Proteinase K

Cat. No.: HY-108717

CAS No.: 39450-01-6

Target: Ser/Thr Protease

Pathway: Metabolic Enzyme/Protease

Storage: Please store the product under the recommended conditions in the Certificate of Analysis.

Proteinase K

SOLVENT & SOLUBILITY

In Vitro	H_2O : 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	Proteinase K enzyme can be used to break amid bond between MTX and BSA and also amidic bonds in BSA structure[2]. Guidelines (Following is our recommended protocol. This protocol only provides a guideline, and should be modified according to your specific needs). 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]. Protocol of rRTPCR detection of SARS-CoV2[3]: 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 ⊠ for 5 min; 4.Incubate at 60 ⊠ for 15 min; 5.Incubate at 98 ⊠ for 10 min, and store samples at 4 ⊠; 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. Proteinase K improves the homogenization effects and positive rates of sputum samples, and increases nucleic acid concentration extracted from it[4]. Protocol of nucleic acid extraction of influenza A virus (IAV)[4]: 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 ⊠ 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 rRTPCR 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.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com
Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA