

Recombinant Human Cathepsin B Protein

Catalog No.: RP02824 **Recombinant**

Sequence Information

Species	Gene ID	Swiss Prot
Human	1508	P07858

Tags

C-His

Synonyms

Cathepsin B; 3.4.22.1; APP secretase; APPS; Cathepsin B1; CTSB

Product Information

Source	Purification
HEK293 Cells	> 97% by SDS-PAGE.

Calculated MW **Observed MW**

Endotoxin

<0.1EU/μg

Formulation

Lyophilized from a 0.22 μm filtered solution of PBS, pH 7.4.

Reconstitution

Centrifuge the vial before opening. Reconstitute to a concentration of 0.1-0.5 mg/mL in sterile distilled water. Avoid vortex or vigorously pipetting the protein. For long term storage, it is recommended to add a carrier protein or stabilizer (e.g. 0.1% BSA, 5% HSA, 10% FBS or 5% Trehalose), and aliquot the reconstituted protein solution to minimize free-thaw cycles.

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Background

Cathepsin B is a papain-family cysteine protease that is normally located in lysosomes, where it is involved in the turnover of proteins and plays various roles in maintaining the normal metabolism of cells. This protease has been implicated in pathological conditions, e.g., tumor progression and arthritis. In disease conditions, increases in the expression of cathepsin B occur at both the gene and protein levels. Cathepsin B is synthesized as a preproenzyme and the primary pathways for its normal trafficking to the lysosome utilize mannose 6-phosphate receptors (MPRs). Mature cathepsin B has the ability to degrade several extracellular matrix components at both neutral and acidic pH and has been implicated in the progression of several human and rodent tumors progression and arthritis. Cathepsin B expression is increased in many human cancers at the mRNA, protein and activity levels. It is also frequently overexpressed in premalignant lesions, an observation that associates this protease with local invasive stages of cancer. Increased expression of cathepsin B in primary cancers, and especially in preneoplastic lesions, suggests that this enzyme might have pro-apoptotic features. Active cathepsin B is also secreted from tumours, a mechanism likely to be facilitated by lysosomal exocytosis or extracellular processing by surface activators. Cathepsin B is localized to caveolae on the tumour surface, where binding to the annexin II heterotetramer occurs. Thus CTSB is suggested as a tumor marker. Additionally, Cathepsin B can degrade extracellular matrix proteins, such as collagen IV and laminin, and can activate the precursor form of urokinase plasminogen activator (uPA), perhaps thereby initiating an extracellular proteolytic cascade.

Basic Information

Description

Recombinant Human Cathepsin B Protein is produced by HEK293 Cells expression system. The target protein is expressed with sequence (Arg18-Ile339) of human Cathepsin B (Accession #NP_001899.1) fused with a 6xHis tag at the C-terminus.

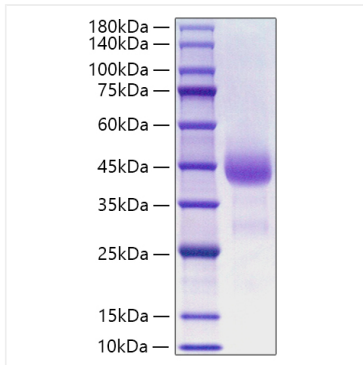
Bio-Activity

Measured by its ability to cleave the fluorogenic peptide substrate Z-LR-AMC (R&D Systems, Catalog # ES008) . The specific activity is >3468 pmoles/min/μg.

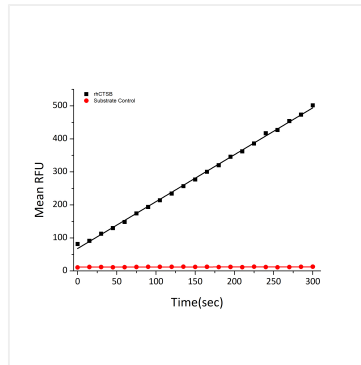
Storage

Store at -20°C. Store the lyophilized protein at -20°C to -80 °C up to 1 year from the date of receipt. After reconstitution, the protein solution is stable at -20°C for 3 months, at 2-8°C for up to 1 week. Avoid repeated freeze/thaw cycles.

Validation Data



Recombinant Human Cathepsin B Protein was determined by SDS-PAGE with Coomassie Blue, showing a band at 40-50 kDa.



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