



Technical Data Sheet

GENERAL INFORMATION

PRODUCT	Recombinant Proteinase K, expressed in yeast. Molecular Biology Grade. Lyophilized.
Cat. No.	MT20K-L1PRTKXA
QUANTITY	20 mg
DESCRIPTION	<p>Proteinase K is a broad-spectrum serine protease enzyme, isolated from the fungus <i>Tritirachium album</i>. It efficiently digests proteins by cleaving peptide bonds adjacent to the carboxylic group of aromatic and aliphatic amino acids. Due to its stability in the presence of denaturing agents, chelating reagents and in a wide range of pH (4-12.5), and the ability to digest native or denatured proteins. Proteinase K is suitable for removing DNases and RNases when isolating DNA and RNA.</p> <p>This product is a freeze-dried version of its well characterized liquid equivalent.</p> <p>This is a molecular biology grade product.</p>

PRODUCTS PROVIDED

<u>Component</u>	<u>Amount</u>
20K-L1PRTKXA	Recombinant Proteinase K. Molecular Biology Grade. Lyophilized. 1 vial

DELIVERY CONDITIONS

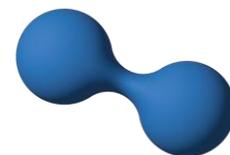
20K-L1PRTKXA 20 mg of freeze-dried Proteinase K.

SHIPPING CONDITIONS This lyophilized product can be handled and store at Room Temperature for at least 1 year.

SUGGESTED RECONSTITUTION BUFFER 20 mM Tris pH 7.5, 3 mM CaCl₂* and 30% (v/v) glycerol.
*Calcium is not necessary for proteolytic activity, although it is recommended to prevent autoprolysis and increase thermostability.

STORAGE CONDITIONS This lyophilized product can be handled and store at Room Temperature for at least 12 months. Once reconstituted, this protein in solution is stable at room temperature (RT) for at least 1 year. For extended shelf life, storage at -20 °C is recommended. Avoid multiple freeze/thaw cycles by storing multiple aliquots.





ADDITIONAL INFORMATION

ACTIVITY UNIT DEFINITION

One unit of proteinase K hydrolyzes denatured hemoglobin with guanidinium chloride producing a color equivalent to 1 μmol of tyrosine for 1 min at 55 °C and pH 7.5. 1 U = 1 mAnsonU.

QUALITY CONTROL

PROTEINASE K ACTIVITY

1 μg of Proteinase K is incubated with 2% (w/v) denatured hemoglobin with 6 M guanidinium chloride at 55 °C in 20 mM Tris pH 7.5, 3 mM CaCl_2 . Reaction is stopped by adding 10% trichloroacetic acid. The amino acid released is measured at 260 nm, which is proportional to tyrosine concentration. Activity is given at mAnsonU/mL, considering 40 mg/mL. An activity higher than 1000 mAnsonU/mL is considered acceptable.

PROTEIN CONCENTRATION

Concentration of Proteinase K is determined by UV absorption at 280 nm using the extinction coefficient of 36330 $\text{M}^{-1} \text{cm}^{-1}$ and the molecular weight of 28906 daltons.

PROTEIN PURITY

Purity is determined by the ratio of absorbance at 260 and 280 nm. A 260/280 ratio below 1.7 is accepted and indicates low DNA contamination compared to the protein concentration.

E. coli DNA CONTAMINATION

20 μg of Proteinase K is screened for the presence of the specific gene *ybbW* from *Escherichia coli*.¹ A C_q value higher than 35 is accepted.

¹Walker, David I., et al. "A highly specific *Escherichia coli* qPCR and its comparison with existing methods for environmental waters." *Water research* 126 (2017): 101-110.

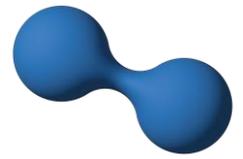
YEAST DNA CONTAMINATION

20 μg of Proteinase K is screened for the presence of the fungi 18S rRNA. A C_q value higher than 35 is accepted.

HUMAN DNA CONTAMINATION

20 μg of Proteinase K is screened for the presence of the human mitochondrial 16S rRNA. A C_q value higher than 35 is accepted.





EXONUCLEASE AND ENDONUCLEASE ACTIVITY

A 50 µL reaction containing 0.5 µg of pUC18 or 0.5 µg of pUC18-HindIII and 50 µg of Proteinase K is incubated at 37 °C for 16 hours, and DNA degradation is determined by agarose gel electrophoresis. It is considered acceptable when no DNA degradation is detected for both exonuclease and endonuclease activities.

RNase ACTIVITY

A 50 µL reaction containing 0.5 µg of RNA and 50 µg of Proteinase K is incubated at 37 °C for 4 hours, and RNA degradation is determined by agarose gel electrophoresis. It is considered acceptable when no RNA degradation is detected.

MICROBIAL CONTAMINATION

20 µg of Proteinase K is incubated in Luria-Bertani (LB) broth media at 30 and 37 °C for 48 hours. It is considered acceptable less than 1 CFU (colony forming unit) per mL.

TECHNICAL SUPPORT

If you have any questions, feel free to contact us at support@levprot.com

Consult the Safety Data Sheet for information regarding hazards and safe handling practises.

THIS PRODUCT IS INTENDED FOR RESEARCH USE ONLY.

DATE 20/05/2025

REV. TDS_MT20K-L1PRTKXA_rev.01

