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Produktinformation



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Lieferung & Zahlungsart

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Zuschläge

- Mindermengenzuschlag
- Trockeneiszuschlag
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- Expressversand

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PRODUCT INFORMATION



Carbamylated Alpha-1 Antitrypsin

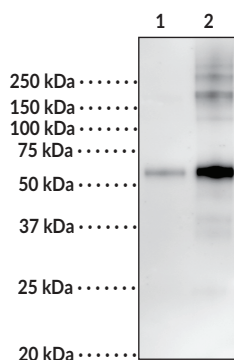
Item No. 21798

Overview and Properties

Synonyms: Carbamylated A1A, Carbamylated A1AT, Carbamylated AAT, Carbamylated α_1 -Antitrypsin
Source: Human
Uniprot No.: P01009
Molecular Weight: 44.325 kDa
Storage: -80°C (as supplied)
Stability: ≥ 1 year
Purity: *batch specific* ($\geq 90\%$ estimated by SDS-PAGE)
Supplied in: *batch specific*

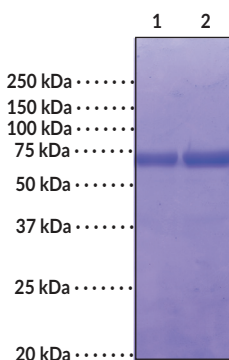
Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Images



Lane 1: A1AT
Lane 2: Carbamylated A1AT

A1AT (Lane 1) and Carbamylated A1AT (Lane 2) were reacted with a biotin labeled probe reactive towards carbamylated lysines. After separation by SDS-PAGE, the proteins were blotted to nitrocellulose and detected using streptavidin-HRP.



Lane 1: A1AT (2 µg)
Lane 2: A1AT (4 µg)

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
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PRODUCT INFORMATION



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

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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