.

6. As Christian Fiala, a physician and expert for AIDS from Vienna points out, in Africa most of the people tested are pregnant women, because they are the ones who visit hospitals during pregnancy and these institutions are capable of testing. Pregnant women express more antibodies than other people due to the changing situation in their body, fighting against foreign antigens of the fetus **[9].**
For a more in-depth consideration of positive HIV tests in pregnant women, newborn babies and multiple mothers see chapter V of this article on pregnancy.

<u>The conclusion is that we have no standards for diagnosing AIDS.</u>

II. What evolution teaches us

The new findings from research concerning the human genome have changed our mind tremendously in regards to AIDS. Humans and chimpanzees, who diverged from a common ancestor some 5 million years ago, differ in their genome sequences by only about 1 – 2 %. We are aware that only about 2% of our genome is coded. The other 98% have been designated "junk" DNA. According to Jamil Baccha this DNA can be thought of as "spam of the dark age" **[10].** All living creatures from plants to humans comprise an enormous quantity of proviruses fixed in our germ lines and providing us with a fossil record of viruses long extinct in the population. **[11, 39]**
In humans, there are about 80,000 proviruses and their remnants many of them ancient retroviruses, comprising about 6-8% of the genome, or about twice as many as genes.
As the researcher John M. Coffin points out,
"There is more provirus in us than there is us in us." [12]
The former so-called "junk" DNA is now being studied to more fully understand these sequences, which are dedicated to gene regulation processes, promoter sequences, transposons, jumping genes (Barbara Mc Clintock won the Nobel Price in 1983 for her discoveries in maize), micro RNAs and RNA interference and it is likely that more research in the future will lead to new discoveries regarding "junk" DNA.
The "Central Dogma of Biology", which states that DNA is transcribed to RNA and then translated to proteins, can now be extended because of the varying amounts of RNA translated from the DNA of our genome regulating cell processes without being translated into proteins. In addition we are aware of a process that transcribes RNA into DNA used by retroviruses.

III. The regulation of the genome of the provirus

The scientific literature – concerning HIV – is nearly exclusively based on the **provirus, which is about the integrated DNA in the human genome.** As Schindler et al. Point out, „The provirus might have been a former virus, derived from a chimpanzee virus progeny that gave rise to a virus that could infect humans. It might have lost down regulation of the NEF-gene, which made it more infectious" **[13].**
The 3 main genes of the provirus are gag, pol, env and some other genes that are due to a recombination of parts of the integrated DNA, thus comprising more possibilities for coding. TAT for instance is a provirus transcription activator and the LTR (long terminal repeat) is a binding site in provirus activation for RNA synthesis.
Some of the molecules that work together in the regulation of gene expression in the T-cells are **host factors:** Nuclear factor Kappa Beta (NFκB) and its inhibitory unit p50, Histone deacetylase1 (HDAC1 also known as sirtuin 1), RNA polymerase II, small hairpin RNAs. The Nobel Price for Medicine of 2006 was awarded to C. Mello and A. Fire for their breakthrough in research concerning RNA interference in *Caenorhabditis elegans* **[14].**
The publication from S. A. Williams et al. claims that activation by NFκB p50 promotes HIV latency through histone deacetylase recruitment and repression of transcriptional initiation. Knockdown of p50 expression with specific small hairpin RNAs reduces HDCA1 binding to the latent HIV LTR and induces RNA polymerase II recruitment, but only short virus transcripts are generated. **[15]** Synthesis of full-length viral transcripts can be rescued by additional expression of TAT.
Taking a closer look at NFκB shows that this molecule is very well known for being activated in inflammatory processes of the cell and transported into the nucleus for binding. **[16]** The

histone deacetylases, such as Sirtuin, lead to repressive changes in heterochromatin **[15, 17].** RNA interference and micro RNAs can trigger gene expression or inhibition **[18, 19].** According to Alexander Spirin, Moscow, RNA molecules, embedded in protein particles called "informosomes" are found in many cells of the body, including germ cells **[20].** They might imitate particles similar to viruses. The RISC - **R**NA- **I**nduced **S**ilencing **C**omplex - might also provide more details **[21, 22]** concerning m-RNA which is attached to proteins. It is a ribonucleic particle composed of a single-stranded short interfering RNA (siRNA) and an endonucleolytically active Argonaute protein, capable of cleaving m-RNAs complementary to siRNA. RNA interference can be a hereditary molecule, which means it might be transported via germ cells and involved in regulating processes in the next generation **[23, 24].** Thus small RNA molecules and attached proteins might explain the false readings for HIV.

