Datasheet for ABIN2666495

# Cathepsin B Protein (CTSB) (AA 18-339)

Go to Product page

## Overview

| | |
|---|---|
| Quantity: | 10 µg |
| Target: | Cathepsin B (CTSB) |
| Protein Characteristics: | AA 18-339 |
| Origin: | Human |
| Source: | HEK-293 Cells |
| Protein Type: | Recombinant |
| Biological Activity: | Active |
| Application: | Flow Cytometry (FACS) |

## Product Details

| | |
|---|---|
| Purity: | > 95 % , as determined by Coomassie stained SDS-PAGE under reducing conditions |
| Sterility: | 0.22 µm filtered |
| Endotoxin Level: | Less than 0.01ng per µg cytokine, as determined by the LAL method. |

## Target Details

| | |
|---|---|
| Target: | Cathepsin B (CTSB) |
| Alternative Name: | Cathepsin B (CTSB Products) |
| Background: | Cathepsin B (CTSB) is a lysosomal cysteine protease. While most cathepsins are exclusively endopeptidases, CTSB exhibits both carboxypeptidase and endopeptidase activities. The optimal pH for CTSB activity is between four and six. Cystatin C has been identified as an endogenous CTSB inhibitor. High CTSB protein levels and activities have been found in many |

## Target Details

| | |
|---|---|
| | tumors including breast, cervix, colon, stomach, glioma, lung and thyroid tumors. CTSB can be secreted by tumor cells and is associated with the cell membrane of these cells. Membrane associated CTSB promotes extracellular matrix (ECM) degradation contributing to cancer motility and invasion. Many ECM proteins, including laminin, fibronectin, and collagen IV, are substrates of CTSB. CTSB can also activate pro-uPA/PLAU. Activated uPA promotes ECM digestion through serine protease plasminogen. It has been shown that the inhibition of CTSB can limit bone metastasis in breast cancer, making it an important anti-cancer drug target. CTSB has been proposed as a new drug target for Alzheimer's disease because of its involvement in the production of neurotoxic β -amyloid (Aβ) peptides. The inhibition of CTSB can reduce the brain Aβ peptides and improve memory determined from a mouse model with Alzheimer's disease. CTSB also plays significant roles in immune responses including both T and B cell apoptosis and Th1/Th2 polarization. CTSB is implicated in other pathological conditions including cardiovascular disease, multiple sclerosis, and arthritis. Roles of CTSB in autophagy, adipogenesis, and cholesterol absorption in the intestine have also been studied. |
| Molecular Weight: | The 332 amino acid recombinant protein has a predicted molecular mass of approximately 37 kDa. The DTT-reduced and non-reduced protein migrate at approximately 45 kDa by SDS-PAGE. The predicted N-terminal amino acid is Arg. |
| Pathways: | Activation of Innate immune Response, Toll-Like Receptors Cascades |

## Application Details

| | |
|---|---|
| Application Notes: | Optimal working dilution should be determined by the investigator. |
| Comment: | Biological activity: The activity of CTSB is determined by its ability to cleave the fluorogenic peptide substrate, Z-Leu-Arg-AMC (Z=Benzyloxycarbonyl, AMC=7-amino-4-methylcoumarin) after stimulation. The specific activity is >2,500 pmol/min/µg. |
| Restrictions: | For Research Use only |

## Handling

| | |
|---|---|
| Format: | Liquid |
| Reconstitution: | For maximum results, quick spin vial prior to opening. |
| Buffer: | 0.22µm filtered protein solution is in 20 mM Tris, 100 mM NaCl, and pH 8.0. |
| Handling Advice: | Avoid repeated freeze/thaw cycles. |
| Storage: | -20 °C |

## Handling

| | |
|---|---|
| Storage Comment: | Unopened vial can be stored at -70°C for six months. |