

# Diphtheria Toxin A (8A4): sc-51870

## BACKGROUND

*Corynebacterium diphtheriae* is a gram-positive, nonmotile aerobic bacteria found in soil and animal feces. *C. diphtheriae* bacteria infect the epithelial cells of the upper respiratory tract from where they produce and secrete a potent toxin which is absorbed and disseminated through lymph channels and blood to the susceptible tissues of the body. Diphtheria Toxin catalyzes the ADP-ribosylation and inactivation of eEF-2. The structure of the diphtheria toxin reveals a Y-shaped molecule of 3 domains: a catalytic domain (fragment A), whose fold is of the  $\alpha + \beta$  type, a transmembrane (TM) domain consisting of 9  $\alpha$ -helices, 2 pairs of which may participate in pH-triggered membrane insertion and translocation, and a receptor-binding domain, which forms a flattened  $\beta$ -barrel with a jelly-roll-like topology. Together the TM- and receptor binding-domains constitute fragment B.

## REFERENCES

1. Davis, L and Ferry, N.S. 1919. Studies on Diphtheria Toxin: II. The role of the amino acids in the metabolism of *Bacterium diphtheriae*. J. Bacteriol. 4: 217-241.
2. Hazen, E.L. and Heller, G. 1932. Further studies upon the effect of various Carbohydrates on production of Diphtheria Toxin with special reference to its flocculating titer and final pH. J. Bacteriol. 23: 195-209.
3. Moloney, P.J. and Taylor, E.M. 1932. The effect on solutions of Diphtheria Toxin and diphtheria antitoxin of contact with certain surfaces. Biochem. J. 26: 1754-1761.
4. Eaton, M.D. 1936. The purification and concentration of Diphtheria Toxin: II. Observations on the nature of the toxin. J. Bacteriol. 31: 367-383.
5. Eaton, M.D. 1937. The purification and concentration of Diphtheria Toxin: III. Separation of toxin from bacterial protein. J. Bacteriol. 34: 139-151.
6. Pappenheimer, A.M. 1942. Studies on Diphtheria Toxin and its reaction with Antitoxin. J. Bacteriol. 43: 273-289.
7. Collier, R.J. 1975. Diphtheria Toxin: mode of action and structure. Bacteriol. Rev. 39: 54-85.
8. Pappenheimer, A.M. 1977. Diphtheria Toxin. Annu. Rev. Biochem. 46: 69-94.
9. Donovan, J.J., Simon, M.I., Draper, R.K. and Montal, M. 1981. Diphtheria Toxin forms transmembrane channels in planar lipid bilayers. Proc. Natl. Acad. Sci. USA 78: 172-176.

## SOURCE

Diphtheria Toxin A (8A4) is a mouse monoclonal antibody raised against Diphtheria toxoid.

## PRODUCT

Each vial contains 100  $\mu$ g IgG<sub>2a</sub> in 1.0 ml PBS with < 0.1% sodium azide and 0.1% gelatin.

## STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## APPLICATIONS

Diphtheria Toxin A (8A4) is recommended for detection of free A subunits of Diphtheria Toxin of *Corynebacterium diphtheriae* origin by solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Molecular Weight of Diphtheria Toxin A: 21 kDa.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.