IV. On molecular response to oxidative stress

Oxidative stress is caused by Reactive Oxygen Species (ROS) which is generated mainly by two processes: 1.The oxygen dependent pathway of microbial killing by myeloperoxidase, an enzyme that produces free radicals for the destruction of bacteria. 2. The mitochondria produce ROS during electron transport for the generation of energy as ATP. ROS can cause damage to mitochondria and other components of the cell, such as the nucleus thus leading to energy deprivation and chromosomal damage resulting in mutations **[25].** The balance of the cell depends on balancing the oxidation/reduction status, which includes a normal pH of 7.4. For promoting stability there are molecular redox-systems in the cell such as katalase superoxiddismutase, and the Thioredoxin system. This system is provided by another system called Glutathione. Both systems comprise a pair of oxidized and reduced molecules called Thiredoxin Tr (the oxidized form) and TRX (the reduced state) and, in addition, we have Glutathione, which forms a dimer GSSH if oxidized and occurs as GSH if reduced. These redox molecules are selenoproteins and therefore selenium is an indispensable component of the cell **[26].** The dismutases are dependent on Cu/Zn in the cytosol and Mn in mitochondria. The glutathione system is involved in the promotion of telomerase activity, an enzyme which contains a reverse transcriptase responsible for cell division in fast dividing cells like germ cells, white blood cell progenitors, some stem cells and cancer cells. For a healthy organism there has to be a balance in this system. If the GSH concentration is too high this could lead through activation of telomerase to cancer. If the GSSH concentration is too high, this will result in damaging cell components due to destruction by free radicals **[27, 28, 29].**

V. Combining the stress response with provirus gene activation or "Do not confuse cause and outcome"

In response to T-cell activation by stimuli like ROS **[30]** NFκB is transported into the nucleus. This process is promoted by several other factors like TRX1 **[31]**, the Mitogen activated kinase (MAPK, JNK) **[32]** , Tumour Necrosis Factor (TNF) **[33]**, and other molecules involved in the process. NFκBp50 binds to the LTR of the provirus thus regulating gene expression via HDCA and small RNAs. **[15]**
Small RNAs coded by the provirus might inhibit the HDCA binding and induce transcription of m-RNA resulting in translation of proteins. **[34]** HIV-TAT down regulates telomerase activity in the nucleus of human CD4+ T-cells. TAT is released by actual infected T-cells either in vitro or in vivo. **Picomolecular concentrations, promote the growth of activated endothelial or CD4+ T cells. Micromolecular concentrations of extracellular Tat are**

instead capable of inhibiting antigen-driven T-cell proliferation [35]. The results show that expression of the provirus genes is sensitive to activation of TAT and the concentration of the TAT protein. In contrast anti provirus medications would be molecules targeted against Pol II and TAT **[36]. HDCA inhibitors are developed as antineoplastic drugs** in cancer thus promoting apoptosis **[37, 38].** To summarize the aforementioned: We should expect that everyone express, to some extent, the integrated silenced proviral genes.

VI. Pregnancy

Pregnant women fight against foreign antigens of the embryo/fetus in their body as 50% of the genes come from the paternal site. It is estimated to avoid these problems, the immune status of the women shifts from cell-mediated immunity toward humoral immunity **[39].** This would explain the diminished amount of T-cells and the high concentration of antibodies in the ELISA-Test. They are normally produced from the B-cells during pregnancy. There is evidence that females might fight male transposons through RNA interference in studies of Drosophila **[40].**
Cracken et al. **[41]** proposed a down regulation of NFκB in T-cells of pregnant women, which is essential for the maintenance of the cytokine profile required for pregnancy success. Thus pregnant women and their fetus or women who have delivered and their newborn babies who test HIV positive might follow the normal biological requirements of an evolutionary process **[42].** This means testing positive for HIV is an indicator of applying a biologically successful tool in the interaction of mother and child´s survival in the uterus.

