HIV-1 Protease

Product Data Sheet

Type: Active
Source: E. coli
Species: Human

Cat. No.:

RH1P0001 (0.1 mg)

Description

Total 99 AA. MW: 10.8 kDa (monomer), protein active as dimer

Introduction to the Molecule

Retroviral protease is a vital part of the life-cycle of the HIV-1 virus. It is found in the infected cells as a part of the Gag-Pol polyprotein. It is autocatalytically released after the formation of immature viral particles. The enzyme subsequently cleaves the other parts of viral polyproteins causing the virus to mature. In HIV-infected patients the enzyme is a subjected to intensive mutagenesis. The seletion pressure creates mutants that are resistant to applied medcines. HIV-1 protease is active as a homodimer.

Research topic

Others

Amino Acid Sequence

PQITLWQRPL VTIKIGGQLK EALLDTGADD TVLEEMNLPG RWKPKMIGGI GGFIKVRQYD QILIEICGHK AIGTVLVGPT PVNIIGRNLL TQIGCTLNF

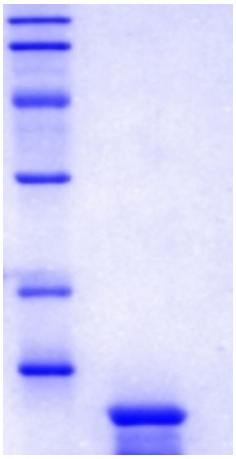
Source

E. coli

Purity

Purity as determined by densitometric image analysis: >95%

SDS-PAGE gel



14% SDS-PAGE separation of Human HIV-1 Protease
1. M.W. marker - 14, 21, 31, 45, 66, 97 kDa
2. reduced and heated sample, 2.5 µg/lane

Formulation

20 mM Tris, 20 mM MES, 200 mM NaCl, 1mM EDTA, 10% (v/v) glycerol, 0,05% 2-mercaptoethanol, pH 6.5 - filtered (0.4 µm), frozen

Reconstitution

Defrost at ambient temperature.

Shipping

At temperature 2 - 8°C Upon receipt, store the product at the temperature recommended below.

Storage, Stability/Shelf Life

Store protein at -80°C. Protein remains stable until the expiry date when stored at -80°C. Avoid repeated freezing/thawing cycles.

Quality Control Test

SDS PAGE to determine purity of the protein.
Active site titration by tightly binding inhibitor.

Applications

Crystallography, Inhibitor screening, Kinetic studies

Note

K_m = 15.1 µM
K_{cat} = 30 s^{-1}
$K_{cat/Km}$ = 1981 mM^{-1} s^{-1} with peptide substrate
KARVF(NO $_2$)VRKA
(F(NO $_2$) … p-nitrophenylalanine)
Manufactured by AscoProt Biotech

References to this Product

- Lindsten K, Uhlikova T, Konvalinka J, Masucci MG, Dantuma NP. *Cell-based fluorescence assay for human immunodeficiency virus type 1 protease activity.* Antimicrob Agents Chemother. 2001 Sep;45 (9):2616-22
- Ingr M, Uhlikova T, Strisovsky K, Majerova E, Konvalinka J. *Kinetics of the dimerization of retroviral proteases: the "fireman's grip" and dimerization.* Protein Sci. 2003 Oct;12 (10):2173-82
- Saskova KG, Kozisek M, Rezacova P, Brynda J, Yashina T, Kagan RM, Konvalinka J. *Molecular characterization of clinical isolates of human immunodeficiency virus resistant to the protease inhibitor darunavir.* J Virol. 2009 Sep;83 (17):8810-8

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