Overview

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

**Detection method**
Colorimetric

**Precision**

<table>
<thead>
<tr>
<th>Sample</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>CV%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td></td>
<td></td>
<td></td>
<td>3.7%</td>
</tr>
</tbody>
</table>

**Intra-assay**

<table>
<thead>
<tr>
<th>Sample</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>CV%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td></td>
<td></td>
<td></td>
<td>8.6%</td>
</tr>
</tbody>
</table>

**Inter-assay**

<table>
<thead>
<tr>
<th>Sample</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>CV%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td></td>
<td></td>
<td></td>
<td>8.6%</td>
</tr>
</tbody>
</table>

**Sample type**
Serum, Plasma

**Assay type**
Competitive

**Sensitivity**
0.018 µg/ml

**Range**
0.039 µg/ml - 40 µg/ml

**Recovery**
98%

**Assay time**
3h 00m

**Assay duration**
Multiple steps standard assay

**Species reactivity**
Reacts with: Human

**Product overview**
alpha 1 Antitrypsin (SERPINA1) Human *in vitro* competitive ELISA (Enzyme-Linked Immunosorbent Assay) kit (ab108798) is designed for the quantitative measurement of alpha 1 antitrypsin levels in plasma and serum.

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 biotinylated alpha 1 Antitrypsin is added and then followed by washing with wash buffer. Streptavidin-Peroxidase Complex is added and unbound conjugates are washed away with wash buffer. TMB is then used to visualize Streptavidin-Peroxidase enzymatic reaction. TMB is catalyzed by Streptavidin-
Peroxidase to produce a blue color product that changes into yellow after adding acidic stop solution. The density of yellow coloration is inversely 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.

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**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>1 x 30ml</td>
</tr>
<tr>
<td>2X Biotinylated Human alpha 1 Antitrypsin (Lyophilized)</td>
<td>1 vial</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 modifications

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

Standard curve: mean of duplicates (+/- SD) with background reads subtracted

Alpha 1 Antitrypsin measured in biological fluids showing quantity (μg) per mL of tested sample. Serum and plasma samples diluted 100-8100 fold. Human milk and saliva diluted 10 fold. Hu urine diluted 1000 fold.
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