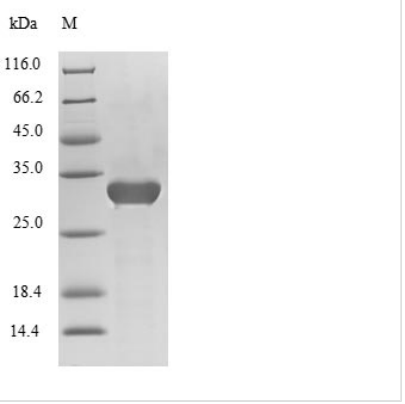
Recombinant Mouse Chymotrypsin-like elastase family member 3B (Cela3b)

Product Code	CSB-EP875103MO
Relevance	Efficient protease with alanine specificity but only little elastolytic activity.
Abbreviation	Recombinant Mouse Cela3b protein
Storage	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.
Uniprot No.	Q9CQ52
Alias	Elastase IIIB Elastase-3B Protease E
Product Type	Recombinant Protein
Immunogen Species	Mus musculus (Mouse)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	VVNGEEAVPHSWPWQVSLQYEKDGSFHHTCGGSLITPDWVLTAGHCISTSRT YQVVLGEHERGVEEGQEQVIPINAGDLFVHPKWNSMCVSCGNDIALVKLSRS AQLGDAVQLACLPPAGEILPNGAPCYISGWGRLSTNGPLPDKLQQALLPVVDY EHCSRWNWWGLSVKTTMVCAGGDIQSGCNGDSGGPLNCPADNGTWQVHG VTSFVSSLGCNTLRKPTVFTRVSAFIDWIEETIANN
Research Area	Cell Biology
Source	E.coli
Target Names	Cela3b
Protein Names	Recommended name: Chymotrypsin-like elastase family member 3B EC= 3.4.21.70 Alternative name(s): Elastase IIIB Elastase-3B Protease E
Expression Region	28-269aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 10xHis-tagged and C-terminal Myc-tagged
Mol. Weight	31.1kDa
Protein Length	Full Length of Mature Protein
Image	



(Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.

Description

Recombinant Mouse Chymotrypsin-like elastase family member 3B (Cela3b) is produced using an E.coli expression system, covering the full length of the mature protein from amino acids 28 to 269. The protein carries an N-terminal 10xHis-tag and a C-terminal Myc-tag, which should make detection and purification more straightforward. SDS-PAGE analysis shows the product achieves greater than 90% purity, suggesting it's well-suited for various research applications.

Cela3b appears to be a serine protease that's involved in protein digestion and processing. It likely plays a critical role in breaking down dietary proteins within the digestive system. The protein belongs to the trypsin family of proteases, which are known for their ability to cleave peptide bonds. Scientists frequently study this protein when investigating digestive enzyme function and regulation, making it an important target in enzymology and digestive system research.

Potential Applications

Note: The applications listed below are based on what we know about this protein's biological functions, published research, and experience from experts in the field. However, we haven't fully tested all of these applications ourselves yet. We'd recommend running some preliminary tests first to make sure they work for your specific research goals.

1. Antibody Development and Validation Studies

This recombinant mouse Cela3b protein may work well as an immunogen or antigen for developing specific antibodies against chymotrypsin-like elastase family member 3B. The dual-tagged design (N-terminal His-tag and C-terminal Myc-tag) should allow for straightforward purification and detection during immunization protocols and subsequent antibody validation assays. With >90% purity, it appears suitable for generating high-quality polyclonal or monoclonal antibodies. Scientists can then apply this protein in ELISA, Western blot, and immunoprecipitation experiments to assess antibody specificity and binding affinity.

2. Protein-Protein Interaction Studies

The dual-tag system (His and Myc tags) seems ideal for pull-down assays and

co-immunoprecipitation experiments aimed at identifying potential binding partners of Cela3b. Scientists can immobilize the protein through the His-tag on nickel-based resins. Alternatively, they might use anti-Myc antibodies for immunoprecipitation studies with mouse tissue lysates or cell extracts. Since the mature protein region (28-269aa) represents the biologically relevant form, it should be appropriate for studying physiological protein interactions. These experiments could help reveal the molecular pathways and regulatory networks that involve Cela3b.

3. Biochemical Characterization and Enzyme Kinetics Analysis

While biological activity hasn't been tested, this recombinant protein may prove useful for establishing and optimizing enzymatic assays for chymotrypsin-like elastase activity using synthetic substrates. The high purity (>90%) and full-length mature protein structure suggest it's suitable for detailed biochemical characterization studies. Scientists can investigate optimal buffer conditions, pH requirements, and cofactor dependencies for potential enzymatic activity. The protein might also serve as a standard or control when comparing it with other elastase family members.

4. Structural and Biophysical Studies

The high purity level of this recombinant Cela3b protein suggests it could work well for various biophysical characterization techniques. These might include dynamic light scattering, circular dichroism spectroscopy, and thermal stability analysis. Such studies could provide insights into protein folding, secondary structure content, and stability under different conditions. The dual-tag system allows for easy purification and concentration of the protein for biophysical experiments. This characterization data would likely prove valuable for understanding the structural properties of this elastase family member and optimizing storage and handling conditions.

Reconstitution	We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Please reconstitute protein in deionized sterile water to a concentration of 0.1-1.0 mg/mL.We recommend to add 5-50% of glycerol (final concentration) and aliquot for long-term storage at -20°C/-80°C. Our default final concentration of glycerol is 50%. Customers could use it as reference.
Shelf Life	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.