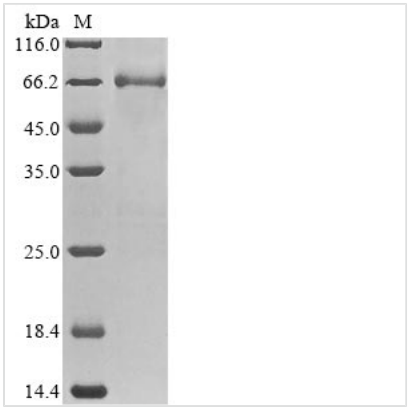
Recombinant Rat Electron transfer flavoprotein-ubiquinone oxidoreductase, mitochondrial (Etfdh)

Product Code	CSB-EP740908RA
Abbreviation	Recombinant Rat Etfdh 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.	Q6UPE1
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	Rattus norvegicus (Rat)
Purity	Greater than 85% as determined by SDS-PAGE.
Sequence	SSTSAVPQITTHYTIHPREKDKRWEGVNMERFAEEADVVIVGAGPAGLSAAIRL KQLAAEQEKDIRVCLVEKAAQIGAHTLSGACLDPAAFKELFPDWKEKGAPLNT PVTEDRFAILTEKHRIPVPILPGLPMNNHGNYIVRLGHLVSWMGEQAEALGVEV YPGYAAAEVLYHEDGSVKGIATNDVGIQKDGAPKTTFERGLELHAKVTIFAEGC HGHLAKQFYKKFDLRASCDAQTYGIGLKELWVIDEKKWKPGRVDHTVGWPLD RHTYGGSFLYHLNEGEPLVAVGFVVGLDYQNPYLSPFREFQRWKHHPSIRPT LEGGKRIAYGARALNEGGLQSIPKLTFPGGLLIGCSPGFMNVPKIKGTHTAMKS GSLAAEAIFKQLTSENLQSKTAGLHVTEYEDNLKQSWVWKELHAVRNIRPSCH GILGVYGGMIYTGIFYWILRGMEPWTLKHKGSDSEQLKPAKDCTPIEYPKPDG QISFDLLSSVALSGTNHEHDQPAHLTLKDDSIPVNRNLSIYDGPEQRFCPAGVY EFVPLEQGDGFRLQINAQNCVHCKTCDIKDPSQNINWVVPEGGGGPAYNGM
Research Area	Metabolism
Source	E.coli
Target Names	Etfdh
Expression Region	33-616aa
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	68.6 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 Rat Electron transfer flavoprotein-ubiquinone oxidoreductase (Etfdh) gets expressed in E. coli and covers the full mature protein region from amino acids 33 to 616. The protein carries an N-terminal 6xHis-tag, which makes purification and detection much easier. SDS-PAGE analysis confirms a purity level greater than 85%, suggesting it should work well for different research applications. This product is meant for research use only.

Electron transfer flavoprotein-ubiquinone oxidoreductase (Etfdh) appears to play a crucial role in mitochondrial electron transport. It participates in transferring electrons from electron transfer flavoprotein to the ubiquinone pool. This protein is vital in cellular energy metabolism since it contributes to oxidative phosphorylation. Understanding how it works may be important for studying metabolic pathways and mitochondrial disorders.

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 Mitochondrial Electron Transport Chain Components

This recombinant rat Etfdh protein could help scientists study the biochemical properties and enzymatic mechanisms of electron transfer flavoprotein-ubiquinone oxidoreductase in vitro. Researchers might analyze protein folding, stability, and how cofactors bind using purified protein samples. The N-terminal 6xHis tag makes protein purification and immobilization straightforward for detailed kinetic studies. This approach would likely contribute to our understanding of mitochondrial fatty acid oxidation pathways and electron transport mechanisms.

2. Protein-Protein Interaction Studies

The His-tagged recombinant Etfdh could work as bait protein in pull-down assays to identify and characterize protein interaction partners within the

mitochondrial electron transport system. Scientists can attach the protein to nickel-affinity matrices to capture potential binding partners from mitochondrial protein extracts. These studies would probably help reveal the molecular complexes and regulatory networks involving Etfdh in cellular metabolism. The high purity level should provide reliable interaction data with minimal background interference.

3. Antibody Development and Validation

This purified recombinant rat Etfdh protein appears to be an ideal antigen for generating specific antibodies against the mature form of the protein. The full-length mature protein sequence (33-616aa) gives comprehensive epitope coverage for both monoclonal and polyclonal antibody production. Generated antibodies can then be tested using the same recombinant protein in ELISA, Western blot, and immunoprecipitation assays. Such antibodies would likely become valuable research tools for studying Etfdh expression, localization, and function in rat models.

4. Comparative Protein Structure and Function Analysis

The recombinant rat Etfdh may prove useful in comparative studies with similar proteins from other species to understand evolutionary conservation and species-specific differences. Researchers could perform structural analysis, thermal stability assays, and cofactor binding studies to compare rat Etfdh with human or mouse variants. The E.coli expression system provides a cost-effective platform for producing sufficient quantities needed for biophysical characterization techniques. These comparative studies would probably enhance understanding of species-specific metabolic adaptations and protein evolution.

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.