

PRODUCT INFORMATION



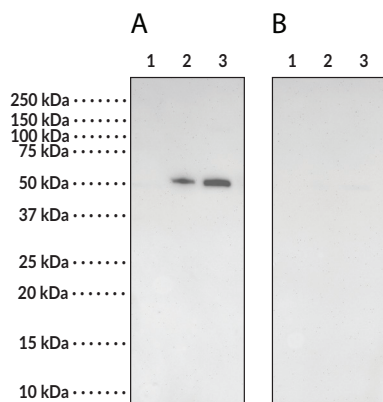
Carbamylated Alpha-1 Antitrypsin (K359) Polyclonal Antibody

Item No. 25340

Overview and Properties

Contents: This vial contains 500 µl of peptide affinity-purified polyclonal antibody.
Synonyms: Carbamylated A1AT, Carbamylated AAT, Alpha-1 Antitrypsin (Homocitrulline 359), Carbamylated α1-Antitrypsin,
Immunogen: Synthetic peptide surrounding homocitrulline 359 (335 of the mature enzyme) of human alpha-1 antitrypsin
Cross Reactivity: (+) Carbamylated A1AT, (-) Non-carbamylated proteins
Species Reactivity: (+) Human
Uniprot No.: P01009
Form: Liquid
Storage: -20°C (as supplied)
Stability: ≥3 years
Storage Buffer: PBS, pH 7.2, with 50% glycerol and 0.02% sodium azide
Host: Rabbit
Applications: Western blot; the recommended starting dilution is 1:200. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

Image



Lane 1: A1AT (0.10 µg)

Lane 2: Carbamylated Alpha-1 Antitrypsin (0.02 µg)

Lane 3: Carbamylated Alpha-1 Antitrypsin (0.04 µg)

A. 1.0 µg IgG Carbamylated Alpha-1 Antitrypsin (K359) Polyclonal Antibody/ml

B. 1.0 µg IgG Carbamylated Alpha-1 Antitrypsin (K359) Polyclonal Antibody/ml and 10 µg/ml immunizing peptide

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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Description

Alpha-1 antitrypsin is a serine protease inhibitor and member of the serpin superfamily.¹ It has a five-stranded A β -sheet and a mobile reactive center loop that acts as a pseudosubstrate for various proteases. Alpha-1 antitrypsin binds to a protease, undergoes proteolytic cleavage, and forms a covalent linkage between a carboxyl group in the reactive loop and the serine hydroxyl of the protease active site, effectively inactivating the enzyme which is then cleared from circulation. The primary targets of alpha-1 antitrypsin are neutrophil elastase and proteinase 3, however, it also inhibits trypsin, kallikreins 7 and 14, and matriptase.² Alpha-1 antitrypsin protects the lower respiratory tract from proteolytic destruction via inhibition of neutrophil elastase and reduced serum levels of alpha-1 antitrypsin have been linked to early-onset liver disease and emphysema.³ Alpha-1 antitrypsin is an acute-phase protein that reduces production of inflammatory cytokines, inhibits apoptosis, blocks leukocyte degranulation and migration, as well as suppresses NF- κ B nuclear translocation in monocytes. It delays disease onset in mouse models of inflammatory disease, including collagen-induced arthritis and experimental autoimmune encephalomyelitis (EAE). Alpha-1 antitrypsin is subject to post-translational modifications such as glycosylation and carbamylation *in vivo*. Carbamylated alpha-1 antitrypsin has been found in synovial fluid samples from rheumatoid arthritis patients and is predicted to act as an autoantigen.⁴ Cayman's Carbamylated Alpha-1 Antitrypsin (K359) Polyclonal Antibody can be used for Western blot applications. This antibody recognizes carbamylated alpha-1 antitrypsin at ~47 kDa from human samples.

References

1. Elliott, P.R., Abrahams, J.P., and Lomas, D.A. Wild-type alpha 1-antitrypsin is in the canonical inhibitory conformation. *J. Mol. Biol.* **275**(3), 419-425 (1998).
2. Janciauskiene, S.M., Bals, R., Koczulla, R., *et al.* The discovery of α 1-antitrypsin and its role in health and disease. *Respir. Med.* **105**(8), 1129-1139 (2011).
3. Ehlers, M.R. Immune-modulating effects of alpha-1 antitrypsin. *Biol. Chem.* **395**(10), 1187-1193 (2014).
4. Verheul, M.K., Yee, A., Seaman, A., *et al.* Identification of carbamylated alpha 1 anti-trypsin (A1AT) as an antigenic target of anti-CarP antibodies in patients with rheumatoid arthritis. *J. Autoimmun.* **80**, 77-84 (2017).

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