VII. How to avoid getting ill

Referring **to** the aforementioned research, the cause of activation of the endogenous retroviral genes that now contribute to our entire genome is oxidative stress **[43].** Oxidative stress is often caused by infections and an impaired metabolism, due to malnutrition and a deficiency of vitamins and micro nutritional elements. These elements are needed for normal biochemical reactions in the cell, which has been well documented. Selenium is part of the selenoenzymes of the glutathione and thioredoxin complex. Thus nutrition and good sanitary conditions as well as pure drinking water and improved living conditions are on the top of the list for preventing diseases specifically in poor regions of the world. Excessive concentrations of vitamins could counteract health because the natural induction of expression of the thioredoxin system depends on low doses of ROS **[44]**.
Concerning AIDS diagnosis, we must be aware that most "AIDS patients" might just suffer from glucose deprivation, which means hunger **[45, 46],** malnutrition, diarrhoea, tuberculosis, malaria and sexually transmitted diseases like chancre and infections by chlamydia. Stressful conditions must also be prevented by birth control and use of condoms. Legal and illegal drug abuse as well as some chemical substances like specific pesticides, that are no longer used in the "Western World" but are exported to "3rd World Countries" are also a threat to health. According to the WHO- report, ("What are the key health dangers for children?") nearly 10 million children under the age of five die each year – more than 1,000 every hour – but most could survive threats and thrive with access to simple, affordable interventions. Malnutrition contributes to more than half of the deaths. Over 90% of children with HIV are infected through mother- to- child transmission, which can be prevented with antiretrovirals as well as safer delivery and feeding practices. About 20 million children under five worldwide are severely malnourished, which leaves them more vulnerable to illness and early death. About

two-thirds of child deaths are preventable through practical, low-cost interventions. WHO is improving child health **[47].**
Consequently we need to think about what might promote the life of mother and child and what might do harm.

VIII. If we all work together, we can greatly improve public health.

The main tools for gene regulation specifically the biology of small RNAs is top concern and might provide better insights to gene and cell functions and metabolism. This might help in fighting diseases, specifically chronic diseases. The Nobel Prizes in Medicine for 2006 and 2007 are for these ground breaking findings. But we are aware, that science can also be prone to error. Thus discussions of new insights in science and medicine must be promoted by government, scientists and also the industry with the aim of greater acceptances.
The P*harmaceutical Industry* is more challenged by the wide variety of diseases that are a threat to human beings.
AIDS committees could teach people how to practice a healthy lifestyle and to use birth control and make the use of condoms more accepted.
People who are diagnosed with AIDS should not trust any test results and not believe in a fate. They should try to improve their health by avoiding "stress factors" and seek medical care for any disease, which should be provided to everyone. Abuse of legal and illegal drugs is counterproductive to health.
Organizations and governments should help improve the life of the poor and under- or malnourished people by enforcing their power. They should also spread the truth.
We are no longer living in the middle ages and the earth is no disc. The treatment Galileo Galilei or Giordano Bruno had to endure should not be acceptable after the age of enlightenment.
We should expect that the truth be shared generously. And we are obliged to use freedom and responsibility for generating more satisfactory conditions for the life of all people.
Scientific knowledge - specifically of medicine - has to be more openly discussed for the benefit of everyone.
We are responsible for what we do and what we neglect. Spreading anxiety and fear is beneath a democratic and humane society and the main difference between animals and humans is responsibility. We should be proud of the evolution of our character. To combine knowledge with love is the most noble-minded trait we can show.
People should begin to trust more in their own power to attain a healthy life style, also in the "Modern World" and they should grow more interested in forming their own thoughts and making decisions regarding an informed but autonomous way of health and life.

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