

## Proteinase K

**Cat No.** N9016  
**Size:** 100mg  
**Contents:** Proteinase K 100mg  
**Specific Activity:** 40 U/mg protein  
**Form:** Contains 100 mg Proteinase K, Lyophilized Powder

### 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. The smallest peptide to be hydrolyzed by this enzyme is a tetrapeptide.

### Features

Active in a wide range of reaction products

### Applications

- Isolation of genomic DNA from cultured cells and tissues
- Removal of DNases and RNases when isolating DNA and RNA from tissues or cell lines
- Determination of enzyme localization
- Improving cloning efficiency of PCR products

### Storage

For long time storage, store the Proteinase K powder at 4°C and Delution Buffer at -20°C separately. For use, dissolved solution should be stored at -20°C.

### Quality Control

**DNase Activity:** None detectable enzyme activity with  $\lambda$  DNA after 6 hrs incubation at 37°C.

**RNase Activity:** None detectable ribonuclease activity after 16 hrs incubation at 25°C.

### 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, pH 7.5 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.

### Source

Pichia pastoris cells with a cloned gene encoding Tritirachium album endolytic protease (Proteinase K).

### Molecular Weight

28.9 kDa monomer.

**Dilution Buffer**

50 mM Tris-HCl (pH 7.5), containing 5 mM calcium chloride and 50% (v/v) glycerol.

**Inhibition and Inactivation**

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

Inactivated by heating at 95°C for 10 minutes.

**Note**

- Optimum activity at 50-55°C.
- Rapid denaturation of enzyme occurs at temperatures above 65°C.
- 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.
- 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.
- Stable over a wide pH range: 4.0-12.5, optimum pH 7.5-8.0.