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Consciousness and the Development of New Strategic Pathways for Antiviral Therapy: A Focused Analysis on HIV

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Abstract

This report presents the foundations of consciousness and through this explores the possibility of low-level virus consciousness (ability to sense surroundings). The report then engages a case analysis that follows on from the preceding viral focus. With respect to viral infections, a situation analysis is performed with identification of significant issues: **A)** The lack of successful antiviral drugs (therapies) despite many years of pursuit; **B)** No cure for HIV despite many years of exploration. The strategic and tactical pathways to combat HIV and viruses in general to date were analysed and two key pathways (problematic) were identified: **1)** virus replication; **2)** enhancement of immune function. Given these pathways to date have not yielded the desired level of success, it would seem reasonable to suggest that development of a new strategic pathway for combatting viruses (including HIV) be developed. This report presents the development of the new strategic pathway for antiviral therapies represented by “site attachment inhibition (or, negation of cellular attachment by viruses).”

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Further to this, HIV is used in case analysis with strategic (and tactical) pathways detailed including pre-fetal (prenatal) genetic therapy focusing on mutagenesis and knockout, targeted at genes (receptors; and, surface proteins) including CCR5 and CXCR4, as a means of achieving innate resistance similar to the known CCR5- Δ 32 mutation, in addition to treatment strategy following established infection designed to block attachment of the virus to CCR5 and CXCR4, including blockade of the receptors (analogous to beta blockade), stem cell therapy, and targeted therapy designed to attack the mechanisms of the virus in its attachment ability to the given receptors stated - CCR5, CXCR4 and any other relevant. Support for site attachment strategy was further consolidated through consideration with respect to advanced information technology (and computing) in which one key mechanism for virus removal is represented by negation of site attachment. Other strategies, including further consideration of low-level consciousness (or, sensing of surroundings) with respect to viruses, are also presented and the report reinforces new understanding contributed to current medical knowledge.

In conclusion, this report presents the development of the new strategic pathway for antiviral therapies represented by site attachment inhibition (or, negation of cellular attachment by viruses).

Keywords: Consciousness; CCR5; CCR5- Δ 32; CXCR4; Genetics; HIV; Receptors; Surface Proteins; Virus.

1. Introduction: The Foundations of Consciousness

The foundations of consciousness can be understood based on the fundamental definitions and indicators presented directly below [1-5]:

Consciousness can be defined as:

An individual's awareness of its existence within an external environment and its interactions with (and interpretations of) such external environment.^*

*Note that consciousness can also be with respect to internal environment

^The term "individual" is referring to an entity be it human being or other relevant conscious entity

Key indicators of consciousness in reference to the above definition [3-4]:

1) Ability to make strategic decisions that achieve a positive benefit

-High Level: achieving a sustainable positive advantage

-General Level: short to moderate term positive benefit

2) Awareness of changes in surroundings

-High Level: Awareness of complex pattern changes

-General Level: Environmental trends and changes

3) Learning and memory

Supports the development of consciousness and awareness

4) Moral conduct

Examples:

Beings of higher evolution engage in moral and ethical based decision making as opposed to primitive survival of the fittest based decision making

5) Basic survival instincts

Examples:

A) Consumption of food

B) Basic avoidance of harm

C) Basic security measures

The above may be viewed as representing a basic spectrum from high-level through low-level consciousness (1 through 5) however the concept should be viewed multidimensionally. An example presented directly below:

Moral conduct is placed at Level 4 but given the multidimensional structure of the concept, it may be that moral conduct be incorporated into Level 1 (high-level consciousness) based on the benefit achieved from such conduct; And, in fact this is supported through evidence including the benefit achieved (and observed) through use of societal marketing in strategic decision making [6-7].

2. Conscious Entities

Entities demonstrating low-level through high-level consciousness can be observed throughout nature and perhaps may be conceptualized as evolving consciousness. Examples of the spectrum provided directly below:

1) Trees

Example of evidence of consciousness: Low-level consciousness demonstrated through awareness of water (with root growth directed toward water sources) and the associated survival instincts.

2) Aquatic life

A range (spectrum) of consciousness has been observed spanning basic food consumption survival instincts through specialized electrical communication systems (and senses) and beyond [8].

