



540 Division Street, Campbell, California 95008-6906  
Tel. (408) 866-6363 Fax (408) 866-6364  
www.listlabs.com

Product #169L  
Lot #1694A1  
Release Date: March 2018

CERTIFICATE OF ANALYSIS  
ANTHRAX LETHAL FACTOR (LF-A), RECOMBINANT  
from *Bacillus anthracis*  
NATIVE SEQUENCE  
Lot #1694A1

New  
Quantitation

**Contents**

Each vial contains 0.2mg of recombinant lethal factor from *Bacillus anthracis*, native sequence<sup>1</sup> in 0.2mL of 5mM HEPES, 50mM NaCl, pH 7.5. **Handle the product gently; do not vortex.**

**Packaging/Storage**

This product is supplied as an aseptically packaged liquid. Store at -20°C.

**Concentration**

Protein concentration was determined by absorbance at 280 nm using an extinction coefficient of 0.88 for a 1 mg/ml solution. This value is calculated by ProtParam<sup>2</sup> using an algorithm based on the Edelhoch<sup>3</sup> method with modifications described in Pace et al.<sup>4</sup>

**Purity**

When examined on 4 – 12% SDS-PAGE, this protein migrates as a single major band with an apparent molecular weight of approximately 90,000 daltons. Densitometric analysis estimates the purity of the product as  $\geq 95\%$ .

The endotoxin content, determined using a kinetic chromogenic LAL assay, is  $< 20$  EU/mg.

**Activity**

LF is assessed for specific activity in units/mg protein, using MAPKKide<sup>®</sup>, product #530, which is a synthetic FRET peptide containing a single cleavage site for LF. A standard curve generated from MAPKKide<sup>®</sup> Unquenched Calibration Peptide for #530, product #539, is used to convert relative fluorescence units (RFU) to  $\mu$ moles of cleaved substrate. One unit of lethal factor will catalyze the release of 1.0  $\mu$ mole of cleaved MAPKKide<sup>®</sup> per minute at 37°C in 20mM HEPES, pH 8.2. The specific activity of this lot of lethal factor is 0.34 units/mg.

LF is assessed for cytotoxicity in the presence of 1  $\mu$ g/mL PA using J774A.1 cells. When J774A.1 cells are treated with LF alone, no toxicity was seen at 1  $\mu$ g/mL (11 nM). The effective concentration 50% (EC<sub>50</sub>) of this LF lot meets specifications.

(continued)

### **Tissue Culture Applications**

For tissue culture applications, medium containing glutamine must be fresh. Ammonium ions are released when glutamine breaks down, and may prevent acidification of the endosome thereby inhibiting translocation of LF or Edema Factor (EF) into the cytosol.<sup>5</sup> A stable form of glutamine must be used.<sup>6,7</sup>

### **Handling**

Good laboratory technique should be employed in the safe handling of this product. Wear appropriate laboratory attire including lab coat, gloves and safety glasses.

This product is intended for research purposes by qualified personnel. 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. Gupta, P.K. et al. (2000) *PLoS ONE* **3(9)**: e3130.
2. [www.expasy.ch/tools/protparam-doc.html](http://www.expasy.ch/tools/protparam-doc.html)
3. Edelhoch, H. (1967) *Biochemistry*, **6**, 1948-1954.
4. Pace, C.N., Vajdos, F., Fee, L., Grimsley, G. and Gray, T. (1995) *Protein Sci.* **4**, 2411-2423.
5. Stephen Little, personal communication.
6. GlutaMAX™ by Invitrogen/Gibco, [www.invitrogen.com](http://www.invitrogen.com)
7. Ala-Gln by Sigma, [www.sigmaaldrich.com](http://www.sigmaaldrich.com)

QA/QC: KPD Date: 01/22/2021