ALPHA DIAGNOSTIC INTERNATIONAL

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Product Specification Sheet

Edema Factor (EF) Antibodies

□ Cat. # EF11-A	Goat Anti-Anthrax Edema Factor (B Anthracis) IgG	**SIZE**: 100 ug
□ Cat. # EF11-AB	Goat Anti-Anthrax Edema Factor (B Anthracis) 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/EF and LF) of the toxin enzymatically modify substrates within the cytosol of the mammalian cells: The **OF/EF** 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.

B. anthracis Edema Factor (LF) is one of the three proteins that comprise anthrax toxin, the others being lethal factor (LF), and protective antigen (PA). Edema factor is a calmodulin-dependent adenylate cyclase that is responsible for the swelling in cutaneous anthrax infections. The cellular cAMP levels increases in host cells, since the edema factor forms a complex with the host calmodulin which stimulates the activity of EF. The EF also inhibits the immune response by removing calmodulin from involvement in calcium triggered signaling.

Source of Antigen and Antibodies

Antigen	*Recombinant purified Bacillus anthracis* Edema Factor **(EF)** (1)
Ab Host/type	Goat polyclonal IgG (**cat # EF11-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 # EF11-AB, biotinylated

Purified anti-EF11-A IgG was biotinylated using a long chain biotin linker. Biotinylated EF11-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 # EF11-A & EF11-AB**) recognize *Bacillus anthracis* Edema Factor **(EF) ~90 kda**.

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

EF11-A and EF11-AB can be used pairs for sandwich ELISA.

Histochemistry & Immunofluorescence: Not tested.

Specificity & Cross-reactivity

Goat antibody (**cat # EF11-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 EF (cat # EF25-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

EF11-A-AB 160728SV

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