GENTAUR

DATA SHEET

CHOLERA TOXIN AND RELATED PRODUCTS

Cholera toxin is an oligomeric protein of MW 84,000 daltons and consists of a single A subunit surrounded by five B subunits.[1,2,3] It is a potent activator of adenylate cyclase and is the pathogenic agent responsible for the symptoms of cholera.[4] The B subunit (choleragenoid) is responsible for the binding of the holotoxin to G_{M1} ganglioside receptors on mammalian cell surfaces[5,6] and facilitates entrance of the A subunit into the cell. The A subunit bears the ADP-ribosyl-transferase activity, which deregulates the G_s protein causing activation of adenylate cyclase.[7] Due to the ubiquitous occurrence of the G_{M1} ganglioside receptor on eukaryotic cell membranes, cholera toxin activates adenylate cyclase in a wide variety of model systems.[8]

Cholera toxin has become a powerful research tool not only in microbiology, but in the fields of physiology, cell biology and biochemistry, as well. Because of the effect on adenylate cyclase, cholera toxin and its purified A subunit are frequently used for the study of signal transduction mechanisms. In addition, cholera toxin acts as an adjuvant through the stimulation of B-lymphocytes. The cholera toxin B subunit alone is used for track tracing in neurological research, taking advantage of G_{M1} ganglioside binding and retrograde transport. Several B subunit conjugates are discussed in another infor-mation sheet.

Cholera toxin from List Biological Laboratories, Inc. is isolated from *Vibrio cholerae* type Inaba 569B by modification of the methods of Rappaport *et al*.[9] and Mekalanos *et al*.[10] This product is highly purified and contains only trace amounts of B subunit, a by-product of lyophilization. In addition to the intact toxin, highly purified A subunit and B subunit are available. These products are isolated by a modification of the method of Lai *et al*.[11]

When equal weights are compared, the A subunit exhibits 3 to 5 times the transferase activity of the holotoxin.

Cholera toxin and native subunits all undergo treatment for the removal of contaminating endotoxin and are sterile as packaged. Each is supplied as a lyophilized powder. A detailed lot analysis documenting purity and biological activity accompanies each product shipment.

High titer polyclonal anti-choleragenoid from goat, suitable for use in either toxin neutralization or binding assays, is also available, and is provided as a lyophilized powder containing 0.1% NaN_3 as a pre-servative.

The above products are intended for research purposes only and are not for use in humans.

References

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6. Holmgren, J. and Lönnroth, I. (1975) *J. Gen. Microbiol.* **86**, 49-65.
7. van Heyningen, S. and King, C.A. (1975) *Biochem. J.* **146**, 269-271.
8. Tayot, J.L., Holmgren, J., Svennerholm, L., Lindblad, M. and Tardy, M. (1981) *Eur. J. Biochem.* **113**, 249-258.
9. Rappaport, R.S., Rubin, B.A. and Tint, H. (1974) *Infect. Immun.* **9**, 294-303.
10. Mekalanos, J.J., Collier, R.J. and Romig, W.R. (1978) *Infect. Immun.* **20**, 552-558.
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Ordering Information

Product No.	Description	Size
100A,B,C	Cholera Toxin (azide-free)	0.5, 1.0, 2.0 mg
101A,B,C	Cholera Toxin*	1.0, 2.0, 5.0 mg
102	Cholera Toxin A Subunit	0.25 mg
103A,B,C	Cholera Toxin B Subunit (Choleragenoid)*	0.5, 1.0, 2.0 mg
104A,B	Cholera Toxin B Subunit (low salt)	0.5, 1.0 mg
703	Goat Anti-Choleragenoid	0.1 ml

For B Subunit conjugates, refer to the product information page regarding conjugates.

*To be discontinued when supply is exhausted