

Product Information

HRV-3C Protease

N-Terminal His-tagged recombinant protein

Catalog Number **SAE0045**

Storage Temperature $-20\text{ }^{\circ}\text{C}$

Synonym: Rhinovirus (serotype 14 LP) genomic region encoding protease

Product Description

HRV-3C protease from human Rhinovirus Type 14 is a protease that specifically cleaves within an eight-residue recognition sequence. This sequence is:

↓
Leu-Glu-Val-Leu-Phe-Gln-Gly-Pro

Proteolytic cleavage occurs between the Gln and Gly residues.¹ HRV-3C protease is a useful tool to cleave recombinant proteins that are expressed as a fusion protein with this sequence between the carrier domain and the protein of interest.² This recombinant version contains a six-histidine tag and can be easily removed by IMAC chromatography.

The product is supplied in aqueous buffer (0.8–1.2 mg/mL) containing 50 mM Trizma®-HCl, pH 7.5, 0.15 M NaCl, 1 mM TCEP, and 50% (v/v) glycerol.

Precautions and Disclaimer

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

Storage/Stability

The product retains activity for at least 2 years when stored at $-20\text{ }^{\circ}\text{C}$.

Procedure

HRV-3C protease is active under a wide range of pH values, ionic strengths, and temperatures. This protease retains high activity even at $0\text{ }^{\circ}\text{C}$, making it an optimal choice for temperature-sensitive proteins. However, the activity toward substrate proteins may differ depending on the substrate identity and reaction conditions.

The presence of low concentrations of a reducing agent in the reaction buffer is highly desirable in order to keep the enzyme active in prolonged incubations. It is recommended to use 0.2–1 mM DTT in the reaction buffer for optimal results.

A good starting point for optimization is to use 1 μg of HRV-3C protease per 100 μg of target protein for 1 hour at $0\text{--}8\text{ }^{\circ}\text{C}$, or 1 μg of HRV-3C protease per 500 μg at $0\text{--}8\text{ }^{\circ}\text{C}$ for 12–24 hours. Temperatures up to $30\text{ }^{\circ}\text{C}$ can be used for faster digestion. Protease activity is $\sim 5\times$ higher at $30\text{ }^{\circ}\text{C}$ versus $0\text{--}8\text{ }^{\circ}\text{C}$. However, protease and substrate stability might be compromised.

One unit of HRV-3C protease is defined as the amount of enzyme needed to digest 1 nmole of the substrate peptide H-Glu-Ala-Leu-Phe-Gln-pNA per hour at $0\text{ }^{\circ}\text{C}$, in a reaction buffer containing 25 mM HEPES, pH 7.5, 150 mM NaCl, 1 mM EDTA, and 1 mM DTT.

References

1. Cordingley, M.G. *et al.*, *J. Biol. Chem.*, **265**(16), 9062-9065 (1990).
2. Waugh, D.S. *Protein Expr. Purif.*, **80**(2), 283-293 (2011).

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