

GB Proteinase K powder

For Research use only

Cat No: GB2441

Size : 10 gr

GB Proteinase K is a powerful and versatile enzyme widely used in molecular biology for its ability to digest a variety of proteins.

What is Proteinase K?

Proteinase K is a serine protease that cleaves peptide bonds adjacent to the carboxyl group of aliphatic, aromatic, or hydrophobic amino acids. It is derived from the fungus *Tritirachium album* and is known for its robustness and broad substrate specificity. Proteinase K is a crucial enzyme in many molecular biology workflows due to its ability to effectively degrade a wide range of proteins under various conditions, facilitating the preparation of high-quality nucleic acid samples.

Key Features:

- **High Activity**: Proteinase K remains highly active over a wide range of temperatures (20-65°C) and pH levels (pH 4-12).
- **Stability**: It is stable in the presence of detergents (e.g., SDS) and denaturants (e.g., urea).
- Versatility: Effective in a variety of buffer systems and is resistant to autolysis.

Applications:

- **DNA and RNA Extraction**: Proteinase K is used to digest proteins during nucleic acid extraction, ensuring high purity and yield of DNA or RNA by removing contaminating proteins.
- **Protein Digestion**: Employed to digest proteins in cell lysates, tissues, and other biological samples for subsequent analysis.
- In Situ Hybridization: Used to permeabilize cells and tissues to allow probe access during hybridization procedures.
- **Enzymatic Modifications**: Inactivates nucleases (RNases and DNases) during sample preparation to protect nucleic acids from degradation.



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Storage and Handling:

- **Storage**: Proteinase K is typically stored as a lyophilized powder at -20°C. Once reconstituted, aliquots can be stored at -20°C for long-term use.
- Handling: Avoid repeated freeze-thaw cycles to maintain enzyme activity.

Applications of Proteinase K

1. DNA and RNA Extraction:

- **Purpose**: Ensures the removal of proteins and nucleases that can degrade nucleic acids.
- **Process**: During extraction, Proteinase K is added to the lysis buffer to digest proteins, allowing for the purification of high-quality DNA or RNA.

2. Tissue Preparation:

- **Purpose**: Prepares tissue samples for subsequent analysis or hybridization procedures.
- **Process**: Proteinase K permeabilizes tissues, making them more accessible to probes or other reagents.

3. Histological Studies:

- **Purpose**: Facilitates the study of tissues by breaking down extracellular matrix proteins.
- **Process**: Proteinase K is used to digest protein components, making it easier to study tissue architecture and cellular components.

4. Proteomic Research:

- **Purpose**: Investigates protein composition and interactions.
- **Process**: Proteinase K digests proteins in samples, allowing for analysis of peptides and protein fragments.



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