



# Recombinant Tritirachium album Proteinase K (PROK)

<b>Product Code</b>	CSB-EP361972TIQ
<b>Storage</b>	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.
<b>Uniprot No.</b>	P06873
<b>Product Type</b>	Recombinant Protein
<b>Immunogen Species</b>	Parengyodontium album (Tritirachium album)
<b>Purity</b>	>85% (SDS-PAGE)
<b>Sequence</b>	AAQTN APWGLARISS TSPGTSTYYY DESAGQGSCV YVIDTGIEAS HPEFEGRAQM VKTTYSSRD GNGHGTHCAG TVGSRTYGVA KKTQLFGVKV LDDNGSGQYS TIIAGMDFVA SDKNNRNCPK GVVASLSLGG GYSSSVNSAA ARLQSSGVMV AVAAGNNNAD ARNYSPASEP SVCTVGASDR YDRRSSFSNY GSVLDIFGPG TSILSTWIGG STRSISGTSM ATPHVAGLAA YLMTLGKTTA ASACRYIADT ANKGDLNIP FGTVNLLAYN NYQA
<b>Source</b>	E.coli
<b>Target Names</b>	PROK
<b>Protein Names</b>	Recommended name: Proteinase K EC= 3.4.21.64 Alternative name(s): Endopeptidase K Tritirachium alkaline proteinase
<b>Expression Region</b>	106-384
<b>Notes</b>	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
<b>Tag Info</b>	Tag type will be determined during the manufacturing process.
<b>Protein Length</b>	Full Length of Mature Protein

## Description

Proteinase K (PROK) is a highly active extracellular alkaline serine endopeptidase from Tritirachium album limber, belonging to the subtilisin family [1][2]. It is known for its ability to digest native keratin and is widely used for facilitating nucleic acid isolation by degrading contaminating proteins in cell lysates and for inactivating enzymes such as DNase and RNase without denaturation [3]. Proteinase K is a useful tool for the preparation of protein-free samples of DNA or RNA due to its properties [4]. Moreover, it is used as a research tool for investigating pathogenic mechanisms in neurodegeneration [5]. The enzyme's structure is affected by various factors, which in turn govern its catalytic proficiency, and even small structural changes can have detrimental effects on its activity [6]. Proteinase K has a substrate recognition site that includes specific residues, and its crystal structure has been determined by X-



ray diffraction studies [7][8]. Additionally, it is known that the enzyme exhibits a strong similarity to bacterial subtilisins [9].

The enzyme's properties make it a valuable tool in various fields, including molecular biology, biochemistry, and neurodegenerative disease research. Its ability to degrade proteins without denaturation makes it essential in nucleic acid isolation and enzyme inactivation. The structural characteristics and substrate recognition site of Proteinase K provide insights into its catalytic mechanism and potential applications in protein engineering. Furthermore, its similarity to bacterial subtilisins suggests evolutionary and functional relationships that could be explored further.

#### References:

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- [2] C. Betzel, S. Gourinath, P. Kumar, P. Kaur, M. Perbandt, S. Eschenburget al., "Structure of a serine protease proteinase k from tritirachium album limber at 0.98 Å resolution", *Biochemistry*, vol. 40, no. 10, p. 3080-3088, 2001. <https://doi.org/10.1021/bi002538n>
- [3] J. Arnórsdóttir, "Crystallographic studies on a cold adapted subtilase and proteins involved in mrna processing",. <https://doi.org/10.53846/goediss-538>
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- [8] K. Yamashita, Y. Kikkawa, K. Kurokawa, & Y. Doi, "Enzymatic degradation of poly(l-lactide) film by proteinase k: quartz crystal microbalance and atomic force microscopy study", *Biomacromolecules*, vol. 6, no. 2, p. 850-857, 2005. <https://doi.org/10.1021/bm049395v>
- [9] G. Fa and G. Hg, "Proteinase k from tritirachium album limber", *European Journal of Biochemistry*, vol. 179, no. 1, p. 185-194, 1989. <https://doi.org/10.1111/j.1432-1033.1989.tb14539.x>

#### Reconstitution

We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Please reconstitute protein in deionized sterile water to a concentration of 0.1-1.0 mg/mL. We recommend to add 5-50% of glycerol (final



concentration) and aliquot for long-term storage at -20°C/-80°C. Our default final concentration of glycerol is 50%. Customers could use it as reference.

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**Shelf Life**

The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself.

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