

## Product datasheet for RC222463

### Cathepsin B (CTSB) (NM\_147782) Human Tagged ORF Clone

#### Product data:

Product Type:	Expression Plasmids
Product Name:	Cathepsin B (CTSB) (NM_147782) Human Tagged ORF Clone
Tag:	Myc-DDK
Symbol:	Cathepsin B
Synonyms:	APPS; CPSB; RECEUP
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-Entry (PS100001)
E. coli Selection:	Kanamycin (25 ug/mL)
ORF Nucleotide Sequence:	>RC222463 representing NM_147782 Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC  
GCC**CGATCGCC**

ATGTGGCAGCTCTGGCCTCCCTCTGCTGCCTGCTGGTGTGGCCAATGCCCGGAGCAGGCCCTCTTTCC  
ATCCCCTGTCGGATGAGCTGGTCAACTATGTCAACAAACGGAATACCACGTGGCAGGCCGGGCACA  
CTACAACGTGGACATGAGCTACTGAAGAGGCTATGTGGTACCTCCTGGGTGGCCCAAGCCACCCAG  
AGAGTTATGTTTACCGAGGACCTGAAGCTGCCTGCAAGCTTCGATGCACGGGAACAATGGCCACAGTGTC  
CCACCATCAAAGAGATCAGAGACCAGGGCTCCTGTGGCTCCTGCTGGCCTTCGGGGCTGTGGAAGCCAT  
CTCTGACCGGATCTGCATCCACACCAATGCGCAGCTCAGCGTGGAGGTGTGCGGCGGAGGACTGCTCACA  
TGCTGTGGCAGCATGTGTGGGACGGCTGTAATGGTGGCTATCCTGCTGAAGCTTGGAACTTCTGGACAA  
GAAAAGGCCTGGTTTCTGGTGGCCTCTATGAATCCCATGTAGGGTGCAGACCGTACTCCATCCCTCCCTG  
TGAGCACCACGTCAACGGCTCCCGGCCCATGCACGGGGGAGGGAGATACCCCAAGTGTAGCAAGATC  
TGTGAGCCTGGCTACAGCCGACCTACAAAACAGGACAAGCACTACGGATACAATTCCTACAGCGTCTCCA  
ATAGCGAGAAGGACATCATGGCCGAGATCTACAAAACGGCCCGTGGAGGGAGCTTTCTCTGTGTATTC  
GGACTTCTGCTCTACAAGTCAGGAGTGTACCAACACGTCACCGGAGAGATGATGGTGGCCATGCCATC  
CGCATCCTGGGCTGGGGAGTGGAGAATGGCACACCCTACTGGCTGGTTGCCAATCCTGGAACACTGACT  
GGGGTGACAATGGCTTCTTTAAAATACTCAGAGGACAGGATCACTGTGGAATCGAATCAGAAGTGGTGGC  
TGGAATCCACGCACCGATCAGTACTGGGAAAAGATC

**ACGCGT**ACGCGGCCGCTCGAGCAGAACTCATCTCAGAAGAGGATCTGGCAGCAAATGATATCCTGGATT  
ACAAGGATGACGACGATAAGGTTTAA



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**Protein Sequence:** >RC222463 representing NM\_147782  
Red=Cloning site Green=Tags(s)

MWQLWASLCCLLVLANARSRPSFHPLSDELVNYVNRNTTWQAGHNFYVNDMSYLKRLCGTFLGGPKPPQ  
 RVMFTEDLKLPAFDAREQWPQCPTIKEIRDQSGSCSWAFGAVEAISDRICIHNTAHVSVVEVSAEDLLT  
 CCGSMCGDGCNGGYPAEAWNFWTRKGLVSGGLYESHVGCPRPYSIPPCEHHVNGSRPPCTGEGDTPKCSKI  
 CEPGYSPTYKQDKHYGYSYSVSNSEKDIMAEIYKNGPVEGAFSVYSDFLLYKSGVYQHVVTGEMMGGHAI  
 RILGWGVENGPYWLVANSWNTDWGDNFFKILRGDHCIESEVVAGIPRTDQYWEKI

TRTRPLEQKLISEEDLAANDILDYKDDDDKV

**Chromatograms:** [https://cdn.origene.com/chromatograms/mk6368\\_d10.zip](https://cdn.origene.com/chromatograms/mk6368_d10.zip)

**Restriction Sites:** SgfI-MluI

**Cloning Scheme:**



**ACCN:** NM\_147782

**ORF Size:** 1017 bp

**OTI Disclaimer:** The molecular sequence of this clone aligns with the gene accession number as a point of reference only. However, individual transcript sequences of the same gene can differ through naturally occurring variations (e.g. polymorphisms), each with its own valid existence. This clone is substantially in agreement with the reference, but a complete review of all prevailing variants is recommended prior to use. [More info](#)

**OTI Annotation:** This clone was engineered to express the complete ORF with an expression tag. Expression varies depending on the nature of the gene.

