

# What is Human Immunodeficiency Virus, its Structure and Diagnosis

Avantika Singh\*

Department of Microbiology, Shoolini University, Himachal Pradesh, India

## INTRODUCTION

The human immunodeficiency infections (HIV) are two types of Lentivirus (a subgroup of retrovirus) that taint people. After some time, they cause AIDS (AIDS), a condition in which reformist disappointment of the safe framework permits hazardous shrewd contaminations and tumors to thrive. Without treatment, normal endurance time after disease with HIV is assessed to be 9 to 11 years, contingent upon the HIV subtype. In most cases, HIV is a physically communicated disease and happens by contact with or move of blood, pre-discharge, semen, and vaginal liquids. Examination has shown (for both same-sex and other gender couples) that HIV is untransmittable through condomless sex if the HIV-positive accomplice has a reliably imperceptible viral load. Non-sexual transmission can happen from a contaminated mother to her baby during pregnancy, during labor by openness to her blood or vaginal liquid, and through bosom milk. Within these natural liquids, HIV is available as both free infection particles and infection inside tainted invulnerable cells [1].

HIV taints essential cells in the human invulnerable framework, for example, partner T cells (explicitly CD4+ T cells), macrophages, and dendritic cells. HIV disease prompts low degrees of CD4+ T cells through various components, including pyroptosis of unsuccessfully contaminated T cells, apoptosis of uninfected observer cells, direct viral killing of tainted cells, and killing of contaminated CD4+ T cells by CD8+ cytotoxic lymphocytes that perceive tainted cells. When CD4+ T cell numbers decrease under a basic level, cell-intervened insusceptibility is lost, and the body turns out to be logically more vulnerable to shrewd contaminations, prompting the improvement of AIDS.

## STRUCTURE AND GENOME

HIV is diverse in structure from other retroviruses. It is generally round with a breadth of around 120 nm, around multiple times less than a red platelet. It is made out of two duplicates of positive-sense single-abandoned RNA that codes for the infection's nine qualities encased by a funnel shaped capsid made out of 2,000 duplicates of the viral protein p24. The single-abandoned RNA is firmly bound to nucleocapsid proteins, p7, and catalysts required for the improvement of the virion like opposite transcriptase, proteases, ribonuclease and integrase. A lattice made out of the

viral protein p17 encompasses the capsid guaranteeing the honesty of the virion molecule.

This is, thus, encircled by the viral envelope, that is made out of the lipid bilayer taken from the layer of a human host cell when the recently framed infection molecule buds from the cell. The viral envelope contains proteins from the host cell and generally couple of duplicates of the HIV envelope protein, which comprises of a cap made of three atoms known as glycoprotein (gp) 120, and a stem comprising of three gp41 particles that anchor the design into the viral envelope. The envelope protein, encoded by the HIV env quality, permits the infection to connect to target cells and circuit the viral envelope with the objective cell's layer delivering the viral substance into the phone and starting the irresistible cycle [2].

## DIAGNOSIS

Numerous HIV-positive individuals are uninformed that they are tainted with the infection. For instance, in 2001 under 1% of the physically dynamic metropolitan populace in Africa had been tried, and this extent is even lower in provincial populaces in 2001 just 0.5% of pregnant ladies going to metropolitan wellbeing offices were advised, tried or accept their test outcomes. Once more, this extent is even lower in provincial wellbeing offices. Since contributors may in this manner be uninformed of their contamination, benefactor blood a lot items utilized in medication and clinical examination are regularly evaluated for HIV.

HIV-1 testing is at first done utilizing a catalyst connected immunosorbent test (ELISA) to distinguish antibodies to HIV-1. Examples with a non-responsive outcome from the underlying ELISA are viewed as HIV-negative, except if new openness to a tainted accomplice or accomplice of obscure HIV status has happened. Examples with a responsive ELISA result are retested in copy. On the off chance that the aftereffect of either copy test is receptive, the example is accounted for as more than once responsive and goes through corroborative testing with a more explicit supplemental test (e.g., a polymerase chain response (PCR), western smear or, less regularly, an immunofluorescence measure (IFA)). Just examples that are over and again receptive by ELISA and positive by IFA or PCR or responsive by western blotch are viewed as HIV-positive and demonstrative of HIV contamination. Examples that are over and again ELISA-receptive once in a while

\*Correspondence to: Avantika Singh, Department of Microbiology, Shoolini University, Himachal Pradesh, India E-mail: avantikasinh@gmail.com

Received: July 30, 2021; Accepted: August 13, 2021; Published: August 20, 2021

Citation: Singh A (2021) What is Human Immunodeficiency Virus, its Structure and Diagnosis. J Hematol Thrombo Dis 9:447. DOI: 10.24105/2329-8790.2021.9.447

Copyright: © 2021 Singh A. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

give an uncertain western smear result, which might be either a deficient neutralizer reaction to HIV in a tainted individual or vague responses in a uninfected individual [3].

## RESEARCH

HIV/AIDS research incorporates all clinical examination that endeavors to forestall, treat, or fix HIV/AIDS, just as central exploration about the idea of HIV as an irresistible specialist and AIDS as the illness brought about by HIV. Numerous legislatures and examination establishments take an interest in HIV/AIDS research. This examination incorporates conduct wellbeing intercessions, like investigation into sex training, and medication improvement, for example, investigation into microbicides for physically sent sicknesses, HIV immunizations, and hostile to

retroviral drugs. Other clinical exploration regions incorporate the subjects of pre-openness prophylaxis, post-openness prophylaxis, circumcision and HIV, and sped up maturing impacts [4].

## REFERENCES

1. Doms A, Schroeder M. GoPubMed: exploring PubMed with the gene ontology. *Nucleic acids research*. 2005;33(suppl 2):W783-W786.
2. Falagas ME, Pitsouni EI, Malietzis GA, Pappas G. Comparison of PubMed, Scopus, Web of Science, and Google Scholar: strengths and weaknesses. *FASEB J*. 2008;22(2):338-342.
3. Sierra S, Kupfer B, Kaiser R. Basics of the virology of HIV-1 and its replication. *J Clin Virol*. 2005;34(4):233-244.
4. Medzhitov R, Littman D. HIV immunology needs a new direction. *Nature*. 2008.2;455(7213):591