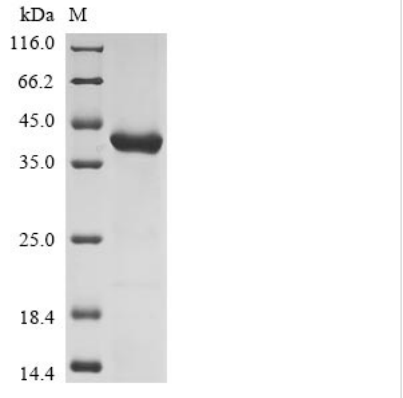
Recombinant Mouse Enoyl-CoA hydratase, mitochondrial (Echs1) (C225S)

Product Code	CSB-EP804339MO(M)
Abbreviation	Recombinant Mouse Echs1 protein (C225S)
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.	Q8BH95
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 Protein
Immunogen Species	Mus musculus (Mouse)
Purity	Greater than 85% as determined by SDS-PAGE.
Sequence	ASGANFQYIITEKKGKNSSVGLIQLNRPKALNALCNGLIEELNQALETFEQDPAV GAIVLTGGDKAFAAGADIKEMQNRTFQDCYSSKFLSHWDHITRVKKPVIAAVN GYALGGGCELAMMCDIIYAGEKAQFGQPEILLGTIPGAGGTQRLTRAVGKSLA MEMVLTGDRISAQDAKQAGLVSKIFPVEKLVEEAIQSAEKIASNSKIVVAMAKES VNAAFEMTLTEGNKLEKRLFYSTFATDDRREGMTAFVEKRKANFKDH
Research Area	metabolism
Source	E.coli
Target Names	Echs1
Expression Region	28-290aa(C225S)
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 HA-tagged
Mol. Weight	35.6 kDa
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 Enoyl-CoA hydratase, mitochondrial (Echs1) is produced in E. coli and covers the full length of the mature protein from amino acids 28 to 290 with a C225S mutation. The protein features an N-terminal 10xHis tag and a C-terminal HA tag, which should make purification and detection more straightforward. SDS-PAGE analysis indicates it reaches a purity level greater than 85%, suggesting it's well-suited for various research applications.

Enoyl-CoA hydratase, mitochondrial (Echs1) appears to play a critical role in the fatty acid oxidation pathway. It catalyzes the hydration of enoyl-CoA to hydroxyacyl-CoA—a step that seems essential for breaking down fatty acids and extracting energy from them. This makes Echs1 particularly relevant for studies examining metabolic processes and energy homeostasis, potentially offering valuable insights into how cells manage their metabolism.

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. Biochemical Characterization of Mutant Enzyme Activity

This recombinant Echs1 protein carries a C225S mutation that may help researchers understand what role cysteine-225 plays in enzyme function and stability. Comparative kinetic assays between wild-type and mutant forms could reveal how much this specific residue contributes to catalytic activity. The dual His and HA tags should simplify both purification and detection, making detailed biochemical analysis more feasible—including substrate binding studies and thermal stability measurements.

2. Protein-Protein Interaction Studies

Both the N-terminal His tag and C-terminal HA tag make this protein a good candidate for pull-down assays aimed at identifying potential binding partners of Echs1 in mitochondrial fatty acid oxidation pathways. These tags can be put to work in co-immunoprecipitation experiments or affinity chromatography to

isolate protein complexes. Such an approach might help clarify the molecular interactions involved in mitochondrial β-oxidation and metabolic regulation, though the complexity of these pathways suggests results may require careful interpretation.

3. Antibody Development and Validation

The recombinant protein can serve as an antigen for generating specific antibodies against mouse Echs1. This appears particularly useful for researchers studying mitochondrial metabolism in mouse models. The HA tag provides an internal control for immunoassays, while the high purity (>85%) should ensure reliable antibody production. Generated antibodies can then be validated using this recombinant protein in Western blot, ELISA, and immunofluorescence applications.

4. Structural and Folding Studies

The C225S mutation presents an opportunity to investigate how amino acid substitutions might affect protein folding and structural integrity of the enoyl-CoA hydratase domain. Researchers could use this mutant protein for comparative structural studies through techniques like circular dichroism spectroscopy, dynamic light scattering, or crystallography. The dual tags help with protein tracking during purification and concentration steps that structural analysis typically requires.

5. In Vitro Metabolic Pathway Reconstitution

This recombinant Echs1 mutant can be incorporated into in vitro fatty acid oxidation assays to examine how the C225S mutation affects overall pathway efficiency. Researchers might combine this protein with other purified enzymes from the β-oxidation pathway to reconstruct the complete metabolic process under controlled conditions. The tags allow for easy monitoring of protein levels and stability during the extended incubation periods that metabolic studies often demand.

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.