Proteinase K (recombinant), PCR grade

Catalog Number EO0491, EO0492

Pub. No. MAN0012880 **Rev.** D.00

WARNING! Read the Safety Data Sheets (SDSs) and follow the handling instructions. Wear appropriate protective eyewear, clothing, and gloves. Safety Data Sheets (SDSs) are available from **thermofisher.com/support.**

Product description

Proteinase K is an endolytic protease that cleaves peptide bonds at the carboxylic sides of aliphatic, aromatic or hydrophobic amino acids. The Proteinase K is classified as a serine protease (1). The smallest peptide to be hydrolyzed by this enzyme is a tetrapeptide.

Contents and storage

Cat. No.	Contents	Source	Molecular Weight	Amount	Storage
EO0491	Proteinase K (recombinant), PCR grade	Pichia pastoris cells with a cloned gene from *Tritirachium album*	28.9 kDa monomer (6)	1 mL, ≥ 600 U/mL (~20 mg/mL)	-25 °C to -15 °C
EO0492				5 x 1 mL, ≥ 600 U/mL (~20 mg/mL)	

Applications

- Isolation of genomic DNA from mouse tail.
- Isolation of genomic DNA from cultured cells.
- Removal of DNases and RNases when isolating DNA and RNA from tissues or cell lines (2, 3).
- Determination of enzyme localization (4).
- Improving cloning efficiency of PCR products (5).

Definition of Activity Unit

One unit of the enzyme liberates Folin-positive amino acids and peptides corresponding to 1 µmol tyrosine in 1 min at 37 °C using denatured hemoglobin as substrate. Enzyme activity is assayed in the following mixture: 0.08 M potassium phosphate (pH 7.5), 5 M urea, 4 mM NaCl, 3 mM $CaCl_2$ and 16.7 mg/mL hemoglobin.

Storage Buffer

The enzyme is supplied in: 10 mM Tris-HCl (pH 7.5), containing calcium acetate and 50 % (v/v) glycerol.

Inhibition and Inactivation

- Phenylmethylsulfonyl fluoride and diisopropyl phosphorofluoridate completely inhibit the enzyme (1).
- Proteinase K is not inactivated by metal chelators, by thiol-reactive reagents or by specific trypsin and chymotrypsin inhibitors.

Note

- The recommended working concentration for Proteinase K is 0.05-1 mg/mL. The activity of the enzyme is stimulated by 0.2-1 % SDS or by 1-4 M urea (3).
- Ca^{2+} protects Proteinase K against autolysis, increases the thermal stability and has a regulatory function for the substrate binding site of Proteinase K (7).
- Stable over a wide pH range: 4.0-12.5, optimum pH 7.5-8.0 (8).

References

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