

Diphtheria Toxin, functional

Product code	01-517
Size	100 µg
Storage	-80°C
Concentration	2.0~5.0 mg/ml (depending on lot)
Buffer	20 mM Tris-HCl (pH 7.2), 150 mM NaCl, 10% Glycerol
Purity	Greater than 95% of protein determined by SDS-PAGE (Fig.1)
Applications	<ol style="list-style-type: none"> 1. Inhibition of protein synthesis in eucaryotic cells 2. Negative selection agent for ES cells in construction of transgenic mouse (Yagi, T. <i>et al.</i> "A novel negative selection for homologous recombinants using diphtheria toxin A fragment gene." <i>Anal. Biochem.</i> 214:77-86,1993 PMID: 8250258) 3. Putative drug for treatment of malignant tumors such as leukemia 4. Antigen for Western blotting and ELISA 5. As a marker of Diphtheria toxin in SDS-PAGE
Biological Activity	Addition of 20 ~30 pg/ml of Diphtheria toxin in growth medium caused 50% lethality after 43 h in Vero cells.
Background	Diphtheria toxin purified from the growth media of <i>Corynebacterium diphtheriae</i> is mostly unnicked form. Diphtheria toxin is a single polypeptide chain of 535 amino acids (58 kD) and nicked by cellular protease like furin to give fragments A (N-terminal, 21 kDa) and B (C-terminal, 37 kDa) which are linked by disulfide bridges. Binding to the cell surface of frgment B allows fragment A to penetrate the host cell. Fragment A catalyzes the ADP-ribosylation of eucaryotic elongation factor-2 (eEF2) by using NAD as a substrate, thus inactivating eEF2 and inhibiting protein synthesis.
Data Link	UniProtKB/TrEMBL Q5PY51 (Q5PY51_CORDI)

Please note: All products are FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES. NOT FOR MILITARY USE.

Data Image: 01-517 Diphtheria Toxin, functional

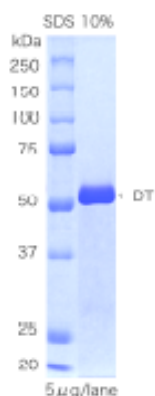


Figure 1. SDS-PAGE of diphtheria toxin (without mercaptoethanol)

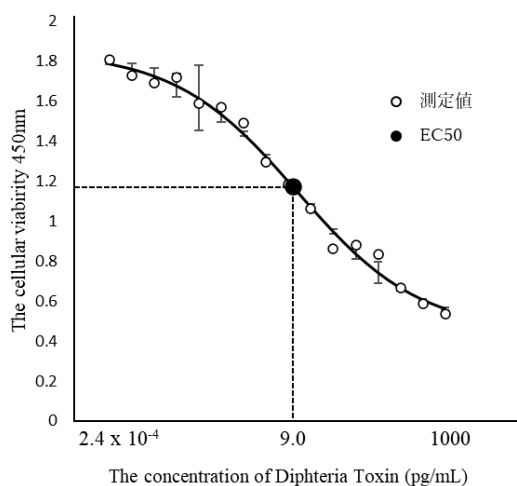


Figure 2. Cell proliferation activity of Vero E6 cells after addition of diphtheria toxin and incubation for 43 hours.

50% effective concentration is 9.0 pg/mL

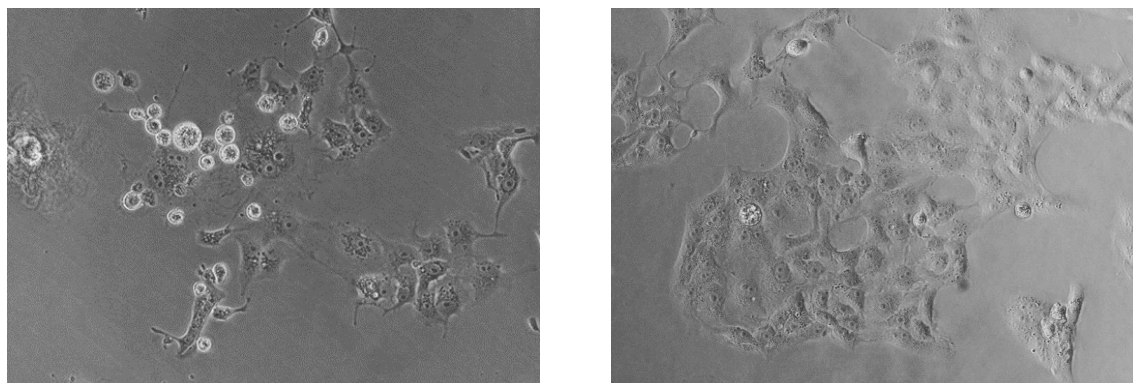


Figure 3. Vero E6 cells after addition of diphtheria toxin and incubation for 43 hours.

Left: 7.8 pg/mL, right: 0 pg/mL.

Related products:

64-010 64-011 Anti-Diphtheria Toxin antibody, rabbit serum

References:

1. Uchida T. *et al.* "Diphtheria toxin and related proteins. 3. Reconstitution of hybrid "diphtheria toxin" from nontoxic mutant proteins." *J. Biol. Chem.* **248**:3851-3854 (1973) PMID: [4196586](#)
2. Pappenheimer A. "Diphtheria toxin." *Annu Rev Biochem* **46**:69-94 (1977) PMID: [20040](#)

Safety Data Sheet Diphtheria Toxin

Harzardous Ingradient

On a weight basis, Diphtheria toxin constitutes >95% of the total mass in 1 mg/ml protein solution.

Health Hazard Data

The MLD (Minimal Lethal Dose) in human is ≤ 100 ng/kg when injected intramuscularly in an unimmunized adult.

Emergency Procedure

The toxin is less effective when it is administered orally, because it is unstable at acid pH in stomach. If skin pricking occurs accidentally, bleed and perform vigorous flushing of the area with large amounts of water. If injection occurs, seek a physician' attention immediately.

Handling

It should be handled carefully by persons with expertise in knowledge and techniques for the safe handling of Diphtheria 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 exposing acids below pH 1 or pH above 12, followed by boiling for 30 min.