3) Land life (non-human)

Non-human land life has demonstrated significant consciousness, spanning the mammalian ape able to make decision to utilize basic hand tools through birds possessing specialized sensory abilities [8].

4) Human beings

Detailed in the previous section.

Viruses are an interesting entity in that they carry out a set of actions in order to achieve a positive (or, strategic) benefit, for instance drift, shift and morphological changes that achieve an enhanced survival benefit. If it is accepted that human beings are conscious then it presents some difficulty with respect to holding a view that viruses have no consciousness. If it were to be simply put down as random mutations with associated survival of the fittest for viruses to achieve the above then it could perhaps be argued the same for human beings. It would seem at a minimum that perhaps viruses have a low-level of consciousness, or perhaps (given the potential that it may be a very low-level) more aptly termed 'an ability to sense surroundings.' With this in mind, it may be that blocking the ability of viruses to sense the immune system (and other relevant variables) may present as another area for research directed at potential for antiviral therapy. Development of new strategic pathways for antiviral therapy is discussed in the section that follows - Section 3: Case Analysis.

3. Development of New Strategic Pathways through Case Analysis

Case Analysis is performed through: Situation Analysis (Problem Identification); Development of Strategic (and Tactical) Pathway; Conclusion and Further Areas for Investigation.

3.1 Situation Analysis (Problem Identification)

As afore explained, viruses are able to achieve evasion of the immune system through shift/drift mechanisms and other specialized measures including morphogenesis. Therefore, successful (curative) antiviral drugs have not been frequent [9-13]. HIV has represented a particular problem (or, threat), with doctors and scientists having, to date, not developed any effective (or, curative) antiviral [12, 14-16].

3.2 Development of Strategic (and Tactical) Pathway

Evidence indicates a small proportion of society to possess innate immunity (or, resistance) to the virus of focus in the present case analysis (HIV; Human Immunodeficiency Virus). For instance, some human beings lack functional CCR5 genes (receptors; and, surface proteins), or possess the known CCR5-Δ32 mutation, which represents a key site for attachment of the HIV virus, and therefore essentially possess innate immunity

(resistance) to the HIV virus [17-18].

Therefore, with the above in mind, a theoretical strategy may revolve around intraembryonic knockout (or, mutagenesis) of the relevant CCR5 genes (receptors; and, surface proteins) and any other relevant attachment sites such as CXCR4, or perhaps such a line of strategy spanning back to an earlier stage including spermatogenesis and oogenesis. Practicability issues may be present, however trials in areas such as Africa where the potential benefit may outweigh risks would seem worth consideration. Genetic and stem cell therapy targeting the given genetic and receptor loci in adults may also present as worthy of consideration.

Extending on the above, a key factor of importance impresses as the potential new strategic pathway for antiviral development represented by negating (inhibiting) the cellular attachment of viruses. Other analogous suggestion in support of the above (the usefulness of negating virus attachment) can be identified, including for situations after the infection is established. An example represented by beta blockers which negate attachment of epinephrine and norepinephrine (adrenalin and noradrenalin) from beta receptors [19-20] and, furthermore, antagonism (or, blockade) of site receptors such as CCR5 and CXCR4 may therefore also represent an option. It would seem noteworthy that perhaps targeting the virus' ability and mechanisms used in attachment to the relevant sites may also represent an option, which is additional to the above detailed measures that focus on manipulation of the receptors of the human cells in order to negate attachment.

There is evidence to support the potential success and usefulness to come from exploration with respect to development of the above new strategic pathway (inhibition of virus attachment) in respect of combatting viral illness. The evidence is as follows:

1. To date, there is essentially no known substantial pursuit of the strategic pathway (negation of virus attachment), with the principle mechanisms of antiviral drugs revolving around inhibition of replication and to a lesser extent enhancing immune function [11, 13, 21].
2. A key mechanism for removal of viruses in advanced information technology (and computing) relates to eliminating site attachment of viruses [22-24]. Therefore, it would not seem unreasonable as an initial proposition to explore negation of receptor site attachment as a pathway for antiviral therapy in medicine.
3. In support of the above, theoretical measures involving the CCR5 genes (receptors; and, surface proteins) and other relevant receptors are presented with respect to HIV. This is consolidated by broad based extension to the concept of site attachment inhibition (or, negation of cellular attachment by viruses) for all viruses generally.
4. This is followed by further analogous suggestion that supports the conceptualization.

