ALPHA DIAGNOSTIC INTERNATIONAL

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Product Specification Sheet

Anthrax Toxin Receptors 1 (ATR-1) Antibodies

Cat. # ATR12-A	Rabbit Anti- Human ATR-1 IgG # 2 (aff pure)	**SIZE**: 100 ug
Cat. # ATR12-P	Human ATR-1 Control/blocking peptide #2	**SIZE**: 100 ug

Anthrax toxin secreted by *Bacillus anthracis*, 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 mitogen activated protein kinase kinase **(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. **PA63** fragment then forms a complex with LF and OF components of toxin leading to internalization and translocation of LF and OF into cytosol of the cells.

PA receptor TEM8 (also known as Anthrax Toxin receptor, ATR1) (human 564aa, mouse 562aa) is a glycoprotein with an extracellular (1-321aa), cytosolic (343-564aa) and TM (322-342) domains. The cytosolic domain is not required for translocation of LF into cytosol. The ATR/TEM8 gene is mapped at chromosome 4. Three splice variants (ATR1, ATR2 and ATR3) of TEM8/ATR have been reported. ATR1 (564aa) is the largest isoform whereas ATR2 (368aa) and ATR3 (333aa) are proteins truncated after the TM domain. The seqs (1-364aa) of ATR2 and ATR1 are identical whereas ATR3 has a unique 15aa seq at its C-terminal. ATR/TEM8 protein is expressed in a variety of cell lines and in heart, lung, lymphocytes and in central nervous system. The fact that Von Willebrand Factor Type A domain (VWA) (44-216aa) present in ATR –1, -2 and –3 by itself is able to interact inactivate anthrax toxin; ATR antibodies might help in developing new approaches for the treatment of anthrax.

Source of Antigen and Antibodies

Antigen	15aa peptide of **Human ATR-1** (1); **Designated (ATR12-P** or **control peptide). Epitope location** ~ N-terminus (extracellualr)
Ab Host/type	Rabbit, polyclonal, Aff pure IgG (**cat # ATR12-A**) purified over antigen-agarose column
2-ab	Anti-rabbit IgG-HRP cat # 20320 (AP, biotin, FITC conjugates also available)
-ve control	# 20009-1, Rabbit (non-immune) IgG, purified, suitable for ELISA, Western, IHC as –ve control

Form & Storage of Antibodies/Peptide Control

Affinity pure IgG
100 ug/100ul solution lyophilized powder
Supplied in **Buffer**: PBS+0.1% BSA
Reconstitute powder in PBS at 1mg/ml

Control/blocking peptide
100 ug/100 ul solution lyophilized powder
Supplied in Buffer: PBS pH 7.5,
Reconstitute powder in PBS at 1 mg/ml.

Storage
Short-term: unopened, undiluted liquid vials at -20°C and powder at 4°C or -20°C..

Long-term: at –20°C or below in suitable aliquots after reconstitution. Do not freeze and thaw and store working, diluted solutions.

Stability: 6-12 months at –20°C or below.
Shipping: 4°C for solutions and room temp for powder
solution lyophilized powder
contains 0.05% sodium azide
Reconstitute powder 50 ul or 100 ul PBS

Recommended Usage

Western Blotting (1-10 ug/ml for affinity pure antibody using ECL technique).

ELISA: Control peptide can be used to coat ELISA plates at 1 ug/ml and detected with antibodies (0.5-1 ug/ml for affinity pure).

Histochemistry & Immunofluorescence: Not tested.

Specificity & Cross-reactivity

Human **ATR12-P** control peptide is 100% conserved in mouse and rat **ATR1 and alternatively spliced isoforms 1-4**.. Antibody cross-reactivity in various species is not known. Control peptide, because of its low mol. Wt (<3 kDa), is not suitable for Western. It should be used for ELISA or antibody blocking experiments (use 5-10 ug control peptide per 1 ug of aff pure IgG or 1 ul antiserum) to confirm antibody specificity (see detailed protocol at: the web site).

General References

(1) Bradley KA (2001) Nature 414, 225-229; Liu S and Leppla SH (2002) JBC (in press); Leppla, SH (1982) PNAS 79, 3182; O'Brien J (1985) Infect Immun 47, 306; Duesbery, NS (1998) Science 280, 734

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

Related materials available from ADI

Antibodies: Spore antigen, Lethal factor, Protective antigen, Edema factor, and Anthrax receptors

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