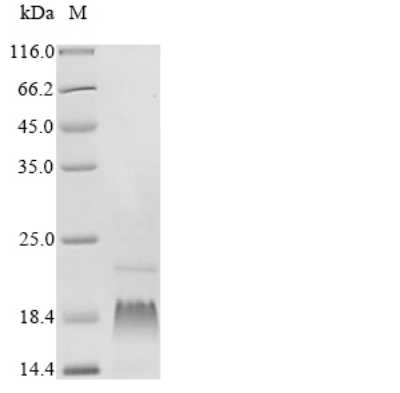
Recombinant Human Gamma-secretase subunit PEN-2 (PSENEN)

Product Code	CSB-CF878932HU
Abbreviation	Recombinant Human PSENEN 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.	Q9NZ42
Storage Buffer	Lyophilized from Tris/PBS-based buffer, 6% Trehalose
Product Type	Transmembrane Proteins
Immunogen Species	Homo sapiens (Human)
Purity	Greater than 85% as determined by SDS-PAGE.
Sequence	MNLERVSNEEKLNLCRKYYLGGFAFLPFLWLVNIFWFFREAFLVPAYTEQSQIK GYVWRSAVGFLFWVIVLTSWITIFQIYRPRWGALGDYLSFTIPLGTP
Research Area	Neuroscience
Source	in vitro E.coli expression system
Target Names	PSENEN
Protein Names	Recommended name: Gamma-secretase subunit PEN-2 Alternative name(s): Presenilin enhancer protein 2
Expression Region	1-101aa
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
Mol. Weight	14.8 kDa
Protein Length	Full Length
Image	 (Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.

Description

Recombinant Human Gamma-secretase subunit PEN-2 (PSENEN) gets produced through an in vitro E. coli expression system. The full-length protein spans amino acids 1-101 and comes equipped with an N-terminal 10xHis-tag that makes purification and detection more straightforward. SDS-PAGE analysis shows the product achieves greater than 85% purity, which appears sufficient for most research applications demanding high-quality proteins.

Gamma-secretase subunit PEN-2 represents an essential piece of the gamma-secretase complex puzzle. This complex drives intramembrane proteolysis—a process that's proving more intricate than researchers initially thought. The protein appears to regulate both Notch signaling and amyloid precursor protein processing, though the exact mechanisms may be more nuanced than current models suggest. PEN-2's involvement in these pathways has made it a prime target for scientists studying cellular signaling and neurodegenerative diseases.

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. Protein-Protein Interaction Studies Using His-Tag Pull-Down Assays

That N-terminal 10xHis-tag allows researchers to immobilize PSENEN on nickel-affinity resins for pull-down experiments. These experiments might reveal potential binding partners, though results can sometimes be tricky to interpret due to non-specific interactions. The approach could help map PEN-2's protein interaction network within the gamma-secretase complex or with other cellular proteins. Scientists can use the recombinant protein as bait to capture interacting proteins from cell lysates, then identify bound partners through mass spectrometry—assuming the interactions survive the experimental conditions.

2. Antibody Development and Validation

The recombinant PSENEN protein, with its >85% purity, provides what appears to be suitable antigen for immunizing laboratory animals. This can lead to polyclonal or monoclonal antibody generation, though success rates vary depending on the protein's immunogenicity. The His-tagged protein works well in ELISA-based screening to spot high-affinity antibodies during hybridoma selection. The purified protein also serves as both positive control and standard for validating antibody specificity in Western blotting and other immunoassays—critical steps that researchers sometimes overlook.

3. Biochemical Characterization and Stability Studies

Having purified recombinant protein opens doors for systematic analysis of PSENEN's biochemical properties. This includes thermal stability, pH tolerance, and buffer compatibility—factors that can significantly impact experimental

outcomes. Circular dichroism spectroscopy offers a way to assess secondary structure content and monitor protein folding under different conditions, though interpretation requires careful consideration of the protein's native environment. These studies may provide fundamental insights into the protein's biophysical characteristics and help determine optimal storage conditions.

4. In Vitro Reconstitution Experiments for Gamma-Secretase Complex Assembly

Researchers can combine the recombinant PSENEN with other gamma-secretase subunits to study how the complex assembles in vitro. Co-expression or mixing experiments with presenilin, nicastrin, and APH-1 subunits might help determine the stoichiometry and assembly pathway, though recreating native conditions remains challenging. The His-tag makes it easier to purify and track PSENEN during these reconstitution studies—a significant advantage when working with multi-protein complexes where individual components can be difficult to monitor.

Shelf Life

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