

Proteinase K

Cat. No.:	HY-108717		
CAS No.:	39450-01-6		
Target:	Ser/Thr Protease		
Pathway:	Metabolic Enzyme/Protease		
Storage:	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	6 months
		-20°C	1 month

Proteinase K

SOLVENT & SOLUBILITY

In Vitro	H ₂ O : 25 mg/mL (Need ultrasonic)
In Vivo	1. Add each solvent one by one: PBS Solubility: 50 mg/mL (Infinity mM); Clear solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description	Proteinase K (Protease K) is a nonspecific serine protease that is useful for general digestion of proteins. Proteinase K is active in the presence of SDS or urea and over a wide range of pH (4-12), salt concentrations, and temperatures. Proteinase K can be use for promoting methods of viral nucleic acid extraction, and detection ^{[1][2][3][4]} .
In Vitro	<p>Proteinase K enzyme can be used to break amid bond between MTX and BSA and also amidic bonds in BSA structure^[2].</p> <p>Guidelines (Following is our recommended protocol. This protocol only provides a guideline, and should be modified according to your specific needs).</p> <p>Proteinase K with superior protein-degrading property, can be used to detect the SARS-COV2 viral component directly from inoculated viral transport medium (VTM) without RNA extraction^[3].</p> <p>Protocol of rRTPCR detection of SARS-CoV2^[3]:</p> <ol style="list-style-type: none"> 1. Separate VTM of each SARS-COV2 samples into three EP tubes (45 µL per tube); 2. Add 2.5 µL (20 mg/mL concentrated) proteinase K (PK), making a final concentration of PK ~1 mg/ml VTM; 3. Incubate at 25 °C for 5 min; 4. Incubate at 60 °C for 15 min; 5. Incubate at 98 °C for 10 min, and store samples at 4 °C; 6. Use 5 µL of extracted RNA as template to execute rRTPCR assay; 7. Exert rRTPCR detection by BIORAD CFX96™ Real-Time Thermocycler, with a positive standard of threshold cycle (Ct) values less than 40. <p>Proteinase K improves the homogenization effects and positive rates of sputum samples, and increases nucleic acid concentration extracted from it^[4].</p> <p>Protocol of nucleic acid extraction of influenza A virus (IAV)^[4]:</p> <ol style="list-style-type: none"> 1. Separate specimen into three EP tubes (500 µL per tube); 2. Add 500 µL 0.4 mg/mL Proteinase K buffer, vortex for 20 seconds;

3. Incubate at 55 °C for 25 min, vortex 5 seconds every 5 min;
 4. Extract RNA by using the Automated Nucleic Acid Extraction System through a paramagnetic beads method (Zhijiang Biotechnology Co., Ltd., Shanghai, China) with 200 µL samples;
 5. Evaluate A260/A280 ratio of pure RNA products, with a standard ranged from 1.8 to 2.0.
- MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Mol Cell. 2022 May 19;82(10):1821-1835.e6.
- Ecotoxicol Environ Saf. 2023 Jul 21;263:115288.
- Cancers (Basel). 2022 Sep 28;14(19):4740.
- Molecules. 2023 May 11, 28(10), 4021.

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REFERENCES

- [1]. Nosrati H, et al. Multifunctional nanoparticles from albumin for stimuli-responsive efficient dual drug delivery. *Bioorg Chem*. 2019 Jul;88:102959.
- [2]. Shukla A, et al. Vitality of Proteinase K in rRT-PCR Detection of SARS-CoV2 Bypassing RNA Extraction. *Front Cell Infect Microbiol*. 2021 Nov 3;11:717068.
- [3]. Yu F, et al. Comparative Evaluation of Three Preprocessing Methods for Extraction and Detection of Influenza A Virus Nucleic Acids from Sputum. *Front Med (Lausanne)*. 2018 Mar 2;5:56.
- [4]. W Ebeling, et al. Proteinase K From *Tritirachium Album* Limber. *Eur J Biochem* . 1974 Aug 15;47(1):91-7.

Caution: Product has not been fully validated for medical applications. For research use only.

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