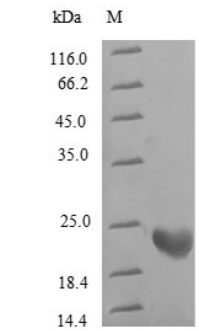
Recombinant Human Rhodopsin (RHO), partial

Product Code	CSB-EP019681HU
Relevance	Photoreceptor required for image-forming vision at low light intensity. Required for photoreceptor cell viability after birth. Light-induced isomerization of 11-cis to all-trans retinal triggers a conformational change leading to G-protein activation and release of all-trans retinal.
Abbreviation	Recombinant Human RHO 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.	P08100
Alias	Opsin-2
Product Type	Recombinant Protein
Immunogen Species	Homo sapiens (Human)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	MNGTEGPNFYVPFSNATGVVRSPFEYPQYYLAEPWQ
Research Area	Signal Transduction
Source	E.coli
Target Names	RHO
Expression Region	1-36aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 6xHis-SUMO-tagged
Mol. Weight	20.2kDa
Protein Length	Partial
Image	



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

Description

This recombinant human rhodopsin (RHO) protein comes from E. coli expression and covers amino acids 1-36 of the full protein. The fragment carries an N-terminal 6xHis-SUMO tag, which makes purification and detection much more straightforward. SDS-PAGE analysis shows the protein achieves greater than 90% purity—a level that should deliver reliable results for most research work.

Rhodopsin acts as a light-sensitive receptor that plays a central role in visual phototransduction. The protein handles the critical job of converting light into electrical signals within the retina. Because rhodopsin sits at the heart of vision, studying it may help researchers better understand how we see and what goes wrong in various visual disorders. This makes it a particularly valuable target for sensory biology research.

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. Antibody Development and Validation

This N-terminal rhodopsin fragment (amino acids 1-36) appears well-suited for creating antibodies that specifically recognize the N-terminal region. The 6xHis-SUMO tag offers extra epitopes while simplifying purification steps needed for immunization work. Scientists can likely use this fragment to produce either monoclonal or polyclonal antibodies for Western blots, immunoprecipitation experiments, or immunofluorescence studies focused on rhodopsin. With purity above 90%, contamination that might cause unwanted cross-reactivity should be minimal.

2. Protein-Protein Interaction Studies

Pull-down experiments may benefit from using rhodopsin's N-terminal domain to fish out binding partners that specifically interact with this region. The N-terminal 6xHis tag makes it easy to attach the protein to nickel-affinity resins, letting researchers capture potential partners from cell lysates or purified protein collections. This strategy could shed light on how rhodopsin's N-terminus contributes to protein complex assembly and cellular signaling networks.

3. ELISA-Based Binding Assays

The tagged rhodopsin fragment works well for developing enzyme-linked immunosorbent assays to study molecular interactions or screen compound libraries. Since the 6xHis tag allows controlled attachment to nickel-coated plates, the rhodopsin fragment gets presented in a uniform way for binding experiments. Researchers might find this system useful for examining binding kinetics, specificity, and how tightly various ligands or proteins stick to

rhodopsin's N-terminal region.

4. Biochemical Characterization and Stability Studies

This purified fragment gives researchers a clean starting point for analyzing N-terminal domain properties—things like thermal stability, how it responds to pH changes, and whether it's vulnerable to protein-cutting enzymes. The SUMO tag appears to boost protein stability and solubility, which could prove helpful for biophysical techniques like dynamic light scattering, circular dichroism spectroscopy, or analytical ultracentrifugation. Such experiments might reveal important details about how rhodopsin's N-terminal region behaves structurally under different laboratory conditions.

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.