**Components:** The ORF clone is ion-exchange column purified and shipped in a 2D barcoded Matrix tube containing 10ug of transfection-ready, dried plasmid DNA (reconstitute with 100 ul of water).

**Reconstitution Method:**

1. Centrifuge at 5,000xg for 5min.
2. Carefully open the tube and add 100ul of sterile water to dissolve the DNA.
3. Close the tube and incubate for 10 minutes at room temperature.
4. Briefly vortex the tube and then do a quick spin (less than 5000xg) to concentrate the liquid at the bottom.
5. Store the suspended plasmid at -20°C. The DNA is stable for at least one year from date of shipping when stored at -20°C.

**RefSeq:** [NM\\_147782.4](#)

**RefSeq Size:** 3871 bp

**RefSeq ORF:** 1020 bp

**Locus ID:** 1508

**UniProt ID:** [P07858](#)

**Cytogenetics:** 8p23.1

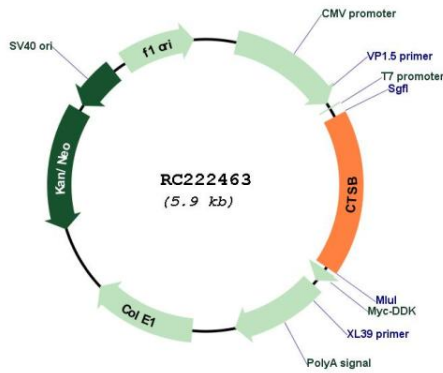
**Protein Families:** Druggable Genome, Protease

**Protein Pathways:** Antigen processing and presentation, Lysosome

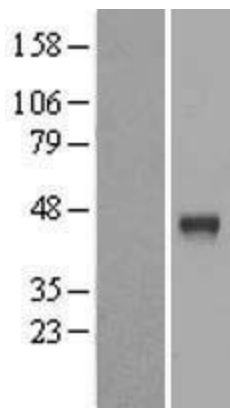
**MW:** 37.8 kDa

**Gene Summary:** This gene encodes a member of the C1 family of peptidases. Alternative splicing of this gene results in multiple transcript variants. At least one of these variants encodes a preproprotein that is proteolytically processed to generate multiple protein products. These products include the cathepsin B light and heavy chains, which can dimerize to form the double chain form of the enzyme. This enzyme is a lysosomal cysteine protease with both endopeptidase and exopeptidase activity that may play a role in protein turnover. It is also known as amyloid precursor protein secretase and is involved in the proteolytic processing of amyloid precursor protein (APP). Incomplete proteolytic processing of APP has been suggested to be a causative factor in Alzheimer's disease, the most common cause of dementia. Overexpression of the encoded protein has been associated with esophageal adenocarcinoma and other tumors. Both Cathepsin B and Cathepsin L are involved in the cleavage of the spike protein from the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) upon its entry to the human host cell. Multiple pseudogenes of this gene have been identified. [provided by RefSeq, Sep 2020]

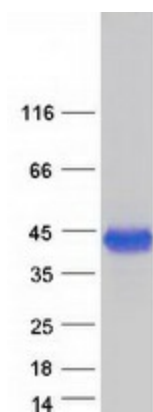
Product images:



Circular map for RC222463



Western blot validation of overexpression lysate (Cat# [LY407801]) using anti-DDK antibody (Cat# [TA50011-100]). Left: Cell lysates from untransfected HEK293T cells; Right: Cell lysates from HEK293T cells transfected with [RC222764] using transfection reagent MegaTran 2.0 (Cat# [TT210002]).



Coomassie blue staining of purified CTSB protein (Cat# [TP322463]). The protein was produced from HEK293T cells transfected with CTSB cDNA clone (Cat# RC222463) using MegaTran 2.0 (Cat# [TT210002]).