LIST BIOLOGICAL LABORATORIES, INC.

540 DIVISION STREET ▪ CAMPBELL ▪ CALIFORNIA 95008-6906 ▪ USA
408-866-6363 ▪ 800-726-3213 ▪ FAX 408-866-6364 ▪ EMAIL info@listlabs.com
WEBSITE www.listlabs.com

Product #421

CERTIFICATE OF ANALYSIS
LIPOPOLYSACCHARIDE, ULTRA PURE
from *Escherichia coli* O111:B4
Lot #4216A3

Contents:

Each vial contains 1.0 mg of lyophilized re-extracted lipopolysaccharide (LPS) isolated from *E. coli* O111:B4 by a modification of the methods of Westphal and Jann[1], and Manthey and Vogel.[2]

Packaging/Reconstitution/Storage:

LPS is dispersable in aqueous solvents at concentrations of 1.0 mg/ml. To achieve suspension in water, heating to about 50°C with intermittent vortexing or sonication is generally recommended.[3] Allow ample time for dispersion to occur. The use of 0.5% triethylamine aids in dispersion. Triethylamine is very basic and may be neutralized with Tris HCl to avoid hydrolysis of the fatty acid chains. It is recommended that this material be stored at 4°C prior to and following reconstitution.

Endotoxin Activity:

The endotoxin activity determined using a kinetic chromerge LAL assay is 6.75 x 10^6 EU/mg.

Analysis:

2-Keto-3-deoxyoctonate (KDO)[4]	2.70 %
Nucleic acid[5]	2.35 %

There are no detectable protein bands on a colloidal gold blot[6,7] transferred from SDS-PAGE.[8]

Handling:

Good laboratory technique should be employed in the safe handling of any lipopolysaccharide or lipid A product. This requires observing the following practices:

(continued)

1. **Wear appropriate laboratory attire including a lab coat, gloves and safety glasses.**

2. **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.**

3. **This product is pyrogenic. Avoid accidental autoinoculation by exercising extreme care when handling in conjunction with any injection device.**

4. **This product is intended for research purposes by qualified personnel 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 USE IN HUMANS.

References:

1. Westphal, O. and Jann, K. (1965) Bacterial Lipopolysaccharides in *Methods in Carbohydrate Chemistry*, Whistler, R.L., ed., Academic Press, New York, **Vol. 5,** 83-91.

2. Manthey, C.L. and Vogel, S.N. (1994) *J. Endotoxin Research* **1,** 84-91.

3. Mukerjee, P., Kastowsky, M., Obst, S., and Takayama, K. (1999) Lipopolysaccharide Preparations in Aqueous Media in *Endotoxin in Health and Disease*, Brade, H., Opal, S.M., Vogel, S.N., and Morrison, D. eds., Marcel Dekker, Inc., New York, p. 223-224.

4. Cynkin, M.A. and Ashwell, G. (1960) *Nature* **186,** 155-156.

5. Determined by absorption at 260 nm.

6. Rohringer, R., and Holden, D.W. (1985) *Anal. Biochem.* **144,** 118-127.

7. Danscher, G. (1981) *Histochemistry* **71,** 81-88.

8. Wyckoff, M., Rodbard, D., and Chrambach, A. (1977) *Anal. Biochem.* **78,** 459-482.

Production: EM Date: 10/15/09 Management: JL Date: 10/15/09 QA/QC: CL Date: 10/15/09