

Streptolysin O (Hemolytic *streptococcus*)

01-531 20 ug, 01-531-5 5 x 20 ug

Streptolysin O (SLO) is a membrane-damaging extracellular toxin produced by hemolytic *streptococci*. The membrane-damaging activity is measured by hemolysis of red-blood cells. SLO is easily inactivated in the presence of oxygen but can be reactivated by thiol compounds, so it is also called thiol-activated cytolysin (2). SLO is produced not only by Group A hemolytic *streptococci* but also by Group C and Group G strains. The amino acid sequences are highly conserved among them and their homology is over 98%.

The product was highly purified from *E.coli* over-expressing SLO of Group C hemolytic *streptococci*. The specific activity is as high as 1,900,000 hemolytic units (HU) /mg and the product forms a big hole on the cell membrane, which enables the introduction of protein inside the cells *in vivo* (1).

Applications

- 1).Antigen for the measurement of anti-streptolysin O antibody (ASO) (diagnostic reagent)
- 2).Reagent for membrane pore formation to introduce small-to-macromolecules into living cells

(See Ref 1 for Protocol)

Specification

Measurement of the activity: Definition of 1HU is activation of 50% hemolysis by incubating 3% sheep red blood cells at 37°C for 30 min.

Purity: Over 98% by SDS-PAGE

Form: 1 mg/ml in PBS (-), 1 mM DTT, 50% glycerol, sterilized by filtration

Storage: -20°C(long period, -70°C). Inactivated SLO can be reactivated by thiol reagents such as 20 mM cysteine or 10 mM DTT (2)

Data Link : UniProtKB [Q54114](https://www.uniprot.org/entry/Q54114) ((TACY_STREQ)

References : This product has been used in Ref. 3.

1. Walev I *et al* "Delivery of proteins into living cells by reversible membrane permeabilization with streptolysin-O." *PNAS* **98**: 3185-3190 (2001) PMID: [11248053](https://pubmed.ncbi.nlm.nih.gov/11248053/)
2. Palmer M "The family of thiol-activated, cholesterol-binding cytolysins." *Toxicon* **39**: 1681-1689 (2001) PMID: [11595631](https://pubmed.ncbi.nlm.nih.gov/11595631/)
3. Maeda, Y. *et al*. "GPHR is a novel anion channel critical for acidification and functions of the Golgi apparatus." *Nat. Cell Biol.* **10**: 1135-45 (2008) PMID: [18794847](https://pubmed.ncbi.nlm.nih.gov/18794847/)

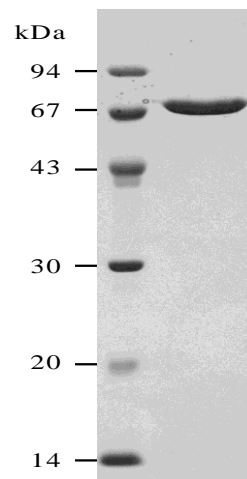


Fig1. Purified SLO analysed by SDS-PAGE.

*This product is only for research use, not for human use.

Fig 2 Amino acid sequence of the recombinant SLO.

The sequence in red is derived from 6 x His tag vector.

The first 36 amino acids of SLO comprising the signal peptide are removed.

37 50
MGGSHHHHHH GMASMTGGQQ MGRDLYDDDD KDPSSR NKQN TANTETTTN
60 70 80 90 100
EQPKPESEL TTEKAGQKMD DMLNSNDMIK LAPKEMPLES AEKEEKKSED
110 120 130 140 150
NKKSEEDHTE EINDKIYSLN YNELEVLAKN GETIENFVPK EGVKKADKFI
160 170 180 190 200
VIERKKKNIN TTPVDISIID SVTDRITYPAA LQLANKGFTE NKPDVVTKR
210 220 230 240 250
NPQKIHIDLP GMGDKATVEV NDPTYANVST AIDNLVNQWH DNYSGGNTLP
260 270 280 290 300
ARTQYTESMV YSKSQIEAAL NVNSKILDGT LGIDFKSISK GEKKVMIAAY
310 320 330 340 350
KQIFYTVSAN LPNNPADVFD KSVTLKELQR KGVSNAPPL FVSNVAYGRT
360 370 380 390 400
VFKLETSSK SNDVEAAFSAL ALKGTDVKTN GKYS DILENS SFTAVVLGGD
410 420 430 440 450
AAEHNKVVTK DFDVIRNVIK DNATFSRKNP AYPISYTSVF LKNNKIAGVN
460 470 480 490 500
NRSEYVETTS TEYTSGKINL SHQGAYVAQY EILWDEINYD DKGKEVITKR
510 520 530 540 550
RWDNNWYSKT SPFSTVIPLG ANSRNIRIMA RECTGLAWEW WRKVIDERDV
560 570
KLSKEINVNI SGSTLSPYGS ITYK

Material Safety Data Sheet

Product name: Streptolysin O of group C streptococcus expressed as His6-tagged recombinant protein
in E. coli and highly purified (>95%)

MSDS Date: May 3, 2012

MSDS Number: 01-531

Responsible Party

Company Name: BioAcademia Inc.

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Information about health hazards

Target: Cholesterol on human and animal cell membrane

Health Hazards: May be fatal if enters bloodstream.

LD50 - Lethal dose (50 percent kill) intravenous,

Rabbit, 1500 ng/kg (Ref :PHTHDT Pharmacology and Therapeutics. (Pergamon Press
Ltd., Headington Hill Hall, Oxford OX3 0BW, UK) Vol.(Issue) 11, Page 661,1981)

Guinea pig, 12 ug/kg (Ref: BICMBE Biochimie. (SPPIF, B.P.22, F-41353 Vineuil, France,
Vol.(Issue)55,Page 1187, 1973)

Toxicity is much less when introduced via other routes of entry like Interdermal injection

First Aid Measures

Ingestion: Wash out with large amount of water. When swallowed, get medical attention if any
discomfort arises.

Eye contact: Wash with large amounts of water while lifting eye lids. Call medical doctor if irritation
continues.

Skin contact: Wash off with soap and plenty of water.

Spill release: Wear glove and sweep up the spill and then wash spill site. All the contaminants should
be autoclaved at 121°C for 20 min before disposal.

Handling and Storage

Handling and Storage Precautions: BIOHAZARD. DO NOT USE IF SKIN IS CUT
OR SCRATCHED.

Other Precautions: CAUTION: SUBSTANCE NOT YET FULLY TESTED.

Exposure Controls/Personal Protection

Protective Gloves:COMPATIBLE CHEMICAL-RESISTANT GLOVES.

Eye Protection:ANSI APPROVED CHEMICAL WORKERS GOGGLES .

Other Protective Equipment:EYE WASH AND DELUGE SHOWER MEETING ANSI
DESIGN CRITERIA .

Work Hygienic Practices:WASH THOROUGHLY AFTER HANDLING.

Disposal Considerations

Waste Disposal Methods: Autoclave the waste at 121°C for 20 min.

Regulatory Information

Federal Regulatory Information:EUROPEAN INFORMATION: CAUTION: SUBSTANCE
NOT YET FULLY TESTED.