

Product Specification Sheet

Anti-Protective Antigen (PA) Antibodies

Cat. # PA16-A	Goat Anti-Protective antigen (PA) IgG	SIZE: 100 ul
Cat. # PA16-AB	Goat Anti-Protective antigen (PA) 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 oedema 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.

Source of Antigen and Antibodies

Antigen	Recombinant purified <i>B. anthracis</i> Protective Antigen (PA83) (1)
Ab Host/type	Goat polyclonal IgG, purified IgG supplied in PBS, pH 7.4, 0.1% BSA, 0.1% azide
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 # PA16-AB

Purified anti-PA16 IgG was biotinylated using a long chain biotin linker. Biotinylated PA16-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 mixing for 5-10 seconds. Store at -20oC or below in suitable size aliquots.

Form & Storage of Antibodies/Peptide Control

Pure IgG (Cat # PA16-A)

100 ug/100ul solution lyophilized powder
Supplied in: 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).

ELISA: Control proteins can be used to coat ELISA plates at 1 ug/ml and detected with antibodies (0.1-1 ug/ml). We recommend the following pairs for sandwich assay:

Coating: PA16-A; **Tracer:** PA16-AB

Histochemistry & Immunofluorescence: Not tested.

Specificity & Cross-reactivity

Goat polyclonal antibody (**cat # PA16-A, PA16-AB**) do not cross-react with Lethal Factor (**LF**) of *Bacillus anthracis*, *Y. Pestis*, *F. Tularensis* and *Toxoplasma gondi*. The cross-reactivity in various species is not known. All clones recognize both PA63 and PA83. Recombinant purified proteins PA63 (Cat # PA63-R) and PA83 (Cat #PA83-R) can be used a positive controls.

General References (1) 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

**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

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