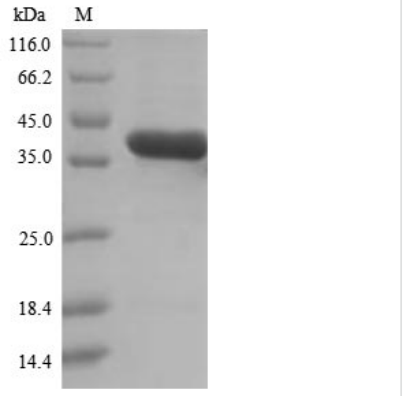
Recombinant Mouse Glutaminyl-peptide cyclotransferase (Qpct)

Product Code	CSB-YP019135MO
Relevance	Responsible for the biosynthesis of pyroglutamyl peptides. Has a bias against acidic and tryptophan residues adjacent to the N-terminal glutaminyl residue and a lack of importance of chain length after the second residue
Abbreviation	Recombinant Mouse Qpct 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.	Q9CYK2
Product Type	Recombinant Protein
Immunogen Species	Mus musculus (Mouse)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	AWTQEKNHHQPAHLNSSSLQQVAEGTSISEMWQNDLRPLLIERYPGSPGSYS ARQHIMQRIQRLQAEWVVEVDTFLSRTPYGYRSFSNIISTLNPEAKRHLVLACH YDSKYFPRWDSRVFVGATDSAVPCAMMLELARALDKKLHSLKDVSGSKPDLS LRLIFFDGEEAFHHWSPQDSLYGSRHLAQKMASSPHPPGSRGTNQLDGMDLL VLLDLIGAANPTFPNFFPKTTRWFNRLQAIEKELYELGLLKDHSLERKYFQNFG YGNIIQDDHIPFLRKGVPVLHLIASPFPEVWHTMDDNEENLHASTIDNLNKIIQVF VLEYLHL
Research Area	Neuroscience
Source	Yeast
Target Names	Qpct
Protein Names	Glutaminyl cyclase
Expression Region	36-362aa
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	39.6kDa
Protein Length	Full Length of Mature Protein
Image	



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

Description

This recombinant mouse Glutaminyl-peptide cyclotransferase (Qpct) is expressed in a yeast system, which appears to offer a reliable and efficient production method. The protein carries an N-terminal 6xHis-tag that helps with purification and detection. It includes the full length of the mature protein, spanning amino acids 36 to 362. The product shows purity levels exceeding 90%, as confirmed by SDS-PAGE analysis, which likely ensures high-quality results for research applications.

Glutaminyl-peptide cyclotransferase (Qpct) is an enzyme that participates in the post-translational modification of proteins. It plays what appears to be a critical role in converting glutaminyl residues into pyroglutamyl residues—a modification that seems important for protein stability and function. This enzyme may be relevant in various physiological pathways and has become a subject of interest for researchers studying protein processing 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. Biochemical Characterization and Enzyme Kinetics Studies

This recombinant mouse Qpct protein can be used to investigate the fundamental biochemical properties of glutaminyl-peptide cyclotransferase. Researchers might examine substrate specificity, optimal reaction conditions, and kinetic parameters. The high purity (>90%) and N-terminal His-tag make purification and handling more straightforward for detailed enzymatic assays. Scientists can study the enzyme's ability to catalyze the cyclization of N-terminal glutaminyl residues in various peptide substrates. Such studies would likely contribute to understanding the molecular mechanisms underlying this post-translational modification process in mouse systems.

2. Antibody Development and Validation

The purified recombinant protein serves as an excellent antigen for generating

specific antibodies against mouse Qpct. The His-tag allows for easy immobilization on metal-affinity surfaces during immunization protocols or screening assays. Generated antibodies can be validated using this recombinant protein in techniques such as ELISA, Western blotting, and immunoprecipitation experiments. This application appears particularly valuable for researchers developing tools to study Qpct expression and localization in mouse tissues and cell lines.

3. Protein-Protein Interaction Studies

The His-tagged recombinant Qpct can be used in pull-down assays to identify potential binding partners or regulatory proteins that interact with glutaminyl-peptide cyclotransferase. The tag makes immobilization on nickel-based affinity matrices more straightforward, allowing researchers to capture interacting proteins from mouse cell lysates or tissue extracts. These interaction studies might reveal novel regulatory mechanisms or functional complexes involving Qpct in cellular processes.

4. Structural and Biophysical Analysis

This recombinant protein preparation appears suitable for structural biology approaches, including X-ray crystallography, NMR spectroscopy, or cryo-electron microscopy studies of mouse Qpct. The high purity level likely meets the requirements for biophysical characterization techniques such as dynamic light scattering, differential scanning calorimetry, or analytical ultracentrifugation. Such analyses would provide insights into the three-dimensional structure, stability, and conformational properties of the mouse enzyme.

5. Comparative Species Studies and Evolutionary Analysis

The mouse-specific recombinant Qpct enables comparative biochemical studies with glutaminyl-peptide cyclotransferases from other species to understand evolutionary relationships and functional conservation. Researchers can perform side-by-side enzymatic assays, substrate preference analyses, and inhibitor sensitivity studies to identify species-specific differences. This application may be valuable for understanding how Qpct function has evolved across different mammalian species and for validating mouse models in research contexts.

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.