APA230Hu02 100μg
Active Protease, Serine 1 (PRSS1)
Organism Species: *Homo sapiens* (Human)
Instruction manual

FOR RESEARCH USE ONLY
NOT FOR USE IN CLINICAL DIAGNOSTIC PROCEDURES

13th Edition (Revised in Aug, 2023)

[PROPERTIES]

Source: Prokaryotic expression.
Host: *E. coli*
Residues: Ile24~Ser247
Tags: N-terminal His-tag
Purity: >90%
Endotoxin Level: <1.0EU per 1μg (determined by the LAL method).
Buffer Formulation: PBS, pH7.4, containing 0.01% SKL, 5%Trehalose .
Original Concentration: 200μg/mL
Applications: Cell culture; Activity Assays.
(May be suitable for use in other assays to be determined by the end user.)
Predicted isoelectric point: 7.6
Predicted Molecular Mass: 27.8kDa
Accurate Molecular Mass: 30kDa as determined by SDS-PAGE reducing conditions.

[USAGE]

Reconstitute in 10mM PBS (pH7.4) to a concentration of 0.1-1.0 mg/mL. Do not vortex.

[STORAGE AND STABILITY]

Storage: Avoid repeated freeze/thaw cycles.
Store at 2-8ºC for one month.
Aliquot and store at -80ºC for 12 months.

Stability Test: The thermal stability is described by the loss rate. The loss rate was determined by accelerated thermal degradation test, that is, incubate the protein at 37ºC for 48h, and no obvious degradation and precipitation were observed. The loss rate is less than 5% within the expiration date under appropriate storage condition.

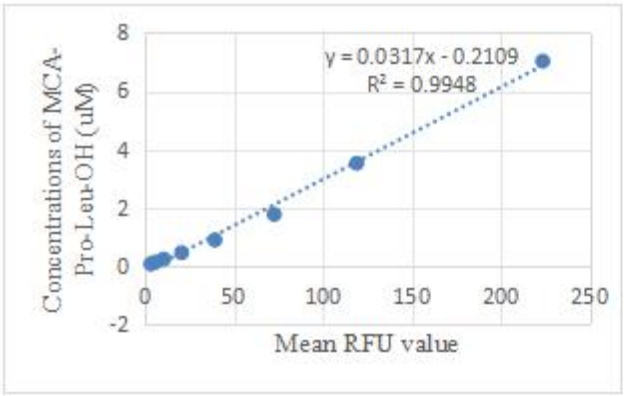
[SEQUENCE]

IVGGYNCEENSVPYQVSLNSGYHFCGGSLINEQWVVSAGHCYKSRIQVRLGEHNIEVLEGNEQFINAAK
IIRHPQYDRKTLNNDIMLIKLSSRAVINARVSTISLPTAPPATGTKCLISGWGNTASSGADYPDELQCL
DAPVLSQAKCEASYPGKITSNMFCVGFLEGGKDSCQGDSGGPVVCNGQLQGVVSWGDGCAQKNKPGVYT
KVYNYVKWIKNTIAANS

[ACTIVITY]

Human Trypsin 1, encoded by the PRSS1 gene, is also known as cationic trypsinogen. Constituting approximately two-thirds of the total trypsin content in normal pancreatic juice, it is the most abundant trypsin isoform produced by the pancreas. It contains a signal peptide (residues 1-15), a pro region (residues 16-23), and a mature chain (residues 24-247). Trypsin 1 is synthesized in the pancreas and secreted into the duodenum lumen, where it is activated by enterokinase. Its major physiologic function is to digest food and to activate other pro-enzyme. Mutations in the PRSS1 gene can cause hereditary pancreatitis. The activity of recombinant human PRSS1 is measured by its ability to cleave a fluorogenic peptide substrate Mca-Arg-Pro-Lys-Pro-Val-Glu-Nval-Trp-Arg-Lys(Dnp)-NH2 in the assay buffer 100 mM Tris, 150 mM NaCl, 10 mM CaCl2, 0.05% (w/v) Brij-35, pH 8.0. The rhPRSS1 is diluted to 200 ug/ml in activation buffer 50 mM Tris, 0.15 M NaCl, 10 mM CaCl2, 0.05% (w/v) Brij-35, pH 7.5, then activated with 1ul Enterokinase at 37 ℃ for 15min. The activated rhPRSS1 is diluted to 3 ug/mL in assay buffer. Loading into a black well plate 50 µL of 3 ug/mL rhPRSS1 and start the reaction by adding 50 µL of 20 µM substrate, with a substrate blank containing 50 µL assay buffer, 50 µL substrate, and no rhPRSS1. Then read at excitiation and emission wavelengths of

320 nm and 405 nm, respectively, in kinetic mode for 5 minutes. The specific activity of recombinant human PRSS1 is > 600 pmol/min/μg.



RFU (320/405)	MCA-Pro-Leu-OH (product) uM
223.659	7.03125
119.059	3.515625
72.699	1.7578125
39.329	0.87890625
20.629	0.439453125
10.559	0.219726563
5.849	0.109863281
3.318	0.054931641

Figure 1. The standard curve of MCA-Pro-Leu-OH

Specific Activity (pmol/min/μg) =

$$\frac{\text{Adjusted Vmax} * (\text{RFU/min}) \text{ x Conversion Factor} ** (\text{pmol/RFU})}{\text{amount of enzyme (ug)}}$$

*Adjusted for Substrate Blank

**Derived using calibration standard MCA-Pro-Leu-OH

[IDENTIFICATION]

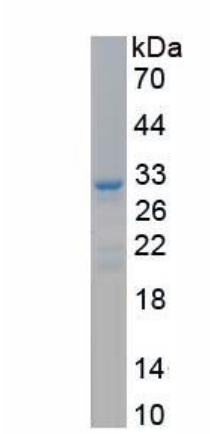


Figure 2. SDS-PAGE

Sample: Active recombinant PRSS1, Human

[IMPORTANT NOTE]

The kit is designed for research use only, we will not be responsible for any issue if the kit was used in clinical diagnostic or any other procedures.