

## HIV-1 Envelope

**Description:** HIV-1 envelope is an E.coli-derived recombinant protein that composes all of the reported immunogenic determinants found in gp41 and a small portion of gp120. The gene encoding this fusion protein was synthesized using codons optimized for E.coli expression and does not represent a linear HIV-1 envelope sequence. HIV-1 is a non-glycosylated, 233 amino acid polypeptide chain, having a molecular mass of 27275.88 dalton and pI=9.68. HIV-1 envelope protein spans the C-Terminus of gp120 and most of gp41. Superior diagnostic reagent for HIV-1 and HIV type-O detection. Detects all HIV-1 and HIV-type O infected individuals responding to envelope proteins.

**Source:** Escherichia Coli.

**Physical Appearance:** Sterile filtered colorless clear solution.

**Purity:** Greater than 95.0% as determined by HPLC analysis and SDS-PAGE.

**Specificity:**

Immunoreactive with all sera of HIV-1 and HIV-type O infected individuals and with 60-80% of HIV-2 infected individuals.

**Formulation:**

The HIV-1 contains 0.5X PBS & 6M urea.

**Stability:**

HIV-1 Envelope although stable at 4°C for 1 week, should be stored below -18°C. Please prevent freeze thaw cycles.

**Applications:**

HIV-1 Envelope antigen is suitable for ELISA and Western blots, excellent antigen for early detection of HIV seroconvertors with minimal specificity problems.

**Introduction:**

Human immunodeficiency virus (HIV) is a retrovirus that can lead to a condition in which the immune system begins to fail, leading to opportunistic infections. HIV primarily infects vital cells in the human immune system such as helper T cells (specifically CD4+ T cells), macrophages and dendritic cells. HIV infection leads to low levels of CD4+ T cells through three main mechanisms: firstly, direct viral killing of infected cells; secondly, increased rates of apoptosis in infected cells; and thirdly, killing of infected CD4+ T cells by CD8 cytotoxic lymphocytes that recognize infected cells. When CD4+ T cell numbers decline below a critical level, cell-mediated immunity is lost, and the body becomes progressively more susceptible to opportunistic infections. HIV was classified as a member of the genus Lentivirus, part of the family of Retroviridae. Lentiviruses have many common morphologies and biological properties. Many species are infected by lentiviruses, which are characteristically responsible for long-duration illnesses with a long incubation period. Lentiviruses are transmitted as single-stranded, positive-sense, enveloped RNA viruses. Upon entry of the target cell, the viral RNA genome is converted to double-stranded DNA by a virally encoded reverse transcriptase that is present in the virus particle. This viral DNA is then integrated into the cellular DNA by a virally encoded integrase so that the genome can be transcribed. Once the virus has infected the cell, two pathways are possible: either the virus becomes latent and the infected cell continues to function, or the virus becomes active and replicates, and a large number

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of virus particles are liberated that can then infect other cells.



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