# Recombinant Rat Serine protease 1 (Prss1)

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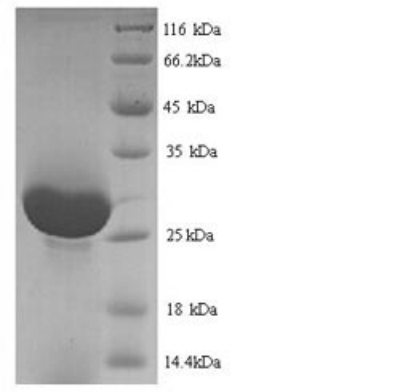
| **Product Code** | CSB-YP018811RA |
| **Abbreviation** | Recombinant Rat Prss1 protein |
| **Storage** | The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C. |
| **Uniprot No.** | P00762 |
| **Product Type** | Recombinant Proteins |
| **Immunogen Species** | Rattus norvegicus (Rat) |
| **Purity** | Greater than 90% as determined by SDS-PAGE. |
| **Sequence** | IVGGYTCPEHSVPYQVSLNSGYHFCGGSLINDQWVVSAAHCYKSRIQVRLGE HNINVLEGDEQFINAAKIIKHPNYSSWTLNNDIMLIKLSSPVKLNARVAPVALPSA CAPAGTQCLISGWGNTLSNGVNNPDLLQCVDAPVLSQADCEAAYPGEITSSMI CVGFLEGGKDSCQGDSGGPVVCNGQLQGIVSWGYGCALPDNPGVYTKVCNF VGWIQDTIAAN |
| **Research Area** | Others |
| **Source** | Yeast |
| **Target Names** | Prss1 |
| **Protein Names** | Recommended name: Anionic trypsin-1 EC= 3.4.21.4Alternative name(s): Anionic trypsin I Pretrypsinogen I Serine protease 1 |
| **Expression Region** | 24–246aa |
| **Notes** | Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week. |
| **Tag Info** | N-terminal 6xHis-tagged |
| **Mol. Weight** | 23.1kDa |
| **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 Rat Serine protease 1 (Prss1) is produced in a yeast expression system, covering amino acids 24 to 246 of the mature protein. The protein carries an N-terminal 6xHis tag, which helps with purification and detection. It reaches a purity greater than 90% as determined by SDS-PAGE, suggesting high-quality research applications. This product is designed for research use only.

Serine protease 1, also known as Prss1, appears to be a critical enzyme in the digestive system, involved in breaking down peptide bonds. It likely plays a vital role in various biological pathways, including protein digestion and absorption. Given its importance in proteolytic processes, Prss1 has become a significant focus in research related to enzymatic activity and regulation.

### 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. Enzyme Kinetics and Biochemical Characterization Studies

This recombinant rat Prss1 can help investigate the fundamental enzymatic properties of serine protease 1. Researchers might examine substrate specificity, kinetic parameters (Km, Vmax), and optimal reaction conditions. The high purity (>90%) and full-length mature protein structure seem well-suited for detailed biochemical analysis using various protease substrates and inhibitors. Scientists can establish baseline enzymatic activity profiles and compare catalytic efficiency across different experimental conditions.

#### 2. Protein-Protein Interaction Studies

The N-terminal 6xHis tag allows for purification and immobilization when studying protein-protein interactions involving rat Prss1. Pull-down assays may be performed to identify potential binding partners or substrates from rat tissue lysates or recombinant protein libraries. The tag also makes it easier to use surface plasmon resonance or other biophysical techniques to quantify binding kinetics and affinities with known or suspected interaction partners.

#### 3. Antibody Development and Validation

This purified recombinant protein serves as an ideal antigen for generating specific antibodies against rat Prss1 in immunization protocols. The high purity should minimize cross-reactivity with other proteins during antibody production. The recombinant protein can also be used as a positive control and standard for validating antibody specificity in Western blotting, ELISA, and immunohistochemistry applications targeting endogenous rat Prss1.

#### 4. Protease Inhibitor Screening and Development

The recombinant rat Prss1 provides a standardized enzyme source for screening potential protease inhibitors in drug discovery research. High-throughput assays may be developed to test libraries of small molecules or peptide inhibitors for their ability to modulate Prss1 activity. The consistent protein quality and His-tag purification allow for reproducible assay conditions when conducting structure-activity relationship studies of inhibitor compounds.

**5. Comparative Proteomics and Species-Specific Studies**

This rat-specific Prss1 makes possible comparative studies with related serine proteases from other species to understand evolutionary relationships and functional differences. The recombinant protein can be used alongside human or mouse variants to investigate species-specific substrate preferences, inhibitor sensitivities, or structural features. Such comparative analyses may provide insights into the conservation and divergence of serine protease function across mammalian species.

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