# Recombinant Mouse Stefin-1 (Stfa1)

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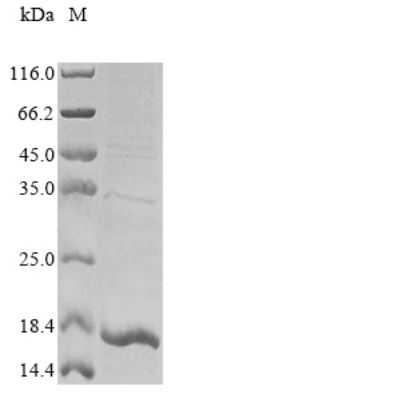
| **Product Code** | CSB-EP336025MO |
| **Abbreviation** | Recombinant Mouse Stfa1 protein |
| **Storage** | The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C. |
| **Uniprot No.** | P35175 |
| **Form** | Liquid or Lyophilized powder |
| **Storage Buffer** | If the delivery form is liquid, the default storage buffer is Tris/PBS-based buffer, 5%-50% glycerol. If the delivery form is lyophilized powder, the buffer before lyophilization is Tris/PBS-based buffer, 6% Trehalose. |
| **Product Type** | Recombinant Proteins |
| **Immunogen Species** | Mus musculus (Mouse) |
| **Purity** | Greater than 85% as determined by SDS-PAGE. |
| **Sequence** | MSLGGVSEASRATPEIQMIANKVRPQLEAKTNKKYEKFEAVEYKTQVVAGENI FIKMDVGHGCFIHIKVFNGPTGKDNYELHGYQTDKTMDEELTYF |
| **Research Area** | Others |
| **Source** | E.coli |
| **Target Names** | Stfa1 |
| **Protein Names** | Recommended name: Stefin-1 |
| **Expression Region** | 1-97aa |
| **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** | 16.3 kDa |
| **Protein Length** | Full Length |
| **Image** | |




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

## Description

Recombinant Mouse Stefin-1 (Stfa1) represents a full-length protein expressed in E.coli, spanning amino acids 1 to 97. The protein includes an N-terminal 6xHis-tag, which appears to streamline purification and detection processes. SDS-PAGE analysis confirms the product maintains purity levels above 85%, suggesting reliable performance in research settings. This research-grade product shows low endotoxin levels that may be suitable for diverse experimental conditions.

Stefin-1 functions as a cysteine protease inhibitor and seems to play an important role in controlling proteolytic activity within cells. As part of the cystatin family, it likely participates in pathways that govern protein degradation. The protein appears essential for cellular balance and often draws attention in research where tight protease control is necessary. Its significance extends across multiple research fields, particularly cell biology and enzymology.

### 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. Cysteine Protease Inhibition Studies

This recombinant mouse Stefin-1 may prove valuable for examining cysteine protease inhibitory mechanisms in vitro, since stefins belong to the well-characterized cystatin superfamily. Researchers can conduct dose-response experiments with the purified protein to establish inhibition constants (Ki) against different cysteine proteases like cathepsins. The N-terminal His-tag simplifies protein purification and measurement, allowing for accurate inhibitor concentration calculations in enzymatic assays. Such investigations might reveal the specificity and strength of mouse Stefin-1 against various protease targets.

#### 2. Protein-Protein Interaction Analysis

Researchers could deploy the His-tagged recombinant Stefin-1 as bait in pull-down experiments to discover potential binding partners from mouse tissue lysates or cellular extracts. The His-tag allows attachment to nickel-affinity resins, capturing interacting proteins for later mass spectrometry analysis. This strategy may help map out Stefin-1's protein interaction networks within cellular environments. Scientists might also use surface plasmon resonance or bio-layer interferometry to examine binding dynamics with known or suspected partners.

#### 3. Antibody Development and Validation

This purified recombinant protein appears well-suited as an antigen for creating mouse Stefin-1-specific antibodies through immunization protocols. The high purity level (>85%) likely reduces contamination risks that could generate cross-

reactive antibodies against bacterial proteins. Researchers can use the recombinant protein as a positive control in Western blots, ELISAs, and immunoprecipitation experiments to confirm antibody specificity and sensitivity. It may also function as a standard in quantitative immunoassays for measuring endogenous Stefin-1 concentrations in mouse samples.

**4. Structural and Biophysical Characterization**

Scientists might employ the recombinant mouse Stefin-1 for structural investigations, including circular dichroism spectroscopy to examine secondary structure and thermal stability. Nuclear magnetic resonance or X-ray crystallography studies could potentially provide detailed structural insights, especially regarding inhibitory mechanisms and binding sites. The purified protein enables biophysical analysis through dynamic light scattering to evaluate oligomerization states and size distribution in solution. These approaches may advance understanding of structure-function relationships in this cysteine protease inhibitor.

**5. Comparative Species Analysis**

This mouse Stefin-1 protein could support comparative research with stefins from other species to explore evolutionary conservation and functional variations. Cross-species inhibition experiments might reveal whether mouse Stefin-1 displays distinct inhibitory patterns compared to human or other mammalian stefins. The recombinant protein allows direct comparison of biochemical characteristics including stability, protease specificity, and inhibition kinetics between species. Such comparative work may offer insights into evolutionary adaptation and functional specialization within the stefin family.

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| **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.<br>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. |