Streptolysin O (Hemolytic streptococcus), functional

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

Storage: Ship at 4°C or -20°C, and store at -20°C (For longer period, years, store at -80°C)

Product: Recombinant streptolysin O. Functional in membrane pore formation to introduce molecules into living animal cells. The product was highly purified from E.coli over-expressing SLO of Group C hemolytic streptococci (His6-tagged to the signal peptide removed N-terminal of SLO). The specific activity is as high as 1,200,000-2,000,000 hemolytic units (HU) /mg (depending on Lot).

Applications
1) Functional studies
2) Reagent for membrane pore formation to introduce small-to-macromolecules into living cells (For protocol refer to or other references: Walev I et al “Delivery of proteins into living cells by reversible membrane permeabilization with streptolysin-O.” PNAS 98: 3185-3190 (2001) PMID: 11248053)
3) Antigen for the measurement of anti-streptolysin O antibody (ASO) (diagnostic reagent), ELISA
4) Western blotting, Dot blotting,
5) Immuno-chromatography
6) SDS-PAGE

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 (see Fig.1)

Form: 1 mg/ml in PBS (−), 1 mM DTT, 50% glycerol, sterilized by filtration. No additive nor carrier protein.

Inactivated SLO can be reactivated by thiol reagents such as 20 mM cysteine or 10 mM DTT (Palmer M. Toxicon 39: 1681-1689 (2001) PMID: 11595631)

Background: 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. 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%.

Data Link : UniProtKB Q54114 ([TACY_STREQ])
References: This product has been used in the following publications.


Fig. 2 Introduction of fluorescein dextran of different molecular weights into resealed cells. A. HeLa cells were incubated with or without (2000 kDa dextran w/o SLO) 0.13 µg/ml SLO on ice for 5 min. After wash with PBS three times, the cells were further with transport buffer containing propidium iodide at 32°C for 5 min. Semi-intact HeLa cells were incubated with 1.5 mg/ml L5178Y cytosol, an ATP regenerating system, GTP, glucose, and 100 µg/ml fluorescein-dextran of 3, 10, 40, 70, or 2000 kDa at 32°C for 15 min, and then were resealed by treatment with 1 mM CaCl$_2$ at 32°C for 5 min. After incubation with DMEM supplemented with FCS for 30 min, the cells were observed by confocal microscopy. Since the cells without SLO treatment did not contain the fluorescence of propidium iodide, differential interference contrast (DIC) image was shown. Bar = 10 µm. B. HeLa cells were treated as described in A, were trypsinized, and were subjected to flowcytometry. The histograms of fluorescein fluorescence of dextran with different molecular weight in PI-positive cells were shown. Data from Kano F. et al, PLoS One, 2012;7(8):e44127.


Material Safety Data Sheet  Revised on August 9, 2019

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifiers

Product name: Streptolysin O, functional recombinant protein
Product code: 01-531

1.2 Relevant identified uses of the substance or mixture and uses advised against  For research use only and not for use in diagnosis or in human.

1.3 Details of the supplier of the safety data sheet

Responsible Party
Company Name: BioAcademia Inc.
Address: North Buiding, Research Institute for Microbial Diseases, Osaka University, 3-1 Yamadaoka, Suita, Osaka 565-0871, Japan
Tel: 81-6-6877-2335 Fax: 81-6-6877-2336
E-mail: Info@bioacademia.co.jp

1.4 Emergency telephone number: 81-6-6877-2335

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008. This substance is not classified as dangerous according to Directive 67/548/EEC.

2.2 Label elements The product does not need to be labelled in accordance with EC directives or respective national laws.

2.3 Other hazards – none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Composition of product: Streptolysin O (0.1%, CAS No. N/A), Glycerol (50%, CAS No. 56-81-5), x1 Phosphate Buffered Saline (KH₂PO₄ 0.021%, CAS No. 7778-77-0 : NaCl 0.9%, CAS No. 7447-14-5: Na₂HPO₄ 0.038%, CAS No 7558-79-4.), Dithiothreitol (0.015%,CAS No. 3483-12-3), H₂O (49%,CAS No. 7732-18-5)

4. FIRST AID MEASURES
4.1 **Ingestion**: Wash out with large amount of water. When swallowed, get medical attention if any discomfort arises.

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

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

4.4 **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.

5. **Handling and Storage**

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

5.2 **Other Precautions**: CAUTION: SUBSTANCE NOT YET FULLY TESTED.

6. **Toxicological Information**

6.1 **Target**: Cholesterol on human and animal cell membrane

6.2 **Health Hazards**: May be fatal if large amount enters bloodstream.

6.2 **LD50** - Lethal dose (50 percent kill) intravenous,


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

7. **Exposure Controls/Personal Protection**

7.1 **Protective Gloves**: COMPATIBLE CHEMICAL-RESISTANT GLOVES.

7.2 **Eye Protection**: ANSI APPROVED CHEMICAL WORKERS GOGGLES.

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

7.3 **Work Hygienic Practices**: WASH THOROUGHLY AFTER HANDLING.

8. **Disposal Considerations**

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

9. **Regulatory Information**

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