

## Product datasheet

# Human AACT ELISA Kit ab217779

SimpleStep ELISA<sup>®</sup>

[7 Images](#)

### Overview

**Product name** Human AACT ELISA Kit

**Detection method** Colorimetric

**Precision**

Intra-assay

Sample	n	Mean	SD	CV%
Plasma	5			4.3%

Inter-assay

Sample	n	Mean	SD	CV%
Plasma	3			4%

**Sample type**

Cell culture supernatant, Milk, Serum, Cell culture extracts, Tissue Extracts, Hep Plasma, EDTA Plasma, Cit plasma

**Assay type**

Sandwich (quantitative)

**Sensitivity**

327 pg/ml

**Range**

1176 pg/ml - 40000 pg/ml

**Recovery**

Sample specific recovery

Sample type	Average %	Range
Serum	108	96% - 118%
Cell culture extracts	98	91% - 105%
Tissue Extracts	96	87% - 102%
Cell culture media	109	103% - 112%
Hep Plasma	108	101% - 115%

Sample type	Average %	Range
EDTA Plasma	106	102% - 111%
Cit plasma	99	84% - 112%

**Assay time**

1h 30m

**Assay duration**

One step assay

**Species reactivity**

**Reacts with:** Human

**Does not react with:** Cow

**Product overview**

Human AACT SimpleStep ELISA<sup>®</sup> kit ([ab171574](#)) has been re-developed with new capture and detector antibodies. This new kit has the same name but a different product number (ab217779). We have identified new recombinant monoclonal antibodies to use in the SimpleStep ELISA platform that provide a higher sensitivity when quantifying AACT in human serum, citrate plasma, EDTA plasma, heparin plasma, cell culture media and extracts and tissue extracts.

AACT *in vitro* SimpleStep ELISA<sup>®</sup> (Enzyme-Linked Immunosorbent Assay) kit is designed for the quantitative measurement of AACT protein in serum, plasma, milk, cell culture supernatant, cell and tissue extract.

The SimpleStep ELISA<sup>®</sup> employs an affinity tag labeled capture antibody and a reporter conjugated detector antibody which immunocapture the sample analyte in solution. This entire complex (capture antibody/analyte/detector antibody) is in turn immobilized via immunoaffinity of an anti-tag antibody coating the well. To perform the assay, samples or standards are added to the wells, followed by the antibody mix. After incubation, the wells are washed to remove unbound material. TMB substrate is added and during incubation is catalyzed by HRP, generating blue coloration. This reaction is then stopped by addition of Stop Solution completing any color change from blue to yellow. Signal is generated proportionally to the amount of bound analyte and the intensity is measured at 450 nm. Optionally, instead of the endpoint reading, development of TMB can be recorded kinetically at 600 nm.

**Sensitivity:**

Samples in 1X Cell Extraction Buffer PTR: 327 pg/mL

Samples in Sample Diluent NS: 608 pg/mL

**Notes**

AACT (Alpha 1-antichymotrypsin) can inhibit neutrophil cathepsin G and mast cell chymase, both of which can convert angiotensin-1 to the active angiotensin-2. AACT is synthesized in the liver and like the related alpha-1-antitrypsin, its concentration increases in the acute phase of inflammation or infection. AACT is also found in the amyloid plaques from the hippocampus of Alzheimer disease brains. Defects in AACT may be a cause of chronic obstructive pulmonary disease (COPD).

**Platform**

Pre-coated microplate (12 x 8 well strips)

**Properties**

**Storage instructions**

Store at +4°C. Please refer to protocols.

