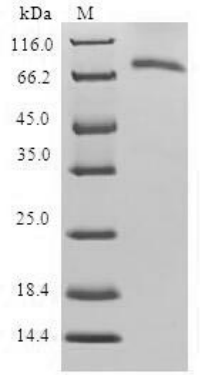
Recombinant Human Selenide, water dikinase 1 (SEPHS1)

Product Code	CSB-EP021015HU
Relevance	Synthesizes selenophosphate from selenide and ATP.
Abbreviation	Recombinant Human SEPHS1 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.	P49903
Alias	Selenium donor protein 1 Selenophosphate synthase 1
Product Type	Recombinant Protein
Immunogen Species	Homo sapiens (Human)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	STRESFNPESYELDKSFRLTRFTELKGTGCKVPQDVLQKLLESLQENHFQEDE QFLGAVMPRLGIGMDTCVIPLRHGGLSLVQTTDYIYPIVDDPYMMGRIACANVL SDLYAMGVTECDNMLMLLGVSNKMTDRERDKVMPLIIQGFKDAAEEAGTSVT GGQTVLNPWIVLGGVATTVCQPNEFIMPDNAVPGDVLVLTKPLGTQVAVAVH QWLDIPEKWNKIKLVVTQEDVELAYQEAMMNMARLNRTAAGLMHTFNAHAAT DITGFGILGHAQNLAKQQRNEVSFVIHNLPVLAKMAAVSKACGNMFGLMHGTC PETSGGLLICLPREQAARFCAEIKSPKYGEGHQAWIIGIVEKGNRTARIIDKPRII EVAPQVATQNVNPTPGATS
Research Area	Cell Biology
Source	E.coli
Target Names	SEPHS1
Protein Names	Recommended name: Selenide, water dikinase 1 EC= 2.7.9.3 Alternative name(s): Selenium donor protein 1 Selenophosphate synthase 1
Expression Region	1-392
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal GST-tagged
Mol. Weight	69.8kDa
Protein Length	Full Length
Image	



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

Description

Recombinant Human Selenide, water dikinase 1 (SEPHS1) is expressed in E. coli and covers the complete sequence from amino acids 1 to 392. The protein carries an N-terminal GST tag, which appears to make purification simpler while potentially improving stability. SDS-PAGE analysis confirms purity levels above 90%. This material seems well-suited for research applications, though results may vary depending on specific experimental conditions.

Selenide, water dikinase 1 (SEPHS1) likely plays a central role in selenoprotein biosynthesis through its involvement in converting selenide to selenophosphate. The enzyme appears essential for selenium metabolism, a process that may be critical for various biological pathways. Studying this protein could provide insights into how selenium affects cellular processes and its broader role in human health, though much remains to be understood about these 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. GST Pull-Down Assays for Protein-Protein Interaction Studies

The N-terminal GST tag allows for direct attachment of SEPHS1 to glutathione-sepharose beads in pull-down experiments. Researchers might use this approach to discover new binding partners of SEPHS1 from cell lysates or confirm suspected interactions with other proteins in selenium metabolism pathways. Having the full-length protein (1-392aa) preserves all possible interaction sites for thorough binding studies. The 90%+ purity should provide reliable pull-down results with relatively low background noise, though some optimization may still be needed.

2. Antibody Development and Validation

The recombinant full-length SEPHS1 protein could serve as an effective immunogen for creating polyclonal or monoclonal antibodies against human

SEPHS1. Its high purity and complete sequence may help ensure broad epitope coverage during antibody production. Scientists can then test these antibodies using the same recombinant protein in Western blots, ELISAs, or immunoprecipitation experiments. The GST tag makes purification and immobilization straightforward during antibody screening, though cross-reactivity with the tag itself might need consideration.

3. Biochemical Characterization and Enzyme Kinetics Studies

This recombinant SEPHS1 appears suitable for detailed biochemical analysis, including protein stability tests, cofactor binding experiments, and substrate specificity studies. The full-length protein maintains its complete structural organization, which seems necessary for meaningful functional studies. Scientists could test how the protein responds to different buffer conditions, pH levels, and temperatures to find optimal experimental settings. While the high purity suggests reliable measurements are possible, some batch-to-batch variation might still occur.

4. GST-Based ELISA Development

The N-terminal GST tag may simplify development of sandwich or competitive ELISA formats for detecting and measuring SEPHS1 levels. Researchers could coat the protein directly onto glutathione-treated plates or capture it using anti-GST antibodies for more standardized assays. This might be particularly helpful for measuring SEPHS1 in cell culture samples or tissue extracts. The 90%+ purity appears adequate for creating sensitive immunoassays, though assay optimization will likely be required for each specific application.

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.