ALPHA DIAGNOSTIC INTERNATIONAL

LIFE TECH Life Technologies™ Your Molecular & Cell Technology Partner

Product Specification Sheet

Protective Antigen 63 (PA63) Protein

Cat. # PA63-R	PA63 Purified, recombinant Protein	**SIZE**: 100 ug
Cat. # PA63-R-500	PA63 Purified, recombinant Protein	**SIZE**: 500 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.

B. anthracis PA83 is the proteolytically activated in vivo by a furin-like protease to produce a 63kD protein PA63. It is one of the three protein components of anthrax toxin, protective antigen (PA) is the central moiety that mediates the entry of lethal factor and edema factor into the target cell. PA binds to the cell surface via a type I membrane protein with a von Willebrand factor A domain called anthrax toxin receptor.

Source of Protein

Purity: Single major band by SDS-PAGE, Mol wt 63Kda, It is provided as 100 ug or 1000 ug lyophilized solid in 10 mM BisTris, pH 8.5, containing 1.25% Trehalose. Smaller minor components may represent cleavage fragments of PA. The lyophilized products should be reconstituted with sterile distilled water. It can then be used or aliquoted for storage in small aliquots at -70oC or below.

Recommended Usage

May be used for ELISA or Western as positive control. Not intended for in vivo use.

General References

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; Duesbery, NS et al (1998) Science 280, 734

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.

Shipping: 4oC for solutions and room temp for powder.

Related materials available from ADI

Antibodies: ATR11-A, ATR12-A, ATR31-A

PA63/83, EF, LF recombinant proteins and ELISA kits

PA63-R 120308A

Alpha Diagnostic Intl Inc., 6203 Woodlake Center Dr, San Antonio, TX 78244, USA; **Email**: service@4adi.com

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