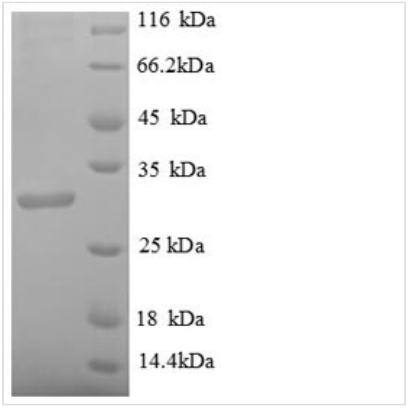
Recombinant Streptomyces avidinii Streptavidin

Product Code	CSB-EP332849SNO
Relevance	The biological function of streptavidin is not known. Forms a strong non-covalent specific complex with biotin (one molecule of biotin per subunit of streptavidin).
Abbreviation	Recombinant Streptomyces avidinii Streptavidin 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.	P22629
Product Type	Recombinant Protein
Immunogen Species	Streptomyces avidinii
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	DPSKDSKAQVSAAEAGITGTWYNQLGSTFIVTAGADGALTGTYESAVGNAESR YVLTGRYDSAPATDGSGTALGWTVAWKNNYRNAHSATTWSGQYVGGAEARI NTQWLLTSGTTEANAWKSTLVGHDTFTKVKPSAASIDAAKKAGVNNGNPLDA VQQ
Research Area	Others
Source	E.coli
Expression Region	25-183aa
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	43.5kDa
Protein Length	Full Length of Mature Protein
Image	 (Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.
Description	Recombinant Streptomyces avidinii Streptavidin is produced in E.coli and

contains the full length mature protein, spanning amino acids 25-183. The protein carries an N-terminal GST tag for easier purification and detection. SDS-PAGE analysis confirms purity levels above 90%, which appears to make it suitable for research applications that demand high-quality protein standards.

Streptavidin from Streptomyces avidinii has gained popularity in research primarily because of its strong affinity for biotin. This interaction forms one of the strongest known non-covalent bonds. Such robust binding makes the protein particularly valuable in biochemical assays - especially those involving purification, detection, and immobilization of biotinylated molecules. The protein's ability to mediate these interactions may explain its widespread adoption in molecular biology and biotechnology 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. Biotin-Binding Affinity Studies

This recombinant streptavidin works well for characterizing biotin-binding properties through in vitro binding assays and kinetic studies. The GST tag allows for straightforward purification and immobilization on glutathione-sepharose beads during binding experiments. Researchers can measure binding constants and dissociation rates, or compare binding affinities with other avidin family proteins. The >90% purity appears sufficient for reliable quantitative binding measurements using techniques such as surface plasmon resonance or fluorescence polarization assays.

2. GST Pull-Down Assay Development

The N-terminal GST tag makes this protein well-suited for developing pull-down assays to study biotin-protein interactions or biotin-modified biomolecules. Researchers can immobilize the protein on glutathione-sepharose beads and use it to capture biotinylated proteins, nucleic acids, or other biotin-conjugated molecules from complex mixtures. This approach proves valuable for studying protein-protein interactions involving biotinylated components or for purifying biotin-labeled targets from cell lysates or biochemical preparations.

3. Comparative Structural and Biochemical Analysis

This recombinant streptavidin from Streptomyces avidinii may serve as a useful research tool for comparative studies with other members of the avidin protein family. The mature protein sequence (25-183aa) expressed in E. coli provides a platform for biochemical characterization including thermal stability, pH tolerance, and resistance to proteolysis. Researchers can compare these properties with chicken avidin or other streptavidin variants to better understand structure-function relationships within this protein family.

4. Biotinylation System Validation

The protein works as a positive control and validation tool in biotinylation-based experimental systems. Its established biotin-binding capability makes it suitable for testing the efficiency of biotin conjugation reactions, validating biotinylation protocols, and serving as a standard in biotin-streptavidin detection systems. The GST tag provides an additional handle for detection and quantification, which allows researchers to optimize biotinylation conditions and troubleshoot biotin-based assay systems.

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.