Based on the above, it would not seem unreasonable to support the new pathway with respect to antiviral development based on strategy revolving around negating (inhibiting) virus attachment.

3.3 Conclusion and Further Areas for Investigation

Given the traditional pathways for antiviral drugs (therapies) to date have not yielded the desired level of success, it would seem reasonable to suggest that development of the new strategic pathway for combatting viruses (including HIV) be developed, specifically: site attachment inhibition (or, negation of cellular attachment by viruses), as detailed throughout this report.

The current author may explore other factors including initial entry site. For instance, whether there may be avenues for mucosal strengthening (examples, cellular and genetic engineering) to prevent membrane abrasion and rupture. Other avenues for exploration include radiation therapy directed at destruction of the viral organisms in a similar manner to that for destruction of cancerous cells.

In addition, whether cancer itself can be targeted through measures discussed in this report may also be worth investigating, in addition to whether any of the strategies may be applied to other infectious agents. A subsequent report by the current researcher details application of site attachment inhibition in respect of bacterial infections.

4. Contribution to Medical Understanding

The current report provides definite new knowledge, understanding and conceptualization to currently existing medical literature. There is essentially no current literature outlining broadly the new pathway of site attachment inhibition as a line of strategy broadly for antiviral development potentially inclusive of all viruses. There was some very scant literature detailing minority scientist pursuit of blockade in relation to CCR5 however, in the main, there is: (1) No literature supporting any significant development of the mechanisms for negating site attachment of the HIV virus detailed in the present report; (2) No literature supporting any significant detailing of or development in relation to the new strategic pathway for antiviral development broadly (all viruses) outlined in this report with respect to negating (inhibiting) site attachment of viruses; (3) The current medical literature indicates current medical knowledge and understanding prior to this report to have essentially only progressed to the level of targeting virus replication and immune function enhancement; (4) The other measures detailed by the researcher, including strategy directed at reducing the ability of HIV entry, also appear to represent new understanding; (4) prenatal genetic therapy (or, genetic engineering) for any range of diseases including infectious; (5) the possible consciousness (or, ability to sense surroundings) of viruses and potential areas for investigation with respect to combatting viruses presented in the current report also represents new understanding and contribution to the medical literature. One limitation may be the lack of progress in the medical profession generally with respect to techniques directed at mutagenesis, gene knockout, genetic and stem cell therapy broadly. That being said, the outlook may be optimistic given that, in broad terms, even prenatal genetic therapy (and related interventions) are noticeably gaining increasing attention.

5. Conclusion

This report presents the foundations of consciousness and potential exploration with respect to viral consciousness. The report then, through strategic analysis, identifies significant problem areas with respect to

antivirals and the associated lack of success which revolves around the limited pathways identified to date being that of virus replication and immune system enhancement. The report then develops the new strategic pathway for antiviral therapy directed at *site attachment inhibition (or, negation of cellular attachment by viruses)* and further to this HIV is used in case analysis. A subsequent report by the current researcher details application of site attachment inhibition in respect of bacterial infections. The author of the current report has been invited to present the new strategic pathway delineated, specifically site attachment inhibition (or, negation of cellular attachment by infective agents), at the 6th International Conference on Immunology (USA; Chicago IL 870th Congress).

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Biographical Notes

Simon Raymond is a Consultant (medicine and surgery) specialising in Medical and Scientific Research and an Alumnus of Melbourne University (Rank of Number 1 in Australia and Number 33 in the World). The above stated Researcher has acted as a Reviewer for the respected Medical Journal of Australia, has received invitations internationally to review from prestigious medical journals including Journal of American Medical Association Network. He has received award in recognition of his research by Royal Australasian College of Surgeons (PSC, 2006) and invited to conferences internationally as an official Delegate and Researcher, including that in USA and China.

Dr Simon Raymond is a graduate of medical school who shifted from clinical practitioner medicine and surgery into a focus on high level scientific research. Dr Simon Raymond has acted as the Principle Researcher in the highest-powered form of medical trial—Randomised Controlled Trial (RCT). The above stated Researcher is also a Member of the Golden Key International Society for Honoured and outstanding Academics and has been cited as a Notable Global Leader. Dr Simon Raymond's research has been indexed by well respected universities including Cornell University.