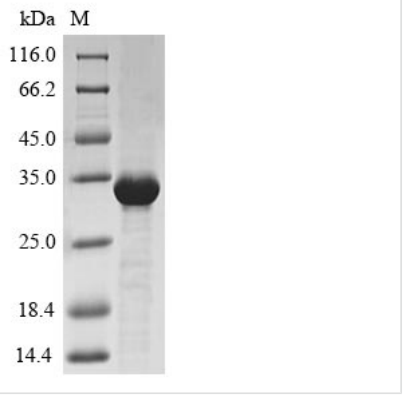
Recombinant Triticum aestivum Trypsin/alpha-amylase inhibitor CMx2

Product Code	CSB-EP674868TQN
Abbreviation	Recombinant Triticum aestivum Trypsin/alpha-amylase inhibitor CMx2 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.	Q43691
Alias	ITRL-2
Product Type	Recombinant Protein
Immunogen Species	Triticum aestivum (Wheat)
Purity	Greater than 85% as determined by SDS-PAGE.
Sequence	FREQCVPGREITYESLNARREYAVRQTCGYYLSAERQKRRCCDELSKVPELC WCEVLRILMDRRVTKEGVVKDSLLQDMSRCKKLTREFIAGIVGRE
Research Area	others
Source	E.coli
Protein Names	Recommended name: Trypsin/alpha-amylase inhibitor CMX2 Alternative name(s): ITRL-2
Expression Region	25-121aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 10xHis-SUMO-tagged and C-terminal Myc-tagged
Mol. Weight	31.5kDa
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 Triticum aestivum Trypsilpha-amylase inhibitor CMx2 is expressed in E.coli, covering the full length of the mature protein from amino acids 25 to 121. This recombinant protein features an N-terminal 10xHis-SUMO tag and a C-terminal Myc tag, which appears to enhance solubility and detection. The purity exceeds 85% as determined by SDS-PAGE, making this product suitable for research applications that require high-quality protein samples.

Trypsilpha-amylase inhibitor CMx2 comes from wheat and seems to play an important role in blocking specific amylase enzymes. This blocking action may be significant when studying how enzymes are controlled and how proteins interact within different biological pathways. Its distinctive properties likely make it a useful tool for research into enzyme activity and regulation, potentially offering insights into biochemical processes and applications in biotechnology.

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. Protein-Protein Interaction Studies Using Tag-Assisted Pull-Down Assays

The dual-tagged design of this recombinant protein, with both N-terminal His-SUMO and C-terminal Myc tags, appears well-suited for examining protein-protein interactions through pull-down experiments. The His tag can be used for attachment to nickel-based resins, while the Myc tag offers another detection method for Western blot analysis. This strategy could be particularly useful for finding potential binding partners of the trypsin/alpha-amylase inhibitor in wheat protein extracts or other plant samples. The 85% purity level seems sufficient for these interaction studies, since the tagged protein can be specifically detected and separated from contaminants.

2. Antibody Development and Validation Platform

The recombinant protein may serve as an immunogen for creating specific antibodies against the wheat trypsin/alpha-amylase inhibitor. The mature protein sequence (25-121aa) represents what appears to be the biologically relevant form, suggesting it's suitable for producing antibodies that would recognize the native protein in wheat samples. Both tags provide convenient approaches for protein purification during antibody production and later validation through tag-specific detection systems. The current purity level of >85% seems adequate for immunization protocols and ELISA-based antibody screening procedures.

3. Comparative Biochemical Characterization Studies

This recombinant protein offers a standardized reagent for comparative studies that examine the biochemical properties of wheat inhibitor proteins across

different varieties or environmental conditions. The consistent expression system and purification method appear to ensure reproducible protein preparations for analyzing factors like thermal stability, pH tolerance, and structural integrity. The defined expression region (25-121aa) allows for direct comparison with native inhibitor proteins isolated from wheat sources. Such studies might contribute to understanding the molecular basis of inhibitor function and stability in different wheat cultivars.

4. Tag-Based Detection Method Development

Having both His and Myc tags makes this protein valuable for developing and refining tag-based detection and quantification methods. Researchers can use this dual-tagged protein to establish sandwich ELISA protocols, fine-tune Western blot conditions, or develop other immunoassay formats that depend on tag recognition. The protein can serve as a positive control and standard for method validation, especially in studies involving recombinant protein detection in complex biological samples. The 85% purity provides sufficient material for method development while allowing researchers to assess assay specificity against potential contaminants.

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.