

**PRODUCT INFORMATION**

**Proteinase K (recombinant), PCR grade**

Pub. No. MAN0012880

Rev. Date 22 September 2017 (Rev. C.00)

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**Assembling Lot 00000000**

**Filling Lot 00000000**

**Expiry Date MM.YYYY**

**Store at -20 °C**

Components	#EO0491	#EO0492
Proteinase K (recombinant), PCR grade, > 600 U/mL (~20 mg/mL)	1 mL	5 × 1 mL



**DANGER**

**Contains: Proteinase K. Hazard statements:** May cause allergy or asthma symptoms or breathing difficulties if inhaled. **Precautionary statements:** IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Avoid breathing dust/fume/ gas/mist/vapors/spray. In case of inadequate ventilation wear respiratory protection. If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician. Dispose of contents/ container to an approved waste disposal plant. Thermo Fisher Scientific Baltics UAB , V.A. Graiciuno 8, LT-02241 Vilnius,

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**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.

**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).

**Source**

*Pichia pastoris* cells with a cloned gene from *Tritirachium album*.

**Molecular Weight**

28.9 kDa monomer (6).

### **Definition of Activity Unit**

One unit of the enzyme liberates Folin-positive amino acids and peptides corresponding to 1  $\mu$ mol 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<sub>2</sub> 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<sup>2+</sup> 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).

## **CERTIFICATE OF ANALYSIS**

### **Endodeoxyribonuclease Assay (nicking activity)**

No detectable degradation was observed after incubation of supercoiled plasmid DNA with Proteinase K.

### **Labeled Oligonucleotide (LO) Assay**

No detectable degradation after incubation of single-stranded or double-stranded radiolabeled oligonucleotides with Proteinase K.

### **Ribonuclease Assay**

No detectable degradation was observed after incubation of [3H]-RNA with Proteinase K.

Quality authorized by:



Jurgita Zilinskiene

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## References

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4. Brdiczka, D. and Krebs, W., Localization of enzymes by means of proteases, Biochim. Biophys. Acta, 297, 203-212, 1973.
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8. Ardelt, W., Laskowski, M.Jr., Turkey ovomucoid third domain inhibits eight different serine proteinases of varied specificity of the same ...Leu18-Glu19... reactive site, Biochemistry, 24, 5313-5320, 1985.

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