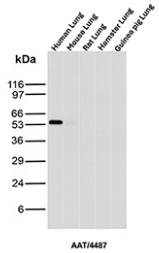
Alpha-1 Proteinase Inhibitor Antibody / AAT [clone AAT/4487] (V5970)

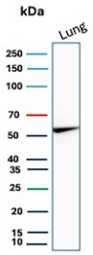
Catalog No.	Formulation	Size
V5970-100UG	0.2 mg/ml in 1X PBS with 0.05% BSA, 0.05% sodium azide	100 ug
V5970-20UG	0.2 mg/ml in 1X PBS with 0.05% BSA, 0.05% sodium azide	20 ug
V5970SAF-100UG	1 mg/ml in 1X PBS; BSA free, sodium azide free	100 ug

Bulk quote request

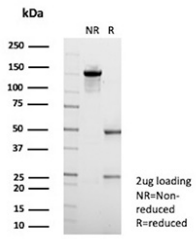
Species Reactivity	Human
Format	Purified
Host	Mouse
Clonality	Monoclonal (mouse origin)
Isotype	Mouse IgG1, kappa
Clone Name	AAT/4487
UniProt	P01009
Localization	Cytoplasm
Applications	Immunohistochemistry (FFPE): 1-2ug/ml Western Blot: 2-4ug/ml
Limitations	This Alpha-1 Proteinase Inhibitor/AAT antibody is available for research use only.



Western blot analysis of Alpha-1 Proteinase Inhibitor / AAT antibody in multiple species lung tissues. Western blot was performed using Alpha-1 Proteinase Inhibitor / AAT antibody (clone AAT/4487) on lung tissue lysates from human, mouse, rat, hamster, and guinea pig. A distinct immunoreactive band is detected at approximately 52 kDa in human lung, consistent with the predicted molecular weight of SERPINA1, also known as Alpha-1 Proteinase Inhibitor. No comparable band is observed in the tested rodent or guinea pig samples under these conditions. The detected signal corresponds to the predicted molecular weight under reducing conditions. The species-restricted reactivity pattern observed in this assay suggests preferential recognition of human AAT by clone AAT/4487.



Western blot analysis of Alpha-1 Proteinase Inhibitor / AAT antibody in human lung. Western blot was performed using Alpha-1 Proteinase Inhibitor / AAT antibody (clone AAT/4487) on human lung tissue lysate. A distinct immunoreactive band is detected at approximately 52 kDa, consistent with the predicted molecular weight of SERPINA1, also known as Alpha-1 Proteinase Inhibitor. The band may appear slightly diffuse, which is consistent with the glycosylated nature of this secreted serpin. The detected signal corresponds to the predicted molecular weight under reducing conditions. Expression in lung tissue aligns with the physiologic role of Alpha-1 Proteinase Inhibitor in protecting alveolar structures from neutrophil elastase-mediated damage, supporting specific detection of endogenous AAT.



SDS-PAGE Analysis of Purified Alpha-1 Proteinase Inhibitor/AAT antibody (clone AAT/4487).

Description

Alpha-1 Proteinase Inhibitor antibody, also known as AAT antibody, recognizes a secreted serine protease inhibitor encoded by the SERPINA1 gene on chromosome 14q32.13. Alpha-1 Proteinase Inhibitor, commonly referred to as AAT and historically known as alpha-1 antitrypsin, is a major member of the clade A serpin family. It is synthesized primarily by hepatocytes and secreted into the circulation, where it functions as a critical regulator of proteolytic activity. Within tissues, Alpha-1 Proteinase Inhibitor is typically localized to the cytoplasm of hepatocytes and may also be detected in macrophages and certain epithelial cells under inflammatory conditions.

Alpha-1 Proteinase Inhibitor plays an essential role in protecting tissues from excessive protease-mediated damage. Its principal physiologic target is neutrophil elastase, and inhibition of this enzyme preserves extracellular matrix integrity, particularly in the lung. AAT antibody is widely used in liver and pulmonary research to evaluate protein expression, identify hepatocellular differentiation, and assess inflammatory responses. Strong cytoplasmic staining in hepatocytes reflects active synthesis and secretion of this serpin.

Structurally, Alpha-1 Proteinase Inhibitor contains a conserved reactive center loop that enables irreversible binding to target proteases. The protein is glycosylated and secreted as a stable circulating inhibitor. Genetic variants in SERPINA1 can lead to misfolding and intracellular polymerization of AAT within hepatocytes, resulting in reduced serum levels and accumulation of cytoplasmic inclusions. These alterations are associated with both pulmonary and hepatic pathology.

Deficiency of Alpha-1 Proteinase Inhibitor is linked to early-onset emphysema, chronic obstructive pulmonary disease, and liver disorders including hepatitis and cirrhosis. Altered expression patterns may also be observed in inflammatory and neoplastic contexts. Clone AAT/4487 recognizes Alpha-1 Proteinase Inhibitor and is suitable for detecting AAT expression in relevant research applications.

Application Notes

Optimal dilution of the Alpha-1 Proteinase Inhibitor/AAT antibody should be determined by the researcher.

Immunogen

A recombinant fragment (around amino acids 200-400) of human SERPINA1 protein (exact sequence is proprietary) was used as the immunogen for the Alpha-1 Proteinase Inhibitor/AAT antibody.

Storage

Alpha-1 Proteinase Inhibitor/AAT antibody with sodium azide - store at 2 to 8oC; antibody without sodium azide - store at -20 to -80oC.

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