Proteinase K Solution (40 mg/mL)

Cat. No.: P1520269 | Pack size: 1 mL, 10 mL | Storage: Store at 2-8°C

Overview

This product is derived from Pichia pastoris expressing a site-directed mutagenesis-optimized gene for Proteinase K from Engyodontium album. It offers advantages such as higher specific activity, higher yield, and a broader active pH/temperature range compared to the native enzyme. Advanced protein engineering techniques and a 28,000-liter yeast fermentation platform effectively reduce unit costs, providing a cost-effective solution for biopharmaceutical R&D and production. Yeast-based high-efficiency expression and chromatographic purification ensure product purity. This product is free from bacterial endotoxins, resulting in a broader range of applications compared to native Proteinase K. Proteinase K is one of the most active proteases available, with an active pH range of 4-12 and a temperature range of 0-75°C. It retains activity even in the presence of SDS, Urea, or EDTA. It cleaves peptide bonds at the carboxyl side of aliphatic and aromatic amino acids and is capable of

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Source/Species	Pichia pastoris expressing a genetically engineered Engyodontium album Proteinase K gene.
Molecular Weight	29.3 kDa
Isoelectric Point (pI)	8.9
Dilution Buffer	20 mM Tris-HCl (pH 7.4), 1 mM $CaCl_2$; or 20 mM Tris-HCl (pH 7.4), 1 mM $CaCl_2$, 2% Glycerol.
Storage Buffer	20 mM Tris-HCl (pH 7.4), 1 mM $CaCl_2$, 50% Glycerol.
Storage	Stable for 1 year at 4°C.
Note	After opening, if stored at 2-8°C for more than one week, it is recommended to filter sterilize the solution to prevent microbial contamination.

Applications

- In genetic diagnostic kits, genomic DNA extraction kits, and RNA extraction kits for removing nucleases and other protein contaminants.

- In the biopharmaceutical industry for the extraction of nucleic acids, polysaccharide-based drugs, and other non-protein biological products, such as in the preparation of DNA vaccines and heparin.
- In the daily chemical industry for skin care (removing aged stratum corneum cells), as well as in leather tanning, the production of hydrolyzed protein flavorings, cosmetics, and feed processing.

Usage Instructions

Use the 20-40 mg/mL stock solution to achieve a final concentration of 50-200 µg/mL in the digestion or lysis buffer. Incubation times can range from 30 minutes to 18 hours depending on the application requirements. Prolonged incubation may lead to autodegradation of the enzyme.

Enzyme Activity and Unit Definition

- Activity: ≥ 1800 U/mL.
- Unit Definition: One unit (U) is defined as the amount of enzyme that catalyzes the release of 1 µmol of tyrosine per minute from a casein substrate at 37°C and pH 7.5.

Optimal Conditions and Influencing Factors

Optimal pH Range	7.5-11.5
Optimal Temperature Range	Recommended range: 37-70°C (Highest activity at 70°C)
Activators	1-5 mM Ca^{2+}
Inhibitors	Diisopropyl fluorophosphate (DIFP), Phenylmethylsulfonyl fluoride (PMSF)
Inactivation Method	Add PMSF to the reaction system to a final concentration of 5 mM.

Residual Impurities Testing

- This product is free from DNA and RNA, and contains no detectable DNase or RNase activity.
- No deoxyribonuclease activity was detected after incubating with λDNA substrate for over 3 hours at 37°C.
- No ribonuclease activity was detected after incubating with an RNA substrate for over 3 hours at 37°C.

Precautions

- To ensure your safety and health, please wear appropriate laboratory attire, protective gloves, and goggles during y (Cas No 39450-01-6) p BioReagent,DNase, pp RNase p free,Suitable for molecular operation.
- This product may cause skin allergic reactions; handle with care.

- If the Proteinase K solution requires repeated use, aliquot it to avoid contamination and loss of activity.

Specifications

Property	Value
Specifications & Purity	BioReagent,DNase, RNase free,Suitable for molecular biology, sterile,≥95%(Native-PAGE),40 mg/mL
Stability And Storage	Store at 4°C long term (12 months). Upon receipt, it is recommended to aliquot.
Storage Conditions	Store at 2-8°C
Shipped In	Wet ice. This product requires cold chain shipping. Ground and other economy services are not available.
Purity	≥95%(Native-PAGE)

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Limitations & Disclaimer

- For Research Use Only (RUO). Not for use in human or animal diagnostics, therapeutics, or in vivo applications. Not for food, cosmetic, or household use.

- This product is not a CE-marked in vitro diagnostic device under IVDR (EU) 2017/746 and is not an FDA-cleared device under 21 CFR. Use is restricted to verified businesses, institutions, and qualified professionals for research and development purposes.
- Where any kit component is classified as hazardous under CLP (EC) 1272/2008 or OSHA HCS (29 CFR 1910.1200), the product Safety Data Sheet (SDS) takes precedence over this document for handling, storage, and disposal information.
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