

**APB933Mu01 100µg**

**Active Cathepsin S (CTSS)**

**Organism Species: *Mus musculus (Mouse)***

***Instruction manual***

FOR RESEARCH USE ONLY

NOT FOR USE IN CLINICAL DIAGNOSTIC PROCEDURES

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13th Edition (Revised in Aug, 2023)

## **[ PROPERTIES ]**

**Source:** Prokaryotic expression.

**Host:** *E. coli*

**Residues:** Leu123~Glu339

**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:** 5.6

**Predicted Molecular Mass:** 30.3kDa

**Accurate Molecular Mass:** 33kDa 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 2-8°C for one month.

Aliquot and store at -80°C 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 37°C 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.

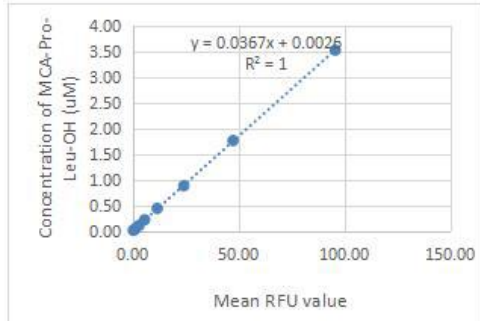
## [ **SEQUENCE** ]

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LPDVTVDWR  EKGCVTEVKY  QGSCGACWAF
SAVGALEGQL  KLKTGKLISL  SAQNLVDCSN  EEKYGNKGCG  GGYMTEAFQY
IIDNGGIEAD  ASYPYKATDE  KCHYNSKNRA  ATCSRYIQLP  FGDEDALKEA
VATKGPVSVG  IDASHSSFFF  YKSGVYDDPS  CTGNVNHGVL  VVGYGTLDGK
DYWLKNSWG  LNFQDQGYIR  MARNKNHCG  IASYCSYPE
```

## [ **ACTIVITY** ]

Cathepsin S (CTSS) is a lysosomal cysteine protease of the papain family. It plays a major role in the processing of the MHC class II-associated invariant chain. It has been implicated in the pathogenesis of several diseases such as Alzheimer's disease and degenerative disorders associated with the cells of the mononuclear phagocytic system. Mouse Cathepsin S is synthesized as a preproenzyme of 340 amino acid residues consisting a signal peptide (residues 1-17), a pro region (residues 18-122), and the mature enzyme (residues 123-340). Cathepsin S is less abundant in tissues than Cathepsins B, L and H. The activity of recombinant mouse CTSS is measured by its ability to cleave a fluorogenic peptide substrate Mca-Arg-Pro-Lys-Pro-Val-Glu-Nval-Trp-Arg-Lys(Dnp)-NH<sub>2</sub> in the assay buffer 50 mM NaOAc, 5 mM DTT, 250 mM NaCl, pH 4.5. The rmCTSS is diluted to 50 ug/ml in assay buffer, then incubated at room temperature for 2h. The incubated rmCTSS is diluted to 5 ug/mL in assay buffer. Loading into a black well plate 50 µL of 5 ug/mL rmCTSS 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 rmCTSS. Then read at excitation and emission wavelengths of 320 nm and 405 nm, respectively, in kinetic mode for 5 minutes. The specific activity of recombinant

mouse CTSS is > 10 pmol/min/μg.



RFU (320/405)	MCA-Pro-Leu-OH (product) uM
95.78	3.52
47.46	1.76
24.20	0.88
11.63	0.44
5.71	0.22
3.05	0.11
1.52	0.05
0.77	0.03

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

Specific Activity (pmol/min/μg) =

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

\*Adjusted for Substrate Blank

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

## [ IDENTIFICATION ]

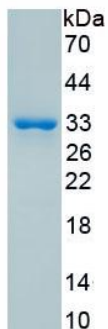


Figure 2. SDS-PAGE

Sample: Active recombinant CTSS, Mouse

## [ 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.