

Product Specification Sheet

Anti-Protective Antigen (PA) Antibodies

Cat. # PA11-M	Mouse Monoclonal Anti-PA IgG # 1 (aff pure)	SIZE: 100 ug
Cat. # PA12-M	Mouse Monoclonal Anti-PA IgG # 2 (aff pure)	SIZE: 100 ug
Cat. # PA12-MB	Mouse Monoclonal Anti-PA IgG # 2, 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	<i>B. anthracis</i> Protective Antigen (PA) (1)
Ab Host/type	Mouse, Monoclonal IgG1, Protein A/G purified IgG supplied in PBS, pH 7.4, 0.1% azide (#PA11-M and PA12-M) in liquid or powder
2-ab	Goat Anti-mouse IgG-HRP conjugate Cat # 40320 (AP, biotin, FITC conjugates also available)
-ve control	Cat # 20008-1, Mouse (non-immune) Serum IgG, purified, suitable for ELISA, Western, IHC as -ve control

Cat # PA12-MB- Purified anti-PA12-M IgG was biotinylated using a long chain biotin linker. Biotinylated PA12-MB is supplied in PBS, pH 7.4, 0.1% 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

Affinity pure IgG (Cat # PA11-M and PA12-M)

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).

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: PA11-M; **Tracer:** PA12-M

Histochemistry & Immunofluorescence: Not tested.

Specificity & Cross-reactivity

Mouse monoclonal antibody (cat # PA11-M, PA12-M) 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

PA11-M, PA12-M, PA12-MB

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