### Overview

**Product name**  
Human alpha 1 Antitrypsin ELISA Kit (SERPINA1)  
**Detection method**  
Colorimetric

<table>
<thead>
<tr>
<th>Precision</th>
<th>Sample</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>CV%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intra-assay</strong></td>
<td>Overall</td>
<td></td>
<td></td>
<td></td>
<td>5.1%</td>
</tr>
<tr>
<td><strong>Inter-assay</strong></td>
<td>Overall</td>
<td></td>
<td></td>
<td></td>
<td>10%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample type</th>
<th>Cell culture supernatant, Saliva, Milk, Urine, Serum, Plasma, Cell culture media, Cerebral Spinal Fluid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assay type</td>
<td>Sandwich (quantitative)</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>= 0.32 ng/ml</td>
</tr>
<tr>
<td>Range</td>
<td>0.391 ng/ml - 25 ng/ml</td>
</tr>
<tr>
<td>Recovery</td>
<td>103 %</td>
</tr>
<tr>
<td>Assay time</td>
<td>4h 00m</td>
</tr>
<tr>
<td>Assay duration</td>
<td>Multiple steps standard assay</td>
</tr>
</tbody>
</table>

**Species reactivity**  
Reacts with: Human

**Product overview**  
Human alpha 1 Antitrypsin ELISA Kit (SERPINA1) (ab108799) is designed for the quantitative measurement of alpha 1 Antitrypsin in urine, milk, saliva, CSF, cell lysate and cell culture supernatants.

An alpha 1 antitrypsin specific antibody has been precoated onto 96-well plates and blocked. Standards or test samples are added to the wells and subsequently an alpha 1 antitrypsin specific biotinylated detection antibody is added and then followed by washing with wash buffer. Avidin-Biotin-Peroxidase Complex is added and unbound conjugates are washed away with wash buffer. TMB is then used to visualize HRP enzymatic reaction. TMB is catalyzed by HRP to produce a
blue color product that changes into yellow after adding acidic stop solution. The density of yellow coloration is directly proportional to the amount of alpha 1 antitrypsin captured in plate.

Get results in 90 minutes with Human alpha 1 Antitrypsin ELISA Kit (SERPINA1) (ab189579) from our SimpleStep ELISA® range.

The entire kit may be stored at -20°C for long term storage before reconstitution - Avoid repeated freeze-thaw cycles.

Platform  
Microplate

Properties

Storage instructions  
Store at -20°C. Please refer to protocols.

<table>
<thead>
<tr>
<th>Components</th>
<th>1 x 96 tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>100X Streptavidin-Peroxidase Conjugate</td>
<td>1 x 80µl</td>
</tr>
<tr>
<td>10X Diluent N Concentrate</td>
<td>1 x 30ml</td>
</tr>
<tr>
<td>20X Wash Buffer Concentrate</td>
<td>2 x 30ml</td>
</tr>
<tr>
<td>50X Biotinylated Human alpha 1 Antitrypsin Antibody</td>
<td>1 x 120µl</td>
</tr>
<tr>
<td>alpha 1 Antitrypsin Microplate (12 x 8 well strips)</td>
<td>1 unit</td>
</tr>
<tr>
<td>alpha 1 Antitrypsin Standard</td>
<td>1 vial</td>
</tr>
<tr>
<td>Chromogen Substrate</td>
<td>1 x 8ml</td>
</tr>
<tr>
<td>Sealing Tapes</td>
<td>3 units</td>
</tr>
<tr>
<td>Stop Solution</td>
<td>1 x 12ml</td>
</tr>
</tbody>
</table>

Function  
Inhibitor of serine proteases. Its primary target is elastase, but it also has a moderate affinity for plasmin and thrombin. Irreversibly inhibits trypsin, chymotrypsin and plasminogen activator. The aberrant form inhibits insulin-induced NO synthesis in platelets, decreases coagulation time and has proteolytic activity against insulin and plasmin. 
Short peptide from AAT: reversible chymotrypsin inhibitor. It also inhibits elastase, but not trypsin. Its major physiological function is the protection of the lower respiratory tract against proteolytic destruction by human leukocyte elastase (HLE).

Tissue specificity  
Ubiquitous. Expressed in leukocytes and plasma.

Involvement in disease  
Alpha-1-antitrypsin deficiency

Sequence similarities  
Belongs to the serpin family.

Domain  
The reactive center loop (RCL) extends out from the body of the protein and directs binding to the target protease. The protease cleaves the serpin at the reactive site within the RCL, establishing a covalent linkage between the carboxyl group of the serpin reactive site and the serine hydroxyl of the protease. The resulting inactive serpin-protease complex is highly stable.

Post-translational  
N-glycosylated. Differential glycosylation produces a number of isoforms. N-linked glycan at Asn-
modifications

107 is alternatively di-antennary, tri-antennary or tetra-antennary. The glycan at Asn-70 is di-antennary with trace amounts of tri-antennary. Glycan at Asn-271 is exclusively di-antennary. Structure of glycans at Asn-70 and Asn-271 is Hex5HexNAc4. The structure of the antennae is Neu5Ac(alpha1-6)Gal(beta1-4)GlcNAc attached to the core structure Man(alpha1-6)[Man(alpha1-3)]Man(beta1-4)GlcNAc(beta1-4)GlcNAc. Some antennae are fucosylated, which forms a Lewis-X determinant. Proteolytic processing may yield the truncated form that ranges from Asp-30 to Lys-418.

Cellular localization

Secreted. Endoplasmic reticulum. The S and Z allele are not secreted effectively and accumulate intracellularly in the endoplasmic reticulum and Secreted, extracellular space, extracellular matrix.

Images

Linearity: alpha 1 antitrypsin in urine at different dilutions, corrected for the factor of dilution (duplicates +/- SD).

ELISA: alpha 1 Antitrypsin (SERPINA1) Human
ELISA Kit

Linearity: alpha 1 antitrypsin in human milk at different dilutions, corrected for the factor of dilution (duplicates +/- SD)

ELISA: alpha 1 Antitrypsin (SERPINA1) Human
ELISA Kit
Linearity: alpha 1 antitrypsin in serum and plasma (Li-heparine) at different dilutions, corrected for the factor of dilution (duplicates +/- SD).

Alpha 1 antitrypsin in human biological fluids (duplicates +/- SD).
The samples were tested in different ranges of dilutions (serum and Li-heparine plasma: 2e3-1e6; CSF: 5e3-5e4; milk: 1e2-1e3; saliva: 2e2-2e3).

Typical Standard Curve

Standard curve with background signal subtracted (duplicates; +/- SD).
Please note: All products are "FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES"

Our Abpromise to you: Quality guaranteed and expert technical support

- Replacement or refund for products not performing as stated on the datasheet
- Valid for 12 months from date of delivery
- Response to your inquiry within 24 hours
- We provide support in Chinese, English, French, German, Japanese and Spanish
- Extensive multi-media technical resources to help you
- We investigate all quality concerns to ensure our products perform to the highest standards

If the product does not perform as described on this datasheet, we will offer a refund or replacement. For full details of the Abpromise, please visit https://www.abcam.com/abpromise or contact our technical team.

Terms and conditions

- Guarantee only valid for products bought direct from Abcam or one of our authorized distributors