Components	1 x 96 tests
10X Human AACT Capture Antibody	1 x 600µl
10X Human AACT Detector Antibody	1 x 600µl
10X Wash Buffer PT ( <a href="#">ab206977</a> )	1 x 20ml
50X Cell Extraction Enhancer Solution ( <a href="#">ab193971</a> )	1 x 1ml
5X Cell Extraction Buffer PTR ( <a href="#">ab193970</a> )	1 x 10ml
Antibody Diluent CPI - HAMA Blocker ( <a href="#">ab193969</a> )	1 x 6ml
Human AACT Lyophilized Recombinant Protein	2 vials
Plate Seals	1 unit
Sample Diluent NS ( <a href="#">ab193972</a> )	1 x 50ml
SimpleStep Pre-Coated 96-Well Microplate ( <a href="#">ab206978</a> )	1 unit
Stop Solution	1 x 12ml
TMB Development Solution	1 x 12ml

**Function**

Although its physiological function is unclear, it can inhibit neutrophil cathepsin G and mast cell chymase, both of which can convert angiotensin-1 to the active angiotensin-2.

**Tissue specificity**

Plasma. Synthesized in the liver. Like the related alpha-1-antitrypsin, its concentration increases in the acute phase of inflammation or infection. Found in the amyloid plaques from the hippocampus of Alzheimer disease brains.

**Involvement in disease**

Defects in SERPINA3 may be a cause of chronic obstructive pulmonary disease (COPD) [MIM:107280].

**Sequence similarities**

Belongs to the serpin family.

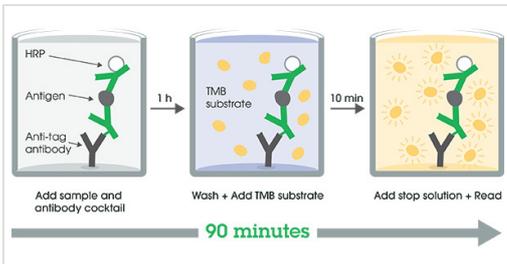
**Domain**

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.

**Cellular localization**

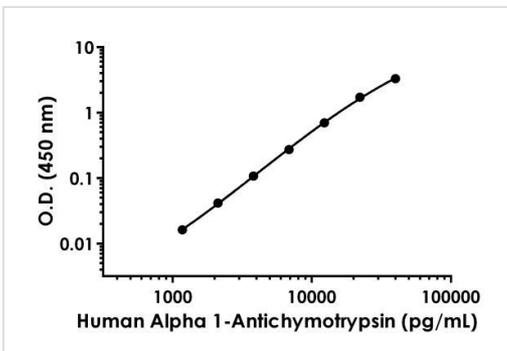
Secreted.

**Images**



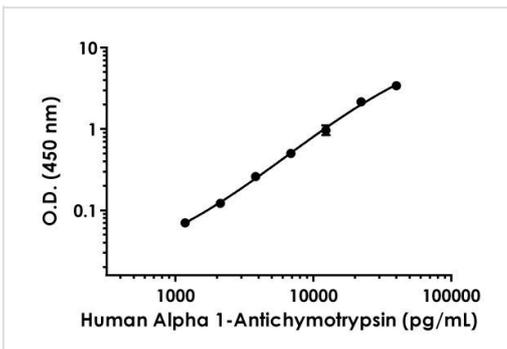
SimpleStep ELISA technology allows the formation of the antibody-antigen complex in one single step, reducing assay time to 90 minutes. Add samples or standards and antibody mix to wells all at once, incubate, wash, and add your final substrate. See protocol for a detailed step-by-step guide.

Other - Human AACT ELISA Kit (ab217779)



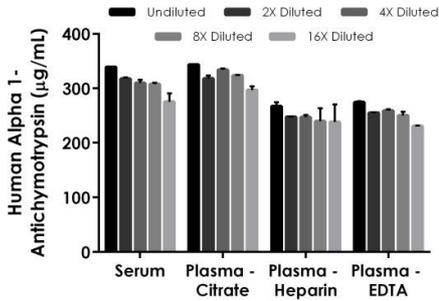
Background-subtracted data values (mean +/- SD) are graphed.

Example of human Alpha 1-antichymotrypsin standard curve in Sample Diluent NS.



