Cholera Toxin

01-511　　100 µg

Storage: Ship with dry-ice. Store at -80℃.

Applications:

1) Detection of GTP-binding protein Gsα
2) Detection of a low molecular weight GTP-binding protein, ARF
3) Manipulation of culture cells to increase cellular concentration of cyclic AMP
4) Growth supplement for many animal cells including iPS cells, tumor , NIH3T3 and MCF10A cells

Form: 1.0 mg/ml in 50 mM Tris-HCl (pH7.5) 0.2 M NaCl 1mM Na_2EDTA, 10% Glycerol

Purity: More than 90% purity (see below; SDS-PAGE)

Activity test: Addition of cholera toxin at ~ 1 ng/ml to the culture medium changed more than 50% of Vero cells into spindle shape.

Background: Cholera toxin, a main enterotoxin, interacts with G proteins and increases cyclic AMP in the intestinal lining to open ion channels. As ions flow into the intestinal lumen (lining), body fluids (mostly water) flows out of the body due to osmosis leading to massive diarrhea as the fluid is expelled from the body. Cholera toxin is a complex consisting of one molecule of A subunit (27.2 kD) and 5 molecules of B subunits (11.6 kD). It adsorbs to GM1 ganglioside on the surface of target cells by the B subunit and penetrates into cells where A subunit is dissociated and processed into A1, which constitutively activates adenyl cyclase activity of α subunit of Gs (a kind of GTP-binding protein).

This toxin was highly purified from growth medium of *Vibrio cholerae,* 569B strain.

Data Link　Swiss-Prot Cholera toxin

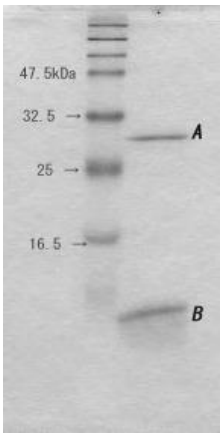

Fig.1 SDS-PAGE of Cholera toxin. A and B indicate the subunits A and B, respectively.

References:

1. Hirst TR and D'Souza JM In *The Comprehensive Sourcebook of Bacterial Protein Toxins* Alouf J and Popoff M edt. 3rd edn. p. 270-290 Academic Press (2006)
2. Finkelstein RA and LoSpalluto JJ "Pathogenesis of experimental cholera. Preparation and isolation of choleragen and choleragenoid." *J.Exp Med* **130**: 185-202 (1969) PMID: 4978880
3. Iijima Y and Honda T "Enterotoxin of Vibrio Cholerae." In *Recent Advances in Marine Biotechnology* Fingerman M and Nagabhushanam R edt. Science Pub. Inc. **7**: 41 (2002)

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

＊MSDS (Material Safety Data Sheet) is in the next page.

Related products: # 01-521 Cholera toxin subunit A　# 01-525 Cholera toxin subunit B

Material Safety Data Sheet
Cholera Toxin

Harzardous Ingradient

On a weight basis, cholera toxin constitutes >95% of the total protein (0.4~1.0 mg/ml, depending on lot).

Health Hazard Data

The LD_{50} in mice is 250 μg/kg when injected intravenously. It is believed that human is more susceptible than mouse.

Emergency Procedure

If the toxin is accidentally swallowed, drink large amounts of water or hypotonic drinks, and ask a physician for emergency treatments of cholera diarrhea.

If skin pricking occurs accidentally, bleed and perform vigorous flushing of the area with large amounts of water. If injection occurs, seek a physician' s advice immediately. Hyperimmune globulin, which is not commercially available, is the only antidote.

Handling

It should be handled carefully by persons with expertise in knowledge and techniques for the safe handling of Cholera toxin. Avoid mouth pipetting. Wear protective gloves when handling the toxin. Avoid contact with open wounds. Wash thoroughly any area of the body that makes contact with the toxin. It is recommended that persons who handle the toxin are immunized by diphtheria vaccine.

Inactivation

The toxin can be inactivated by boiling for 30 min.