

Product Specification Sheet

Human Alpha 1-Antitrypsin (A1AT) Protein and antibodies

<input type="checkbox"/> Cat. A1AT11-A	Goat anti- Human Alpha 1-AntitrypsinIgG, aff pure	SIZE: 100 ul
<input type="checkbox"/> Cat. A1AT11-BT	Goat anti- Human Alpha 1-Antitrypsin_biotin Conjugate	SIZE: 100 ul
<input type="checkbox"/> Cat. A1AT11-HRP	Goat anti- Human Alpha 1-Antitrypsin-HRP Conjugate	SIZE: 100 ul
<input type="checkbox"/> Cat. A1AT11-C	Purified Human Alpha 1-Antitrypsin protein control for WB	SIZE: 100 ul

Alpha 1-Antitrypsin or α 1-antitrypsin (A1AT) is a protease inhibitor belonging to the serpin superfamily. It is generally known as serum trypsin inhibitor. Alpha 1-antitrypsin is also referred to as alpha-1 proteinase inhibitor (A1PI) because it inhibits a wide variety of proteases. It protects tissues from enzymes of inflammatory cells, especially neutrophil elastase, and has a reference range in blood of 1.5 - 3.5 gram/liter (in US the reference range is generally expressed as mg/dL or micromoles), but the concentration can rise manyfold upon acute inflammation. In its absence, neutrophil elastase is free to break down elastin, which contributes to the elasticity of the lungs, resulting in respiratory complications such as emphysema, or COPD (chronic obstructive pulmonary disease) in adults and cirrhosis in adults or children. Most serpins inactivate enzymes by binding to them covalently, requiring very high levels to perform their function. In the acute phase reaction, a further elevation is required to "limit" the damage caused by activated neutrophil granulocytes and their enzyme elastase, which breaks down the connective tissue fiber elastin. Like all serine protease inhibitors, A1AT has a characteristic secondary structure of beta sheets and alpha helices. Mutations in these areas can lead to non-functional proteins that can polymerize and accumulate in the liver (infantile hepatic cirrhosis)

Source of Antigen and Antibodies

Antigen	Purified human A1AT protein.
Ab Host/type	Goat, polyclonal IgG, aff pure, (cat # A1AT11-A) in PBS, pH 7.5, 0.1% BSA and 0.05% azide
2-ab	Rabbit Anti-goat IgG-HRP conjugate Cat # 30220 (AP, biotin, FITC conjugates also available)
-ve control IgG	# 20011-1, Goat (non-immune) IgG, purified, suitable for ELISA, Western, IHC as -ve control

Purified native human A1AT protein (~52 kda) **protein for WB +ve control (#A1AT11-C**, is formulated in SDS-PAGE sample buffer (reduced). This preparation is biologically inactive. It is not suitable for ELISA or other applications where native protein is required. It is supplied in 100 ul/vial. For WB, heat once and load 10 ul/lane and visualize with appropriate antibodies (cat # **A1AT11-A** or other antibodies). This preparation is intended for qualitative purpose and not to serve as standard of known concentration. Store frozen in suitable aliquots. Do not freeze, thaw, or heat repeatedly.

Cat# A1AT11-BT, Biotin-conjugate

Purified antibody was coupled to Biotin using Biotinamidocaproate N-Hydroxysuccinimide Ester (BAC) at F/P ratio ~10-20:1. The antibody is supplied in PBS, pH 7.4, 0.2% BSA and 0.05% azide in either **lyophilized** (0.1 mg) or **liquid** form (0.1 mg/0.1 ml). Reconstitute powder in PBS in 0.1 ml to prepare 1 mg/ml solution. Store at -20oC in suitable aliquots. Stability is ~6-12 months. Do not freeze and thaw.

Suggested conjugate dilutions are 1:5,000-1:30,000 ELISA, 1:2K-1:10K for western.

Cat# A1AT11-HRP, HRP-conjugate

Purified antibody was coupled to HRP (RZ>3.0) using periodate method. The molar enzyme to protein (E/P) ratio = 4.0. The antibody is supplied in stabilizing buffer, 0.1% proclin-300 as preservative in either **lyophilized** (0.1 ml) or **liquid** form (0.1 ml; ~ 1 mg/ml). Reconstitute powder in PBS in 0.1 ml. Store at 4oC in suitable aliquots. Stability is ~6-12 months. Do not freeze and thaw.

Suggested conjugate dilutions are 1:1,000-1:10,000 ELISA, 1:1K-1:5K for western, and 1:200-1:1000 (IHC).

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

Storage

Short-term: unopened, undiluted liquid vials at -200C and powder at 4oC or -20oC..

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

Recommended Usage

Western Blotting (1-5 ug/ml for affinity pure IgG using ECL technique). ~ A1AT ~52 Kda.

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

Specificity & Cross-reactivity

A1AT11-A reacts with human A1AT. It may crossreact with A1AT from other species. Antibody crossreactivity in various species is not confirmed. Purified A1AT (cat # A1AT11-C) can be used as +ve control for western.

General References: References: Gettins PG (2002) Chem. Rev. 102, 4751; DeMeo DI (2004) Torax 59, 259-264; Kolarich D (2006) Proteomics 6, 33693380; Kolarich D (2006) Transfusion 46, 1959-1977; kalsheker 91989) Biosci. Rep. 9, 129-138; Carell RW (1982) Nature 298, 329-334; Coakley RJ (2001) Am. J. Med. Sci. 321, 33-

*This product is for in vitro research use only.

Related material available from ADI

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