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Product Information

HIV Protease Mutant (L33F, M46L, I54V, V82A, L90M, L10I, M36I, A71V, L63P) recombinant, expressed in *E. coli*

Catalog Number **H1290**
Storage Temperature –70 °C

CAS RN 144114-21-6
EC 3.4.23.16
Synonyms: HIV-1 Protease; Retropepsin; HIV PR

Product Description
HIV (HIV-1) protease is an aspartic protease with a significant role in HIV replication. It cleaves the two HIV polyprotein chains, activating the mature protein components to produce new viruses. This action makes the HIV protease a major drug target for treating HIV. In response to the ongoing treatment of patients with protease inhibitors, the HIV virus has mutated and generated variants of the HIV protease, which are resistant to the current protease inhibitors.

The HIV-1 protease prefers cleavage between an aromatic residue (Tyr or Phe) and a Pro residue. Alternatively, HIV-1 protease prefers to cleave between hydrophobic residues.[2]

HIV-1 protease can be inhibited with aspartic acid type protease inhibitors, such as acetyl-pepstatin, as well as commercially available HIV-1 protease inhibitors that are currently being used as drugs.[2]

HIV protease is a homodimer with each monomer containing 99 amino acids.[1] Each monomer subunit contains 1 α-helix and 2 anti-parallel β sheets.

Molecular mass:[2] 10.8 kDa

Isoelectric point:[2] 9.1

Optimal pH range:[2] 4.7–5.5

These mutations have been cataloged in the HIV Drug Resistance Database by Stanford University. Each position is scored according to its mutation frequency and ability to impart drug resistance. This product has been genetically engineered to match a high-scoring cross-resistant variant in the HIV database and is therefore, a viable research tool for developing next generation protease inhibitors.[2]

The product is supplied as a solution in 0.5 M sodium acetate, pH 4.7, with 50 mM Tris-HCl, 1 M NaCl, 1 mM EDTA, 5 mM DTT, and 15% glycerol.

Activity: HIV protease activity has been determined with the fluorescent substrate: Abz-Ala-Arg-Val-Nle-Tyr(NO_2)-Glu-Ala-Nle-NH_2.

Unit definition: One unit of HIV protease will cleave 1 picomole per minute of the substrate Abz-Ala-Arg-Val-Nle-Tyr(NO_2)-Glu-Ala-Nle-NH_2 at pH 5.5 and 37 °C.

Precautions and Disclaimer
This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability
Store the product at –70 °C. It remains active at room temperature for 1 hour.[2]

References
1. Davies, D. R., The Structure and Function of the Aspartic Proteinases. Annual Review of Biophysics and Biophysical Chemistry, **19**, 189-215 (1990).
2. Supplier Data

CS,MAM 09/08-1