

****REPRESENTATIVE DATASHEET****

Sheep anti-human α_1 Antitrypsin (α_1 AT) Peroxidase Conjugated Affinity-Purified IgG 0.1 mg

Product #: SA1AT-APHRP
Lot #: XXXX
Expiry date: XXXX

Store at -10 to -20°C

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For Research Use Only.
Not for use in diagnostic procedures.

Description of α_1 Antitrypsin (α_1 AT)

α_1 Antitrypsin (α_1 AT), also known as α_1 Proteinase inhibitor (α_1 PI), is the most abundant protease inhibitor in blood and a member of the SERPIN family of proteinase inhibitors. Serum levels are typically 1.3 mg/ml (25 μM) but α_1 AT is an acute phase protein and concentrations can rise four-fold during inflammatory episodes or tissue injury. Low levels in circulation have been associated with pulmonary disease such as emphysema. α_1 AT is a single chain molecule with a mass of 52,000 daltons that is produced primarily in the liver and to a lesser extent by blood monocytes and intestinal epithelium. Based on association rates, the primary target enzyme for α_1 AT is believed to be neutrophil elastase^{1,2}, but α_1 AT is a broad-spectrum inhibitor for many serine proteinases and the main role of α_1 AT *in vivo* is likely that of a “backup” inhibitor and proteinase scavenger in fluids and tissues. Although the association rates of α_1 AT with other enzymes are lower, the high concentration in plasma makes it an important inhibitor of activated Protein C, activated FXI, thrombin and plasmin¹⁻⁴. Enzyme inhibition by α_1 AT occurs through proteolytic cleavage between Met³⁵⁸ and Ser³⁵⁹, which induces a conformational change in α_1 AT locking the enzyme into a stable, inactive 1:1 enzyme-inhibitor complex.

REFERENCES and REVIEWS

1. Johnson D, Travis J; Oxidative Inactivation of Human α_1 -Proteinase Inhibitor; JBC 254, pp4022-4026, 1979.
2. Travis J, Johnson D; Human α_1 -Proteinase Inhibitor; Methods in Enzymology, 80, pp 754-765, 1981.
3. Heeb MJ, Griffin JH; Physiologic Inhibition of Human Activated Protein C by α_1 -Trypsin Inhibitor; JBC 263, pp1163-11616, 1988.
4. Scott CF, Schapira M, James HL, Cohen AB, Colman RW; The Inactivation of Factor XIa by plasma protease inhibitors: Predominant role of α_1 protease inhibitor and protective effect of high molecular weight kininogen. J Clin Invest 69, pp 844, 1982.

Product Specifications

Description:

Vial containing XXXX ml of affinity-purified IgG conjugated to horseradish peroxidase (HRP) through carbohydrate groups. Total protein is 0.1 mg.

Format:

APIgG-HRP conjugates as a clear, slightly red-brown liquid.

Host Animal:

Sheep

Immunogen:

Human α_1 antitrypsin purified from plasma.

Concentration:

APIgG-HRP concentration is XXXX mg/ml, determined by absorbance using an extinction coefficient ($E_{280}^{1\%}$) of 14.

Buffer:

A buffered stabilizer solution containing 50% (v/v) glycerol.

Storage:

Store between -10 and -20°C . Product will become viscous but will not freeze. Avoid storage in frost-free freezers. Keep vial tightly capped. Allow product to warm to room temperature and gently mix before use. Avoid exposure to sodium azide as this is an inhibitor of peroxidase activity.

Specificity:

Prior to conjugation this antibody was specific for α_1 AT as demonstrated by immunoelectrophoresis and ELISA.

Applications:

Suitable as a source of peroxidase-labeled antibodies to α_1 AT.

Rz Ratio (Reinheitszahl, A_{403}/A_{280}):

XXXX as determined spectrophotometrically.

Related Products:

Cat #:	GA1AT-IG	Goat anti-human α_1 AT, whole IgG from antiserum
Cat #:	GA1AT-AP	Goat anti-human α_1 AT, affinity-purified IgG
Cat #:	SA1AT-IG	Sheep anti-human α_1 AT, whole IgG from antiserum
Cat #:	SA1AT-AP	Sheep anti-human α_1 AT, affinity-purified IgG
Cat #:	A1AT-EIA	Paired antibody set for ELISA of α_1 AT, 5 x 96 wells
Cat #:	APCAT-EIA	Paired antibody set for ELISA of APC- α_1 AT complexes

Visit our site (www.affinitybiologicals.com) for details.

Limited Warranty: This product is warranted to perform in accordance with its labeling and literature. Affinity Biologicals Inc. disclaims any implied warranty of merchantability or fitness for any other purposes, and in no event will Affinity Biologicals Inc. be liable for any consequential damages arising out of aforesaid express warranty.

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