

# Proteinase K, Recombinant, PCR Grade

Cat# ER1021 – 10 mg | ER1022 – 100 mg | ER1023 – 1 g

Storage at 2-8 °C for 24 months

## Introduction

**Proteinase K** is a stable serine protease with broad substrate specificity. It degrades many proteins in the native state even in the presence of detergents. Proteinase K was isolated from a fungus able to grow on keratin and the enzyme can digest native keratin (hair), hence, the name "Proteinase K". The predominant site of cleavage is the peptide bond adjacent to the carboxyl group of aliphatic and aromatic amino acids with blocked alpha amino groups. **Proteinase K** is used for the destruction of proteins in cell lysates (tissue, cell culture cells) and for the release of nucleic acids. PCR grade recombinant Proteinase K is derived from yeast based on the optimized gene of *Engyodontium album* by site-directed mutation. It is purified by chromatography process, and with calcium and glycerin as protective agents. Free of DNase and RNase.

## Applications

Viral DNA/RNA isolation

DNA/RNA Experiment, for DNA/RNA Isolation

## Information

**Source:** Yeast**Physical Appearance:** White or light beige lyophilized powder**Purity:** More than 95% (SDS-PAGE)**Bioactivity:**  $\geq 30$ U/mg**E.C. No.:** 3.4.21.64**Quality control:** DNase and RNase Non-detection

## STORAGE and Reconstitution

The lyophilized recombinant proteinase K has been sterilized and filtered through a 0.22  $\mu$ m filter, which can maintain its activity for a long time at 2-8°C. It is recommended to store at -20°C for long-term storage.

Expiry date: 24 months.

Reconstitute lyophilized recombinant proteinase K in 50% glycerol solution and store at -20°C.

Please avoid repeated freeze-thaw cycles after reconstitution

## Stock and Working concentration

Stock Conc. : 10-20 mg/mL

Working Conc. : 50-200  $\mu$ g/mL in 10 mM Tris-HCl, pH 7.5-9.0

### **Activators**

1-5 mM Ca<sup>2+</sup> is required for activation. When calcium is removed from the enzyme (addition of EDTA) 25% of the catalytic activity is lost. However, if the EDTA-Ca<sup>2+</sup> complex is removed from the enzyme solution by gel filtration, a total of 80% of the enzyme activity is lost and only a small activation will occur upon addition of excess Ca<sup>2+</sup> to the Ca<sup>2+</sup>-free enzyme.

### **Inhibitors**

Proteinase K is inhibited by DIFP or PMSF (the latter used at final concentration 5 mM). It is partly inactivated, but not inhibited, by EDTA (see Activators). Proteinase K is not inhibited by iodoacetic acid, the trypsin-specific inhibitor TLCK, the chymotrypsin specific inhibitor TPCK and phloromercuribenzoate.

### **Notes**

1. The activity of the enzyme is stimulated by 0.2- 1% SDS or by 1-4 M urea.
2. 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.
3. Stable over a wide pH range: 4.0-12.5, optimum pH 7.5-8.0.

### **PRODUCT USE LIMITATION**

These products are intended for research use only.