EXOTOXIN A FROM *PSEUDOMONAS AERUGINOSA*

Exotoxin A is one of the toxic proteins released by pathogenic strains of *Pseudomonas aeruginosa*.[1] It is secreted as a proenzyme with a molecular weight of 66,000 daltons.[2] Like diphtheria toxin, exotoxin A is translocated into susceptible mammalian cells. Covalent alteration of the molecule then occurs, rendering it enzymatically active.

The intact toxin can be activated to be 20- to 50-fold more toxic *in vitro* by treatment with urea and dithiothreitol.[2] Exotoxin A catalyzes the transfer of the adenosine diphosphate ribose moiety of oxidized nicotinamide adenine dinucleotide onto elongation factor 2: NAD + EF-2 ADP-ribose-EF-2 + nicotinamide + H^+.[3] This ADP-ribosylation of EF-2 blocks polypeptide assembly on the surface of the ribosome.[4] As a result, this molecule is cytopathic for a number of cultured cell lines and is toxic to animals.[1,2] Although exotoxin A and diphtheria toxin have identical enzymatic activity, they exhibit distinct target cell specificities and are immunologically unrelated.[5]

In crude preparations, or in purified material which has been stored, lower molecular weight peptides with ADP-ribosylating activity may be present.[2,6] Similarly, after reduction and limited proteolytic cleavage with chymotrypsin, a 26,000 dalton fragment that has enzymatic activity may be separated from the toxin.[7] This fragment alone is not toxic to intact cells.

Exotoxin A is heat-labile and can be inactivated by heating at 70°C for 30 minutes.[8] It is also unstable at low pH, losing 80% of its activity at pH 5 after storage for 3 days at 2-8°C.[8]

Exotoxin A from List Biological Laboratories, Inc. is isolated from *Pseudomonas aeruginosa* strain PA103 (Fisher-Devlin serotype 2) by a modification of the procedures of Leppla and of Iglewski and Sadoff.[2,9] The protein is tested by immunoprecipitation against exotoxin A antiserum (prod. **#760**) in immunodiffusion and by SDS polyacrylamide gel electrophoresis. This product is filter sterilized and packaged under aseptic conditions. A detailed lot analysis documenting purity accompanies each product shipment.

Antiserum against exotoxin A, produced in goat, is also available from List Biological Laboratories, Inc. This product is provided as a sterile lyophilized powder.

These products are intended for research purposes and are not intended for use in humans or as diagnostic agents. For further information, please contact List Biological Laboratories, Inc.

Ordering Information

Product No.	Description	Size
160	Exotoxin A from *P. aeruginosa*	1 mg
760	Goat anti-exotoxin A	0.5 ml

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