ALPHA DIAGNOSTIC INTERNATIONAL

LIFE TECH Life Technologies™ Your Molecular & Cell Technology Partner

Product Specification Sheet

Lethal Factor (LF) Antibodies

Cat. # LF16-A	Goat Anti-Lethal factor (LF) IgG	**SIZE**: 100 ug
Cat. # LF16-AB	Goat Anti-Lethal factor (LF) IgG, **Biotinylated**	**SIZE**: 50 ug

After inhalation by mammals, *Bacillus anthracis* spores germinate in alveolar macrophages then migrate to lymph nodes where they multiply. The vegetative bacteria excrete the tripartite exotoxin which consists of three polypeptides: protective antigen (**PA**, 83 kDa), lethal factor (LF, 90 kDa) and oedma factor (OF, 89 kDa). The two components (OF and LF) of the toxin enzymatically modify substrates within the cytosol of the mammalian cells: The **OF** is an adenylate cyclase that impairs the host defenses through a variety of mechanisms inhibiting phagocytosis. The **LF** is a zinc dependent protease that cleaves several mitogen activated protein kinase kinases **(MAPKK)** and causes lysis of macrophages. To intoxicate mammalian cells, the third component of the toxin **PA,** binds to a ubiquitously expressed cellular receptor, Tumor Endothelium Marker-8 (**TEM8**). Upon binding to TEM8, PA is cleaved into 20 and 63kDa fragments (PA20 and PA63) by furin or furin-like proteases. PA20 dissociates into medium and allows the PA63 fragment to heptamerize and bind LF and OF of the toxin. The resulting complex of **PA63** fragment with EF and/or OF binds to PA-receptor TEM8/ATR and internalized into endosomes followed by translocation of LF and OF into cytosol of the cells.

Anthrax lethal toxin produced by the bacterium *Bacillus anthracis* is the major cause of death in animals infected with **anthrax**. One component of this toxin, **lethal factor** (LF), inactivates members of the mitogen-activated protein kinase kinase or MEK family through proteolysis of their NH_2 termini. Although LF has been shown to cleave the NH_2 termini of select members of the mitogen-activated protein kinase kinase or MEK family, the substrate requirements that determine LF specificity are unknown. Indirect evidence suggests that epitopes distal to the cleavage site are required for LF-MEK interaction.

Source of Antigen and Antibodies

Antigen	*Recombinant purified Bacillus anthracis* Lethal Factor **(LF)** (1)
Ab Host/type	Goat polyclonal IgG (**cat # LF16-A)**
2-ab	**Rabbit Anti-goat IgG-HRP conjugate** Cat # 30220 (AP, biotin, FITC conjugates also available)
-ve control	# 20011-1, Goat (non-immune) IgG, purified, suitable for ELISA, Western, IHC as –ve control

Cat # LF16-AB, biotinylated

Purified anti-LF16-A IgG was biotinylated using a long chain biotin linker. Biotinylated LF16-AB is supplied in PBS, pH 7.4, 0.1% BSA and 0.1% Proclin-300 as preservative. It is supplied at 50 ug/100 ul (0.5 mg/ml) in liquid or in powder form. Reconstitute powder in water or PBS in 100 ul by gentle vortexing for 5-10 seconds. Store at -20oC or below in suitable size aliquots.

Form & Storage of Antibodies/Peptide Control

Pure IgG
100 ug/100ul solution lyophilized powder
Supplied in Buffer: PBS, pH 7.4, 0.1% sodium azide
Reconstitute powder in PBS at 1 mg/ml.

Storage

Short-term: unopened, undiluted vials for less than a week at 4oC.
Long-term: at –20C or below in suitable aliquots after reconstitution. Do not freeze and thaw and store working, diluted solutions.

Stability: 6-12 months at –20oC or below.

Recommended Usage

Western Blotting (1-10 ug/ml for affinity pure antibody using ECL technique). The antibodies (**cat # LF16-A & LF16-AB**) will recognize *Bacillus anthracis* Lethal Factor **(LF) ~90 kda** in spore extract of *Bacillus anthracis.*

ELISA: Control antigen can be used to coat ELISA plates at 1 ug/ml and detected with antibodies (0.1-2 ug/ml).

LF16-A and LF16-AB can be used pairs for sandwich ELISA.

Histochemistry & Immunofluorescence: Not tested.

Specificity & Cross-reactivity

Goat antibody (**cat # LF16-A**) does not cross-react with Protective Antigen **(PA)** of *Bacillus anthracis, Y. Pestis, F. Tularensis and Toxoplasma gondi***.** The cross-reactivity in various species is not known. Recombinant purified LF (cat # LF15-R) can be used a positive control.

General References **(1)** Arun P. Chopra et al (2003) JBC Vol. 278, Issue 11, 9402-9406; Sung O et al (2003) JBC Vol. 278, 7413-7421; Bradley KA et al (2001) Nature 414, 225-229; liu S and Leppla SH (2002) JBC (in press); Leppla, SH (1982) PNAS 79, 3182; O'Brien J et al (1985) Infect Immun 47, 306;

**This product is for In vitro research use only.*

Related materials available from ADI

Antibodies: ATR11-A, ATR12-A, ATR31-A
Recombinant PA20, PA63, PA83 proteins
Monoclonal and Polyclonal Antibodies
ELISA kits for the detection of anti-PA, LF, EF in mouse, rabbit, and goat immunized with various anthrax proteins
ELISA kit for measurement of PA83

LF16-A-AB 80125A

India Contact:
Life Technologies (India) Pvt. Ltd.
306, Aggarwal City Mall, Opposite M2K Pitampura, Delhi – 110034 (INDIA). Ph: +91-11-42208000, 42208111, 42208222, Mobile: +91-9810521400, Fax: +91-11-42208444
Email: customerservice@lifetechindia.com Website: www.lifetechindia.com