

**Possible Curative HIV Treatments**  
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**ABSTRACT**

The HIV/AIDS pandemic has had significant impact on the health, livelihood and population of its human host. According to the website of the Centers for Disease Control and Prevention (1), there were 2.1 million new cases of HIV in 2013. In the same year, about 35 million people were living with HIV around the world and about 1.5 million of the persons living with AIDS died. Nearly 39 million people with AIDS have died worldwide since the epidemic began.

There have been advances in treatment which have improved the quality of life and the survival of persons living with HIV/AIDS. Unfortunately, a cure still eludes us.

This short document, which was conceptualized from as early as 2005, formulated in 2008, and now updated in terms of statistics, offers some logical and feasible therapeutic routes which may prove very beneficial in the race for a cure.

**Keywords:** Feasible, HIV/AIDS pandemic, logical, possible curative treatments

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## **INTRODUCTION**

The human immunodeficiency virus (HIV) is a lentivirus (a sub-group of retrovirus) (1) which hijacks the immune system of its human host. Eventually, the immune system becomes so weakened that it is no longer able to play its protective role. The host is then subjected to opportunistic infections and is at increased risk for other conditions such as Kaposi sarcoma and certain types of lymphomas. This end-stage syndrome is called acquired immunodeficiency syndrome (AIDS). Inevitably, without intervention, the host dies several years (on average about a decade) after contracting the virus. (1)(2)

The HIV/AIDS pandemic has had a significant impact on the health, livelihood and population of its human host. According to the website of the Centers for Disease Control and Prevention (CDC), (3) there were 2.1 million new cases of HIV in 2013. In the same year, about 35 million people were living with HIV around the world and about 1.5 million of the persons living with AIDS died. Nearly 39 million people with AIDS have died worldwide since the epidemic began.

There are treatments available for HIV but no cure as yet. This is because the viral envelop is a poor immunogen. Its high mutation rate prevents the selection of a stable common epitope able to provoke a protective immune response. (1)(2) Hence, even though the body produces antibodies to the envelop proteins, the mutation rate prevent any viable manipulation in terms of developing a cure.

### **The Possible cure(s):**

The genetic code for p24 is constant. However, antibodies developed against it are not virucidal. The constancy of the p24 protein, however, may be the very route through which HIV infection may be cured.

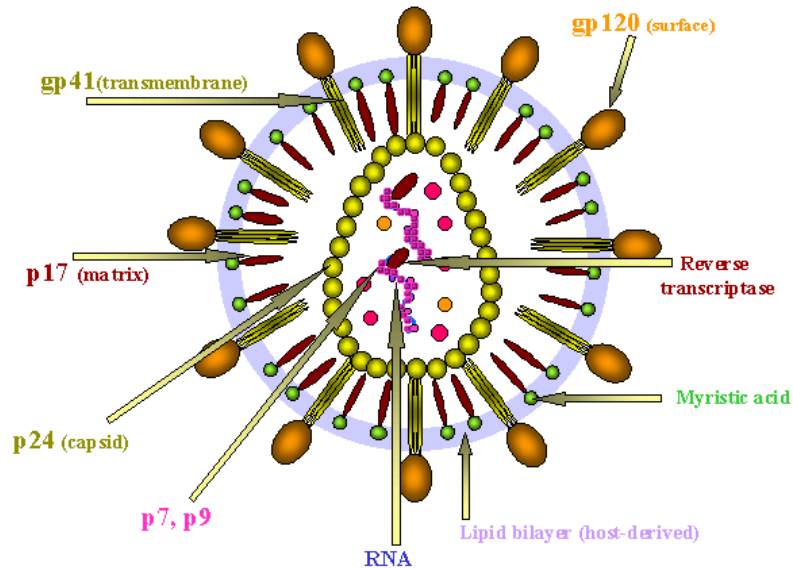


Figure: The protein locations in HIV (3)

The proposed cure is a combination of the following: After confirmation of HIV positivity:

- (1) Kill existing viruses – through the antiretroviral treatment (ART) therapy currently available.
- (2) Remove sites of viral reproduction – this will be done through chemotherapy as done for acute leukemias. This causes bone marrow suppression and a decrease in the number of CD4 cells available to be infected.
- (3) Remove the hiding places of the virus – such as macrophages and testicular cells. This would also be done in (B) above. However, this option of treatment speaks to the production of ‘magic bullets’ by the attachment of virucidal ART drug molecules to p24 antibodies. The p24 antibodies will act as reliable guides to all cells infected by HIV including HIV hiding places. This magic bullet would lead to a more specific and effective ART therapy.

- (4) To see whether it is possible to manipulate mechanisms used in immunization in the treatment of HIV. The diphtheria vaccine induces production of virucidal antibodies. It would be interested to see if attachment of p24 molecule to the diphtheria vaccine would induce such an antibody production. If this antibody is virucidal, then an effective immunoglobulin treatment as well as vaccine treatment would have been formed as p24 is common for all HIV cells irrespective of their mutation.

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