

## Proteinase K (recombinant), PCR grade

### Instruction for Use

Cat. No./Spec.: E1019-A/1 mL; E1019-B/1 mL × 5

Concentration: ≥ 600 U/mL (~20 mg/mL)

#### Product Description

Proteinase K is an endopeptidase capable of hydrolyzing peptide bonds at the carboxyl terminus of aliphatic, aromatic, or hydrophobic amino acids. Proteinase K belongs to the family of serine proteases. This enzyme can minimally hydrolyze tetra-peptides.

#### Components

Component	E1019-A	E1019-B
Proteinase K (recombinant), PCR grade	1 mL	1 mL×5

#### Storage Condition & Shelf Life

Store at -20°C.

#### Source

Recombinant *Pichia pastoris* strain containing a cloned gene from *Tritirachium album*.

#### Unit Definition

A unit is defined as the amount of enzyme required to release an amount of Folin-positive amino acids and peptides equivalent to 1 μmol of tyrosine from denatured hemoglobin in 1 minute at 37° C.

Enzyme activity is determined in the following mixture: 0.08M potassium phosphate (pH 7.5), 5M urea, 4mM NaCl, 3mM CaCl<sub>2</sub>, and 16.7 mg/mL hemoglobin.

#### Features

- Ready-to-use solution
- Compatible with a wide range of reaction conditions

#### Scope of Application

- Isolate genomic DNA from mouse tails.
- Isolate genomic DNA from cultured cells.
- Eliminate DNase and RNase during the isolation of DNA and RNA from tissues or cell lines.
- Determine the location of enzymes.
- Improve the cloning efficiency of PCR products.

#### Inhibition and Inactivation

- Phenylmethylsulfonyl fluoride (PMSF) and diisopropyl fluorophosphate (DFP) completely inhibit the enzyme.
- Proteinase K is not inactivated by metal chelating agents, thiol-reactive reagents, or specific inhibitors of trypsin and chymotrypsin.

#### Notes

- The recommended working concentration for Proteinase K is 0.05 to 1 mg/mL. The presence of 0.2 to 1% SDS or 1 to 4M urea can enhance enzyme activity.
- Ca<sup>2+</sup> can protect Proteinase K from self-degradation, increase its thermal stability, and modulate the function of the Proteinase K substrate-binding site.
- It remains stable over a wide pH range: pH 4.0 to 12.5, with the optimal activity range being pH 7.5 to 8.0.
- It exhibits optimal activity at temperatures between 50 to 55°C.
- It rapidly denatures at temperatures above 65°C.

This product is for research use only.