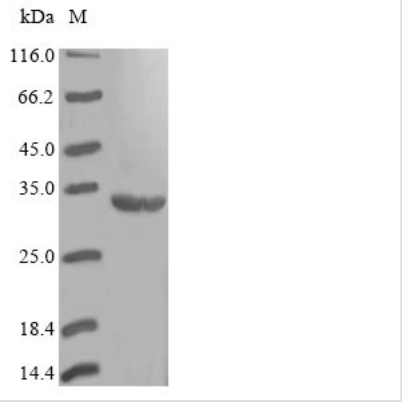
Recombinant Staphylococcus haemolyticus Dihydropteroate synthase (folP)

Product Code	CSB-EP682423SLF
Relevance	Catalyzes the condensation of para-aminobenzoate (pABA) with 6-hydroxymethyl-7,8-dihydropterin diphosphate (DHPt-PP) to form 7,8-dihydropteroate (H2Pte), the immediate precursor of folate derivatives.
Abbreviation	Recombinant Staphylococcus haemolyticus folP 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.	Q59919
Product Type	Recombinant Protein
Immunogen Species	Staphylococcus haemolyticus
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	MTKTKIIGILNVTPDSFSDGGKYNSVDKAIARAKEMIDEGVDIIDVGGVSTRPGH TEVSLEEEMERVVPVVEQLVKLDVQISVDTYRSEVAEACLKLGATMINDQWAG LYDPKIFDVVSDYNAEIVLMHNGDGQREQPVVEEMLLSLLTQANKAEMAGIEK GNIWLDPGIGFAKSRSEEKEVMARLDELVATEYPVLLATSRKRFIKEMIGKETT PAERDEATAATTVYGIMKGIQAVRVHNVDLNVKLAQSIDFLKENEHERHHLS
Research Area	others
Source	E.coli
Target Names	folP
Protein Names	Dihydropteroate pyrophosphorylase
Expression Region	1-267aa
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	33.6 kDa
Protein Length	Full Length
Image	



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

Description

Recombinant Staphylococcus haemolyticus Dihydropteroate synthase (folP) gets expressed in E. coli, spanning the complete 1-267 amino acid sequence. The protein carries an N-terminal 6xHis-tag, which makes purification and detection straightforward. SDS-PAGE analysis confirms the product reaches greater than 90% purity—a quality level that appears suitable for most research applications.

Dihydropteroate synthase plays a crucial role in folate biosynthesis. The enzyme drives the condensation reaction between para-aminobenzoate and pteridine, ultimately forming dihydropteroate—a critical step toward folic acid production. What makes this enzyme particularly interesting is its vulnerability to sulfonamide antibiotics, which may explain why it has become such an important target in antibiotic resistance 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. Protein-Protein Interaction Studies Using His-Tag Pull-Down Assays

That N-terminal 6xHis-tag allows researchers to immobilize this recombinant dihydropteroate synthase on nickel-based affinity matrices for pull-down experiments. Scientists can then hunt for potential protein partners that might interact with folP within the S. haemolyticus folate biosynthesis pathway. The >90% purity level should be sufficient for identifying specific binding partners while keeping non-specific interactions to a minimum. This approach could potentially uncover regulatory proteins or metabolic enzymes that form complexes with dihydropteroate synthase.

2. Antibody Development and Validation

The purified recombinant protein works well as an antigen for generating polyclonal or monoclonal antibodies specific to S. haemolyticus dihydropteroate synthase. With >90% purity, antibodies will likely target the folP protein rather

than picking up contaminants. These antibodies can then be put to work in Western blotting, immunofluorescence, or immunohistochemistry studies focused on bacterial cell research. The His-tag opens up possibilities for developing tag-specific detection methods as well.

3. Biochemical Characterization and Enzyme Kinetics Analysis

This full-length recombinant protein offers a solid foundation for comprehensive biochemical studies. Researchers can dig into protein stability, thermal denaturation profiles, and pH sensitivity analysis. The protein may also prove useful for detailed biophysical characterization through dynamic light scattering, differential scanning calorimetry, or circular dichroism spectroscopy. High purity levels typically translate to more reliable and reproducible results in these analytical methods.

4. Comparative Folate Pathway Studies

The recombinant S. haemolyticus dihydropteroate synthase lends itself well to comparative studies with folP enzymes from other bacterial species—potentially revealing evolutionary relationships and functional differences. Researchers can explore sequence-structure-function relationships by comparing this protein with orthologs from different staphylococcal species or other bacteria. The standardized expression system and purification approach makes direct comparisons with similarly prepared proteins from related organisms more feasible.

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.