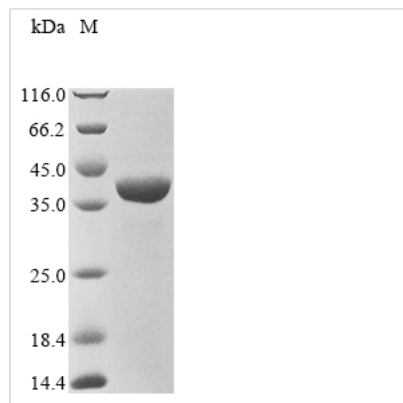




Recombinant Staphylococcus epidermidis Shikimate dehydrogenase (NADP (+)) (aroE)

Product Code	CSB-EP683186SAAA
Abbreviation	Recombinant Staphylococcus epidermidis aroE 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.	Q5HNV1
Form	Liquid or Lyophilized powder
Storage Buffer	If the delivery form is liquid, the default storage buffer is Tris/PBS-based buffer, 5%-50% glycerol. If the delivery form is lyophilized powder, the buffer before lyophilization is Tris/PBS-based buffer, 6% Trehalose.
Product Type	Recombinant Proteins
Immunogen Species	Staphylococcus epidermidis (strain ATCC 35984 / RP62A)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	MKFAVIGNPISHSLSPMHANFQSLNLENTYEAINVVPVNQFQDIKKIIEKSIDG FNV TIPHKERIIPYLD DINEQAKSVGAVNTVLVKDGKWIGYNTDGIGYVNGLKQI YEGIEDAYILILGAGGASKGIANELYKIVRPTLTVANRTMSRFNNWSLNINKINLS HAESHLDEFDIIINTTPAGMNGNTDSVISLNRLASHTLVSDIVYNPYKTPILIEAE Q RGNPIYNGLD MFVHQGAESFKIWTNLEPDIKAMKNIVIQLKLGEL
Research Area	Others
Source	E.coli
Target Names	aroE
Protein Names	Recommended name: Shikimate dehydrogenase EC= 1.1.1.25
Expression Region	1-269aa
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 and C-terminal Myc-tagged
Mol. Weight	37.4 kDa
Protein Length	Full Length
Image	



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

Description

Recombinant *Staphylococcus epidermidis* Shikimate dehydrogenase (NADP(+)) (aroE) is produced in an *E. coli* expression system and corresponds to the full-length protein, spanning amino acids 1-269. The protein includes an N-terminal 10xHis-tag and a C-terminal Myc-tag, which help with purification and detection. SDS-PAGE analysis shows the protein achieves greater than 90% purity, making it well-suited for various research applications in protein interactions and enzymatic studies.

Shikimate dehydrogenase (NADP(+)) appears to play a critical role in the shikimate pathway—a key metabolic route for aromatic compound biosynthesis. This enzyme is involved in reducing 3-dehydroshikimate to shikimate, which represents an essential step in aromatic amino acid production. Studying this enzyme may provide valuable insights into bacterial biosynthesis pathways and could inform antimicrobial target 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. Biochemical Characterization of Shikimate Pathway Enzymes

This recombinant shikimate dehydrogenase allows researchers to examine the kinetic properties and substrate specificity of the enzyme within the shikimate biosynthetic pathway. Scientists can conduct enzyme assays to determine K_m and V_{max} values for shikimate and NADP(+) substrates, which may reveal details about the catalytic mechanism. The high purity (>90%) makes it appropriate for detailed biochemical analysis, including pH and temperature optimization studies. This type of characterization work likely contributes to our understanding of aromatic amino acid biosynthesis in *Staphylococcus epidermidis*.

2. Antibody Development and Immunoassay Applications

The dual-tagged recombinant protein works well as an immunogen for



generating polyclonal or monoclonal antibodies against *S. epidermidis* shikimate dehydrogenase. Both the N-terminal His-tag and C-terminal Myc-tag help with purification and detection during antibody screening processes. Scientists can then use these developed antibodies in Western blotting, immunofluorescence, or ELISA-based detection systems when studying *aroE* expression in bacterial samples. The high purity should minimize cross-reactivity with other bacterial proteins during immunization.

3. Protein-Protein Interaction Studies

Researchers can use the tagged recombinant protein in pull-down assays to identify potential binding partners or regulatory proteins that might interact with shikimate dehydrogenase in *S. epidermidis*. The His-tag allows immobilization on nickel-affinity matrices, while the Myc-tag offers an additional detection method for confirming protein presence in interaction studies. Co-immunoprecipitation experiments using anti-Myc antibodies may help reveal protein complexes involving this metabolic enzyme. Such studies could uncover regulatory mechanisms that control the shikimate pathway.

4. Comparative Enzymology and Evolutionary Studies

This recombinant enzyme can serve as a reference standard when comparing shikimate dehydrogenase activities across different bacterial species or strains. Researchers can perform side-by-side kinetic analyses to understand evolutionary relationships and functional divergence within the *aroE* gene family. The standardized recombinant format enables reproducible comparative studies examining substrate preferences, inhibitor sensitivities, and catalytic efficiencies. This research may contribute to understanding how metabolic pathways evolved in staphylococcal species.

5. Drug Target Validation and Screening Assays

The purified recombinant protein can help develop in vitro screening assays for identifying potential inhibitors of the shikimate pathway, which is absent in mammals but essential for bacterial aromatic amino acid synthesis. Researchers can establish high-throughput enzymatic assays that monitor NADP(+) reduction to screen compound libraries for antimicrobial leads. The dual-tag system aids assay development by enabling both purification standardization and detection confirmation. These screening efforts may support the development of novel antimicrobial strategies targeting metabolic pathways.

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.