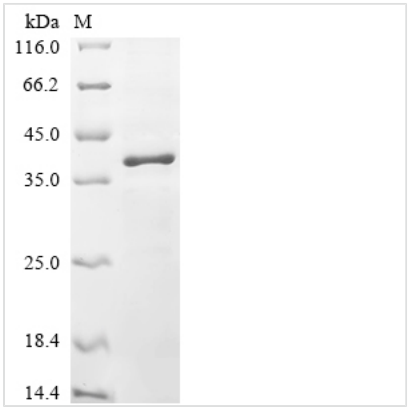
Recombinant Mouse 5-AMP-activated protein kinase catalytic subunit alpha-1 (Prkaa1), partial

Product Code	CSB-EP707843MO1
Abbreviation	Recombinant Mouse Prkaa1 protein, partial
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.	Q5EG47
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 Mouse 5-AMP-activated protein kinase catalytic subunit alpha-1(Prkaa1),partial
Immunogen Species	Mus musculus(Mouse)
Purity	Greater than 85% as determined by SDS-PAGE.
Sequence	MRRLSSWRKMATAEKQKHDGRVKIGHYILGDTLGVGTFGKVKVGKHELTGHK VAVKILNRQKIRSLDVVGKIRREIQNLKLFRHPHIIKLYQVISTPSDIFMVMEYVS GGELFDYICKNGRLDEKESRRLFQQILSGVDYCHRHMVVHRDLKPENVLLDAH MNAKIADFGLSNMMSDGEFLRTSCGSPNYAAPEVISGRLYAGPEVDIWSSGVI LYALLCGTLPFDDDHVPTLFKKICDGIFYTPQYLNPSVISLLKHMLQVDPMKRAA IKDIREHEWFKQDLPKYLFPEDPSYSSTMIDDEALKEVCEKFE
Research Area	Metabolism
Source	E.coli
Target Names	Prkaa1
Expression Region	1-312aa
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	39.8 kDa
Protein Length	Partial
Image	



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

Description

Recombinant Mouse 5-AMP-activated protein kinase catalytic subunit alpha-1 (Prkaa1) is produced in E. coli and includes an N-terminal 6xHis tag that makes purification more straightforward. This partial protein spans amino acids 1-312 and comes with purity levels above 85%, as confirmed through SDS-PAGE analysis. The protein is intended for research purposes only and appears to meet strict quality standards for experimental work.

5-AMP-activated protein kinase (AMPK) acts as a central regulator of cellular energy homeostasis. It functions as an energy sensor within cells and likely plays a critical role in metabolic pathways through its ability to modulate enzyme activity in glucose and lipid metabolism. These characteristics make AMPK an important target for researchers studying metabolic disorders and energy regulation mechanisms.

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. In Vitro Kinase Activity Assays

This recombinant mouse Prkaa1 catalytic subunit may be useful for establishing and optimizing kinase activity assays in AMPK research. The N-terminal 6xHis tag should facilitate both purification and immobilization for biochemical studies that examine substrate phosphorylation patterns. Scientists can explore the kinase properties of this isolated catalytic domain without interference from regulatory subunits. The E.coli expression system offers a relatively inexpensive protein source for high-throughput screening work.

2. Antibody Development and Validation

The purified recombinant protein appears well-suited as an antigen for producing specific antibodies against mouse AMPK alpha-1 catalytic subunit. That 6xHis tag makes purification and quantification simpler for immunization protocols and ELISA-based antibody screening. Scientists can validate antibody

specificity using this protein in Western blotting, immunoprecipitation, and related immunoassays. The defined amino acid sequence (1-312aa) gives researchers a well-characterized target for epitope mapping work.

3. Protein-Protein Interaction Studies

This recombinant Prkaa1 may prove valuable in pull-down assays designed to identify and characterize protein interactions involving the AMPK catalytic subunit. The 6xHis tag enables nickel-affinity capture in binding experiments with potential regulatory proteins or substrates. Scientists can examine how this isolated catalytic domain interacts with other cellular components when separated from the complete AMPK complex. Surface plasmon resonance and similar biophysical methods can take advantage of this tagged protein for quantitative binding analysis.

4. Structural and Biophysical Characterization

The recombinant protein supplies material for structural biology studies, including X-ray crystallography, NMR spectroscopy, and cryo-electron microscopy of the AMPK catalytic domain. Researchers can examine conformational changes, domain organization, and structural features specific to the mouse Prkaa1 sequence. The high purity (>85%) suggests it should work well for biophysical analyses such as thermal stability assays, circular dichroism spectroscopy, and dynamic light scattering. Comparative structural studies between different AMPK catalytic subunit isoforms may be possible using this defined protein preparation.

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.