# AAT Antibody / Alpha 1 Antitrypsin / SERPINA1 (R32565)

| Catalog No. | Formulation | Size |
|---|---|---|
| R32565 | 0.5mg/ml if reconstituted with 0.2ml sterile DI water | 100 ug |

**Bulk quote request**

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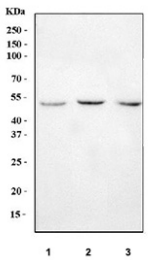
|---|---|
| **Availability** | 1-3 business days |
| **Species Reactivity** | Human, Monkey, Mouse |
| **Format** | Antigen affinity purified |
| **Clonality** | Polyclonal (rabbit origin) |
| **Isotype** | Rabbit IgG |
| **Purity** | Antigen affinity |
| **Buffer** | Lyophilized from 1X PBS with 2% Trehalose |
| **UniProt** | P01009 |
| **Applications** | Western Blot : 0.5-1ug/ml |
| **Limitations** | This AAT antibody is available for research use only. |




Western blot analysis of 1) human T-47D, 2) monkey COS7 and 3) mouse kidney lysate with AAT antibody at 0.5ug/ml. Alpha 1 Antitrypsin is a glycoprotein with an expected molecular weight of 47-52 kDa.

## Description

AAT antibody detects Alpha 1 Antitrypsin (AAT), a major circulating serine protease inhibitor responsible for protecting tissues from enzyme-mediated damage during inflammation. The UniProt recommended name is Alpha-1-antitrypsin (SERPINA1). AAT belongs to the serpin (serine protease inhibitor) superfamily and primarily inhibits neutrophil elastase, cathepsin G, and proteinase 3, thereby preserving connective tissue integrity in the lungs, liver, and other organs.

Functionally, AAT antibody identifies a 418-amino-acid glycoprotein synthesized mainly by hepatocytes and secreted into the bloodstream. It acts as a key regulator of proteolytic balance by neutralizing excess protease activity released by activated immune cells during inflammation. AAT is also expressed at lower levels by monocytes, intestinal epithelial

cells, and pulmonary macrophages, reflecting its systemic protective role. Beyond protease inhibition, Alpha 1 Antitrypsin exhibits anti-inflammatory, immunomodulatory, and cytoprotective effects, helping to regulate cytokine release and reduce oxidative stress.

The SERPINA1 gene is located on chromosome 14q32.13 and encodes multiple isoforms due to allelic polymorphisms, most notably the M, S, and Z variants. The Z variant, resulting from a Glu342Lys substitution, is the most clinically significant and leads to protein misfolding and polymer accumulation in hepatocytes. This defect causes reduced circulating AAT levels and predisposes individuals to early-onset emphysema and liver disease, collectively referred to as Alpha 1 Antitrypsin Deficiency (AATD).

Physiologically, AAT maintains lung tissue elasticity by preventing degradation of elastin in the alveolar walls. When AAT levels are insufficient or functionally impaired, unchecked neutrophil elastase activity results in progressive alveolar destruction and chronic obstructive pulmonary disease (COPD). In the liver, accumulation of misfolded AAT polymers triggers hepatocellular injury and cirrhosis. Because of its dual hepatic and pulmonary relevance, AAT serves as both a diagnostic biomarker and therapeutic target. Augmentation therapy using purified or recombinant AAT is employed clinically to restore circulating levels and slow disease progression in AAT-deficient patients.

AAT antibody is validated for use in relevant research applications to detect Alpha 1 Antitrypsin expression and study its role in inflammation, protease regulation, and protein folding disorders. NSJ Bioreagents provides AAT antibody reagents optimized for hepatology, pulmonology, and inflammation biology research.

## Application Notes

Differences in protocols and secondary/substrate sensitivity may require the AAT antibody to be titrated for optimal performance.

## Immunogen

Amino acids E25-T204 from the human protein were used as the immunogen for the AAT antibody.

## Storage

After reconstitution, the AAT antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.