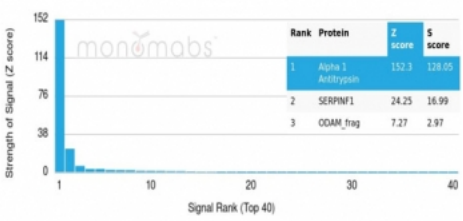
Alpha-1-Antitrypsin Antibody / A1AT / SERPINA1 [clone AAT/4609] (V4364)

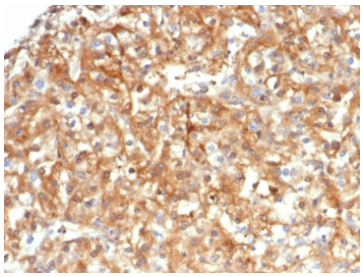
Catalog No.	Formulation	Size
V4364-100UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced), 0.05% sodium azide	100 ug
V4364-20UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced), 0.05% sodium azide	20 ug
V4364SAF-100UG	1 mg/ml in 1X PBS; BSA free, sodium azide free	100 ug

Bulk quote request

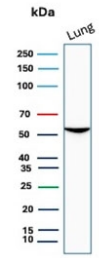
Availability	1-3 business days
Species Reactivity	Human
Format	Purified
Host	Mouse
Clonality	Monoclonal (mouse origin)
Isotype	Mouse IgG
Clone Name	AAT/4609
Purity	Protein A/G affinity
UniProt	P01009
Localization	Cytoplasm
Applications	Immunohistochemistry (FFPE) : 1-2ug/ml for 30 min at RT Western Blot : 2-4ug/ml
Limitations	This Alpha-1-Antitrypsin antibody is available for research use only.



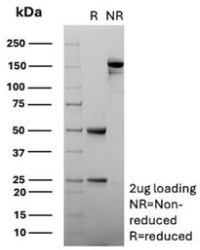
Analysis of a HuProt(TM) microarray containing more than 19,000 full-length human proteins using Alpha-1-Antitrypsin antibody (clone AAT/4609). Z- and S- Score: The Z-score represents the strength of a signal that a monoclonal antibody (in combination with a fluorescently-tagged anti-IgG secondary antibody) produces when binding to a particular protein on the HuProt(TM) array. Z-scores are described in units of standard deviations (SD's) above the mean value of all signals generated on that array. If targets on HuProt(TM) are arranged in descending order of the Z-score, the S-score is the difference (also in units of SD's) between the Z-score. S-score therefore represents the relative target specificity of a mAb to its intended target. A mAb is considered to specific to its intended target, if the mAb has an S-score of at least 2.5. For example, if a mAb binds to protein X with a Z-score of 43 and to protein Y with a Z-score of 14, then the S-score for the binding of that mAb to protein X is equal to 29.



IHC staining of FFPE human kidney carcinoma tissue with Alpha-1-Antitrypsin antibody (clone AAT/4609). HIER: boil tissue sections in pH 9 10mM Tris with 1mM EDTA for 20 min and allow to cool before testing.



Western blot testing of human lung tissue lysate with Alpha-1-Antitrypsin antibody. Expected molecular weight: 47-52 kDa depending on the level of glycosylation.



SDS-PAGE analysis of purified, BSA-free Alpha-1-Antitrypsin antibody (clone AAT/4609) as confirmation of integrity and purity.

Description

Alpha-1-Antitrypsin antibody, also known as A1AT antibody, recognizes a secreted serine protease inhibitor encoded by the SERPINA1 gene on chromosome 14q32.13. Alpha-1-Antitrypsin, commonly referred to as A1AT and alpha-1 proteinase inhibitor, is a member of the serpin superfamily and is primarily synthesized by hepatocytes. After secretion into the bloodstream, it functions as a major circulating inhibitor of neutrophil elastase and other proteolytic enzymes. In tissues, Alpha-1-Antitrypsin is typically localized within the cytoplasm of hepatocytes and may also be detected in serum, macrophages, and inflammatory sites.

Alpha-1-Antitrypsin plays a critical role in protecting lung tissue from protease-mediated damage. By inhibiting neutrophil elastase, A1AT preserves alveolar integrity and prevents excessive extracellular matrix degradation. Alpha-1-Antitrypsin antibody is widely used in liver pathology research and pulmonary disease studies to evaluate protein expression, hepatocellular inclusions, and inflammatory responses. Cytoplasmic staining in hepatocytes is a characteristic finding in normal liver tissue, while altered patterns may be observed in deficiency states.

Structurally, Alpha-1-Antitrypsin is a glycosylated 52 kDa protein belonging to the clade A serpin family. It contains a reactive center loop that interacts with target proteases, forming irreversible inhibitory complexes. Mutations in the SERPINA1 gene can lead to misfolded protein accumulation within hepatocytes, resulting in reduced circulating levels and increased susceptibility to lung injury. Certain variants are associated with intracellular polymer formation and hepatic inclusions.

Deficiency or dysfunctional Alpha-1-Antitrypsin is linked to chronic obstructive pulmonary disease, emphysema, and liver disorders including neonatal hepatitis and cirrhosis. Overexpression or accumulation patterns are also evaluated in tumor and inflammatory contexts. Clone AAT/4609 recognizes Alpha-1-Antitrypsin and is suitable for detecting A1AT expression in relevant research applications.

Application Notes

Optimal dilution of the Alpha-1-Antitrypsin antibody should be determined by the researcher.

Immunogen

A recombinant human Alpha-1-Antitrypsin (AAT) protein fragment was used as the immunogen for the Alpha-1-Antitrypsin antibody.

Storage

Aliquot the Alpha-1-Antitrypsin antibody and store frozen at -20oC or colder. Avoid repeated freeze-thaw cycles.