

## Cathepsin S Protein, Mouse (HEK293, His)

Cat. No.:	HY-P7757
Synonyms:	rMuCathepsin S, His; Cathepsin S; CTSS
Species:	Mouse
Source:	HEK293
Accession:	O70370 (V18-I340)
Gene ID:	13040
Molecular Weight:	37&28-32&14 kDa

### PROPERTIES

<b>AA Sequence</b>	<pre>V C S V A M E Q L Q   R D P T L D Y H W D   L W K K T H E K E Y   K D K N E E E V R R L I W E K N L K F I   M I H N L E Y S M G   M H T Y Q V G M N D   M G D M T N E E I L C R M G A L R I P R   Q S P K T V T F R S   Y S N R T L P D T V   D W R E K G C V T E V K Y Q G S C G A C   W A F S A V G A L E   G Q L K L K T G K L   I S L S A Q N L V D C S N E E K Y G N K   G C G G G Y M T E A   F Q Y I I D N G G I   E A D A S Y P Y K A T D E K C H Y N S K   N R A A T C S R Y I   Q L P F G D E D A L   K E A V A T K G P V S V G I D A S H S S   F F F Y K S G V Y D   D P S C T G N V N H   G V L V V G Y G T L D G K D Y W L V K N   S W G L N F G D Q G   Y I R M A R N N K N   H C G I A S Y C S Y P E I H H H H H H</pre>
<b>Biological Activity</b>	Measured by its ability to cleave the fluorogenic peptide substrate Mca-RPKPVE-Nval-WRK(Dnp)-NH <sub>2</sub> . Read at excitation and emission wavelengths of 320 nm and 405 nm. The specific activity is 17654.2954 pmol/min/μg, as measured under the described conditions.
<b>Appearance</b>	Lyophilized powder
<b>Formulation</b>	Lyophilized after extensive dialysis against 20 mM PB, 150 mM NaCl, pH 7.4.
<b>Endotoxin Level</b>	<1 EU/μg, determined by LAL method.
<b>Reconstitution</b>	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH <sub>2</sub> O. For long term storage it is recommended to add a carrier protein (0.1% BSA, 5% HSA, 10% FBS or 5% Trehalose).
<b>Storage &amp; Stability</b>	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
<b>Shipping</b>	Room temperature in continental US; may vary elsewhere.

### DESCRIPTION

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## Background

Cathepsin S is a member of the cysteine cathepsin protease family. Cathepsin S has specific roles such as MHC class II antigen presentation, where it is important in the degradation of the invariant chain. Cathepsin S is involved in a variety of pathological processes including arthritis, cancer, and cardiovascular disease, where it becomes secreted and can act on extracellular substrates. Cathepsin S has uniquely restricted tissue expression and is more stable at a neutral pH. Cathepsin S is unique amongst the cysteine cathepsin family due to restricted tissue expression, associated with antigen presenting cells localised in lymph and spleen, as well as other immune cells such as macrophages. Cathepsin S is thought to be a particularly potent cysteine protease cleaving elastin and generating bioactive elastin peptides, leading to the promotion of cardiovascular inflammation and calcification. Cathepsin S is also released by smooth muscle cells and macrophages as a systemic response to inflammation in a continuous recursive feedback loop<sup>[1][2]</sup>.

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## REFERENCES

- [1]. Richard D A Wilkinson, et al. Cathepsin S: therapeutic, diagnostic, and prognostic potential. *Biol Chem*. 2015 Aug;396(8):867-82.
- [2]. Brena F Sena, et al. Cathepsin S As an Inhibitor of Cardiovascular Inflammation and Calcification in Chronic Kidney Disease. *Front Cardiovasc Med*. 2018 Jan 5;4:88.
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**Caution: Product has not been fully validated for medical applications. For research use only.**

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