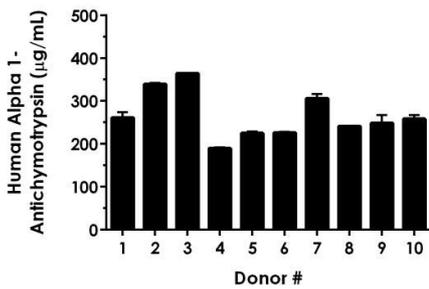
Background-subtracted data values (mean +/- SD) are graphed.

Example of human Alpha 1-antichymotrypsin standard curve in 1X Cell Extraction Buffer PTR.



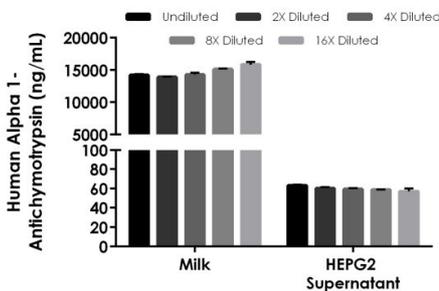
Interpolated concentrations of native Alpha 1-antichymotrypsin in human serum, and plasma samples.

The concentrations of Alpha 1-antichymotrypsin were measured in duplicates, interpolated from the Alpha 1-antichymotrypsin standard curves and corrected for sample dilution. Undiluted samples are as follows: serum 1:10,000, plasma (citrate) 1:10,000, plasma (heparin) 1:10,000 and plasma (EDTA) 1:10,000. The interpolated dilution factor corrected values are plotted (mean +/- SD, n=2). The mean Alpha 1-antichymotrypsin concentration was determined to be 310 µg/mL in serum, 323 µg/mL in plasma (citrate) 248 µg/mL in plasma (heparin) and 254 µg/mL in plasma (EDTA).



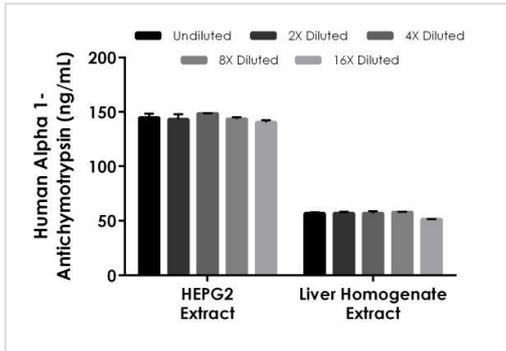
Serum from ten individual healthy human female donors was measured in duplicate.

Interpolated dilution factor corrected values are plotted (mean +/- SD, n=2). The mean Alpha 1-antichymotrypsin concentration was determined to be 266 µg/mL with a range of 190 – 364 µg/mL.



Interpolated concentrations of native Alpha 1-antichymotrypsin in human milk and HEPG2 cell culture supernatant samples.

The concentrations of Alpha 1-antichymotrypsin were measured in duplicates, interpolated from the Alpha 1-antichymotrypsin standard curves and corrected for sample dilution. Undiluted samples are as follows: milk 1:500 and HEPG2 supernatant 50%. The interpolated dilution factor corrected values are plotted (mean +/- SD, n=2). The mean Alpha 1-antichymotrypsin concentration was determined to be 14,672 ng/mL in milk and 60 ng/mL in HEPG2 cell culture supernatant.



The concentrations of Alpha 1-antichymotrypsin were measured in duplicate and interpolated from the Alpha 1-antichymotrypsin standard curve and corrected for sample dilution. The interpolated dilution factor corrected values are plotted (mean +/- SD, n=2). The mean Alpha 1-antichymotrypsin concentration was determined to be 144 ng/mL in HEPG2 cell extract and 56 ng/mL in human liver homogenate extract.

Interpolated concentrations of native Alpha 1-antichymotrypsin in human HEPG2 cell extract and human liver homogenate extract based on a 50 µg/mL extract load.

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