

## Proteinase K Solution, 20 mg/mL

P. Code	Number of Rxn	Component	Description	Lot Number	Expiry
PK-1	50 x 20 µL	Proteinase K 20 mg/mL	Serine protease with a very high specific activity.		

### Applications

- Nucleic acid extraction: Facilitates DNA and RNA isolation by degrading proteins that may interfere with downstream processes.
- Enzyme Inactivation including DNases and RNases.
- *In situ* hybridisation: Enhances probe accessibility by digesting proteins that may hinder hybridisation.

### Product Description

Proteinase K is a serine protease derived from the fungus *Tritirachium album*. It exhibits exceptional stability and activity over a broad range of conditions, including high temperatures and denaturing agents, making it ideal for use in various molecular biology and biochemical applications. This product is produced through a rigorous purification process to ensure high purity and consistent enzymatic activity.

Proteinase K works by hydrolyzing peptide bonds adjacent to the carboxyl group of aliphatic and aromatic amino acids, resulting in the efficient degradation of proteins. Its ability to digest a wide range of proteins, including those that are highly resistant to other proteases, making it ideal for many protocols.

The 20 mg/mL Proteinase K solution is provided in a convenient format, eliminating the need for reconstitution and allowing for immedi-

ate use in experiments. It's high concentration offers flexibility in adjusting enzyme-to-substrate ratios to optimize digestion efficiency while minimizing sample volume requirements.

### Key Features

- Highly active - Efficiently degrades proteins in a wide range of applications.
- Broad substrate specificity - Cleaves peptide bonds adjacent to aliphatic and aromatic amino acids.
- Stable - Maintains activity over a broad pH range and withstands elevated temperatures.
- Convenient format - Supplied in a ready-to-use solution for ease of handling and application.

### Associated Products

- Just Water - Molecular biology Grade in convenient 1 mL aliquots.
- MegaMix Emerald - dye-based qPCR Mastermix.
- MegaMix Platinum - probe based qPCR MasterMix.

### Protocol

- Proteinase K is ready to use, simply thaw and mix well before use.
- Add the appropriate volume of Proteinase K solution to the sample. Typically, concentrations ranging from 0.05 to 1 mg/mL of Proteinase K are used, depending on the application. The enzyme is supplied at 20 mg/mL.
- Proteinase K solution remains active over a broad pH range (4.0–12.5, optimal pH 8.0) and also over the temperature range of 25–65°C. Heating may be required depending on the protocol as activity is greatly increased at 50–60°C.
- The addition of 0.5–1% SDS, 3M Guanidinium Hydrochloride, 1M Guanidinium thiocyanate and 4M Urea have been shown

- to increase the activity of proteinase K.
- Activators: 1–5 mM Ca<sup>2+</sup> is required for activation. When calcium is removed from the enzyme (by addition of EDTA), 25% of the catalytic activity is lost. The presence of calcium improve the stability of the enzyme as it prevents autolysis.
- Inhibitors: Proteinase K is inhibited by DIFP or PMSF (the latter used at final concentration 5 mM).

For research use only

### Product Handling

#### Storage

To ensure the quality of the product until the expiry date keep at the recommended storage temperature and limit exposure to light.

#### Contamination Control

To prevent erroneous results ensure work environment is free of contamination by cleaning your workstation and equipment with a DNA decontaminant daily, wear gloves, use sterile tubes and filter pipet tips.

Simple | Effective | Efficient