HIV-1 Integrase Enzyme

CATALOG NUMBER: INT-832

LOT NUMBER:

QUANTITY: 100 µg

SOURCE:

Recombinant HIV-1 Integrase Enzyme is produced by expression of the pIN (F185H/C280S) plasmid in E. coli, and purified by metal-ion chromatography. The enzyme contains the amino acid substitutions F185H and C280S that make the protein more soluble without affecting *in vitro* activity.

RECONSTITUTION:

Reconstitute lyophilized Integrase enzyme in 100 µL diH_2O.
Do not use BSA as diluent at this step.

CONCENTRATION:

1 mg/mL after reconstitution. Final buffer concentrations after reconstitution are 1M NaCl, 20 mM HEPES, pH 7.5, 5 mM DTT, 0.1 mM $ZnCl_2$, and 10% glycerol in a proprietary stabilizer. **Warning:** Do not dilute enzyme to less than 0.5 mg/mL final concentration unless using 1M NaCl or 1% BSA in your diluent.

PURITY:

HIV-1 Integrase Enzyme has been shown to be ~95% pure by SDS-PAGE.

ACTIVITY:

Enzyme is active in a DNA strand-transfer reaction using HIV-1 LTR-specific substrate and target oligonucleotides (1).

STORAGE AND HANDLING:

Store lyophilized sample at -20°C or lower prior to reconstitution; lyophilized product is stable for two years from date of shipment. Once the enzyme has been reconstituted, aliquot and store at -60°C or lower. The protein is stable to multiple cycles of freeze/thaw, but aliquoting of the stock solution after dilution is recommended to minimize the number of freeze/thaw cycles. Minimal loss (~20%) of strand-transfer activity is observed after 5 freeze-thaw cycles.

BACKGROUND:

Human immunodeficiency virus type 1 (HIV-1), like all retroviruses, depends upon the integration of a DNA copy of its viral genome into host cell chromosomes as part of its infection cycle. This integration process is catalyzed by HIV-1 integrase (IN), and the integration of HIV-1 DNA into the host chromosome is achieved by the integrase protein performing a series of DNA cleaving and ligation reactions.

Because the proviral integration event is essential for HIV-1 replication, HIV-1 IN has become a promising target for designing drugs to treat patients with AIDS.

HIV integrase is a multidomain, 31 kDa enzyme produced from the C-terminal portion of the HIV Pol gene product. The enzyme consists of three domains: an N-terminal HH-CC zinc finger domain believed to be partially responsible for multimerization, a central catalytic domain and a C-terminal DNA binding domain (2). Integrase is responsible for the integration of proviral DNA into the host genome, which is essential for HIV replication. Therefore, integrase remains an important antiviral target for new anti-HIV therapeutics (3-6)

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