



### Synonym

CTSB,CPSB,APPS

### Source

Human Cathepsin B, His Tag(CTB-H5222) is expressed from human 293 cells (HEK293). It contains AA Arg 18 - Ile 339 (Accession # [P07858-1](#) (L26V)).

Predicted N-terminus: Arg 18 & Leu 80

### Molecular Characterization



This protein carries a polyhistidine tag at the C-terminus.

The Human Cathepsin B will be further processed into mature form (Leu 80-Ile 339). The protein has a calculated MW of 36.7 kDa (pro-form) and 29.5 kDa (mature-form). The protein migrates as 42-50 kDa and 34 kDa under reducing (R) condition (SDS-PAGE) due to glycosylation.

### Endotoxin

Less than 1.0 EU per µg by the LAL method.

### Purity

>95% as determined by SDS-PAGE.

>90% as determined by SEC-MALS.

### Formulation

Lyophilized from 0.22 µm filtered solution in 50 mM Tris, 150 mM NaCl, pH8.0 with trehalose as protectant.

Contact us for customized product form or formulation.

### Reconstitution

Please see Certificate of Analysis for specific instructions.

*For best performance, we strongly recommend you to follow the reconstitution protocol provided in the CoA.*

### Storage

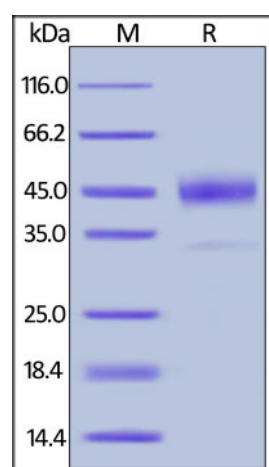
For long term storage, the product should be stored at lyophilized state at -20°C or lower.

*Please avoid repeated freeze-thaw cycles.*

This product is stable after storage at:

- -20°C to -70°C for 12 months in lyophilized state;
- -70°C for 3 months under sterile conditions after reconstitution.

### SDS-PAGE

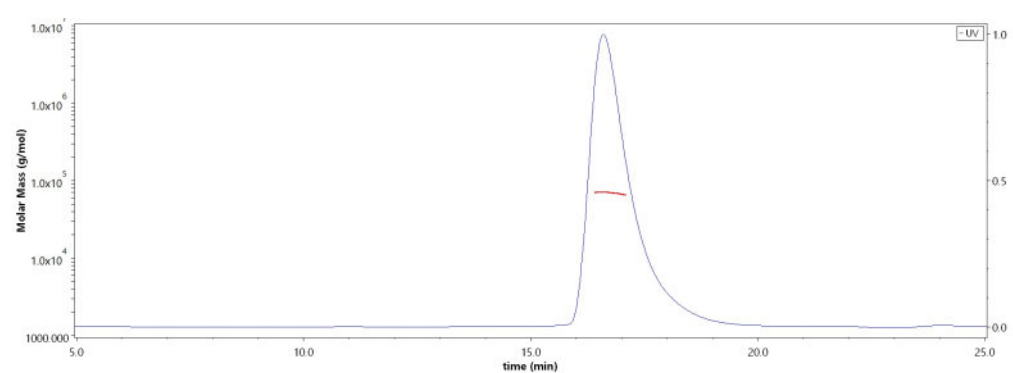


Human Cathepsin B, His Tag on SDS-PAGE under reducing (R) condition. The gel was stained with Coomassie Blue. The purity of the protein is greater than 95%.

### Bioactivity

Measured by its ability to cleave the fluorogenic peptide substrate Z-LR-AMC. The specific activity is >2,500 pmol/min/µg, as measured under the described conditions (QC tested).

### SEC-MALS



The purity of Human Cathepsin B, His Tag (Cat. No. CTB-H5222) is more than 90% and the molecular weight of this protein is around 60-75 kDa verified by SEC-MALS.

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## Background

Cathepsin B (CTSB) is also known as APP secretase (APPS) and CPSB, is an enzymatic protein belonging to the peptidase C1 family. Cathepsin B / CTSB is synthesized as a proenzyme. Following removal of the signal peptide, the inactive proenzyme undergoes further modifications including removal of the pro region to result in the active enzyme. The catalytic activity of Cathepsin B / APPS contains: Hydrolysis of proteins with broad specificity for peptide bonds; Preferentially cleaves -Arg-Arg-|-Xaa bonds in small molecule substrates (thus differing from cathepsin L); In addition to being an endopeptidase, shows peptidyl-dipeptidase activity, liberating C-terminal dipeptides. As a thiol protease, cathepsin B / CPSB is believed to participate in intracellular degradation and turnover of proteins and has also been implicated in tumor invasion and metastasis. Overexpression of cathepsin B has been associated with esophageal adenocarcinoma and other tumors.

## Clinical and Translational Updates

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