

CERTIFICATE OF ANALYSIS  
TETANUS TOXIN  
Lot #19042E1AContents:

Each vial, when reconstituted with 25  $\mu$ l of sterile purified water, contains 25  $\mu$ g of tetanus toxin in 20 mM HEPES, pH 7.4 and 1.25% lactose.

Concentration:

Protein concentration is determined by a modification of the method of Bradford<sup>1</sup> using ovalbumin as the standard.

Purity:

This preparation migrates as a single band of molecular weight approximately 150,000 daltons when run on 4-12% polyacrylamide SDS gels prepared according to the method of Wyckoff<sup>2</sup>, a modification of the Laemmli<sup>3</sup> gel system. In the presence of  $\beta$ -mercaptoethanol, 2 bands are seen, the heavy chain at 100,000 daltons and the light chain at 50,000 daltons.

Activity:

Each lot of tetanus toxin is tested to confirm binding activity to G<sub>T1b</sub> ganglioside using a hemagglutination assay.<sup>4</sup>

Storage:

Store material at 4°C prior to and following reconstitution.

Toxicity:

Tetanus toxin is one of the most deadly toxins known to man. Even small amounts of tetanus toxin can pose a serious threat to an unvaccinated user. See handling precautions on reverse side.

(continued)

## Handling:

Good laboratory technique should be employed in the safe handling of this product. This requires observing the following practices:

1. **INTACT TETANUS TOXIN IS ONE OF THE MOST POTENT TOXINS KNOWN. THE LETHAL DOSE IN UNVACCINATED HUMANS IS ESTIMATED AT <2.5 ng/kg.<sup>5</sup> PERSONS HANDLING THIS PRODUCT AND CONTAMINATED GLASSWARE SHOULD HAVE A CURRENT TETANUS VACCINATION, AND THEIR SERUM ANTITOXIN LEVEL SHOULD BE GREATER THAN 1.0 INTERNATIONAL UNIT PER MILLILITER.**
2. **This product is to be used by skilled personnel under the direction of a principal investigator in a laboratory setting only.**
3. **Wear appropriate laboratory attire including a lab coat, gloves and safety glasses.**
4. **Never remove the stopper prior to reconstitution and never work with the product in the powdered form. Always reconstitute it first.**
5. **Do not mouth pipette, inhale, ingest or allow to come into contact with open wounds. Wash thoroughly any area of the body which comes into contact with the product.**
6. **Avoid accidental autoinoculation by exercising extreme care when handling in conjunction with any injection device.**
7. **This product is intended for research purposes only. It is not intended for use in humans or as a diagnostic agent. List Biological Laboratories, Inc. is not liable for any damages resulting from the misuse or handling of this product.**

**FOR RESEARCH PURPOSES ONLY. NOT FOR HUMAN USE.**

## References:

1. Bradford, M.M. (1976) *Anal. Biochem.* **72**, 248-254.
2. Wyckoff, M., Rodbard, D. and Chrambach, A. (1977) *Anal. Biochem.* **78**, 459-482.
3. Laemmli, U.K. (1970) *Nature* **227**, 680-685.
4. Tayot, J.-L., Holmgren, J., Svennerholm L., Lindblad, M. and Tardy, M. (1981) *Eur. J. Biochem.* **113**, 249-258.
5. Gill, D.M. (1982) *Microbiol. Rev.* **46**, 86-94.

Approved: EM Date: 9/12/08 Approved: JE Date: 9/12/08