

Recombinant Human Immunodeficiency Virus Reverse Transcriptase (Pol) Protein [HIV-1/Clade B (IIB)]

Cat. No. HUM-411 Lot. No. (See product label)

SPECIFICATION

Product Overview

HIV reverse transcriptase (pol) protein is recombinantly produced in E. coli and fused with GST at the N-terminus.

Background

Reverse transcriptase (RT) is an enzyme used to generate complementary DNA (cDNA) from an RNA template and is used by HIV to replicate its genome. It is primed by the host cell lysine-tRNA which partly unfolds and anneals to the 5' end of the viral genomic RNA. RT has three sequential biochemical activities: RNA-dependent DNA polymerase activity, ribonuclease H, and DNA-dependent DNA polymerase activity all of which enable the enzyme to convert single-stranded RNA into double-stranded cDNA. HIV-1 reverse transcriptase is a dimer composed of two chains. The first of these is a 66-kD subunit (p66). The other chain is a 51-kD subunit (p51), which is related to p66. However, the C-terminal RNase domain present in p66 is absent in p51. These two domains are responsible for the binding of the DNA:RNA substrate (Sarafianos et al, 2001; Kohlstaedt et al, 1992).

Antiviral drugs have been developed against RT to disrupt the process and thereby suppress virus growth. Collectively, these drugs are known as reverse-transcriptase inhibitors and include the nucleoside and nucleotide analogues zidovudine (trade name Retrovir), lamivudine (Epivir) and tenofovir (Viread), as well as non-nucleoside inhibitors, such as nevirapine (Viramune). RT has an error rate of about one in every 2,000 bases that it copies which allows HIV to mutate rapidly, resulting in drug resistant strains in a matter of weeks after treatment begins. However, the development of treatments that combine several drugs are often effective in

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combating this problem; the virus is targetted simultaneously by several different drugs meaning it cannot mutate to evade all of them at the same time.

Formulation

Stored in 1.5 M urea; 25 mM Tris-HCl pH 8.0; 0.2% Tween-20; 50% Glycerol.

Applications

Suitable for use in ELISA, western blot and flow-through. Reacts strongly with human HIV positive serum.

Notes

This product is intended for research and manufacturing uses only. It is not a diagnostic device. The user assumes all responsibility for care, custody and control of the material, including its disposal, in accordance with all regulations.

Type

Recombinant

ClassID 1

Infectious Disease

GENE INFORMATION

Synonyms

HIV Reverse Transcriptase (Pol) [HIV-1/Clade B (IIB)]

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