

## Product datasheet

# Human ALDH1A1 ELISA Kit **ab214024**

Recombinant **SimpleStep ELISA**

[7 Images](#)

### Overview

**Product name** Human ALDH1A1 ELISA Kit

**Detection method** Colorimetric

**Precision**

Intra-assay

Sample	n	Mean	SD	CV%
A549 extract	8			4.8%

Inter-assay

Sample	n	Mean	SD	CV%
A549 extract	3			5.5%

**Sample type**

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

**Assay type**

Sandwich (quantitative)

**Sensitivity**

220 pg/ml

**Range**

1.25 ng/ml - 80 ng/ml

**Recovery**

Sample specific recovery

Sample type	Average %	Range
Serum	76	73% - 83%
Tissue Extracts	109	109% - 110%
Cell culture media	108	105% - 110%
Hep Plasma	75	70% - 80%
EDTA Plasma	86	78% - 96%
Cit plasma	74	68% - 80%

<b>Assay time</b>	1h 30m
<b>Assay duration</b>	One step assay
<b>Species reactivity</b>	<b>Reacts with:</b> Human
<b>Product overview</b>	Human ALDH1A1 ELISA Kit (ab214024) is a single-wash 90 min sandwich ELISA designed for the quantitative measurement of ALDH1A1 protein in cell culture extracts, cell culture supernatant, cit plasma, edta plasma, hep plasma, serum, and tissue extracts. It uses our proprietary SimpleStep ELISA® technology. Quantitate Human ALDH1A1 with 220 pg/ml sensitivity.

SimpleStep ELISA® technology employs capture antibodies conjugated to an affinity tag that is recognized by the monoclonal antibody used to coat our SimpleStep ELISA® plates. This approach to sandwich ELISA allows the formation of the antibody-analyte sandwich complex in a single step, significantly reducing assay time. See the SimpleStep ELISA® protocol summary in the image section for further details. Our SimpleStep ELISA® technology provides several benefits:

- Single-wash protocol reduces assay time to 90 minutes or less
- High sensitivity, specificity and reproducibility from superior antibodies
- Fully validated in biological samples
- 96-wells plate breakable into 12 x 8 wells strips

A 384-well SimpleStep ELISA® microplate ([ab203359](#)) is available to use as an alternative to the 96-well microplate provided with SimpleStep ELISA® kits.

**Notes** ALDH1A1 belongs to the aldehyde dehydrogenase family of proteins. Aldehyde dehydrogenase follows alcohol dehydrogenase in the major pathway of alcohol metabolism. Notably, there are two major aldehyde dehydrogenase isozymes in the liver: cytosolic and mitochondrial. This gene encodes the cytosolic isozyme. Finally, human ALDH1A1 is 501 amino acids in length. Mouse and rat ALDH1A1 are 87% and 86% identical to human ALDH1A1, respectively.

Abcam has not and does not intend to apply for the REACH Authorisation of customers' uses of products that contain European Authorisation list (Annex XIV) substances. It is the responsibility of our customers to check the necessity of application of REACH Authorisation, and any other relevant authorisations, for their intended uses.

**Platform** Pre-coated microplate (12 x 8 well strips)

## Properties

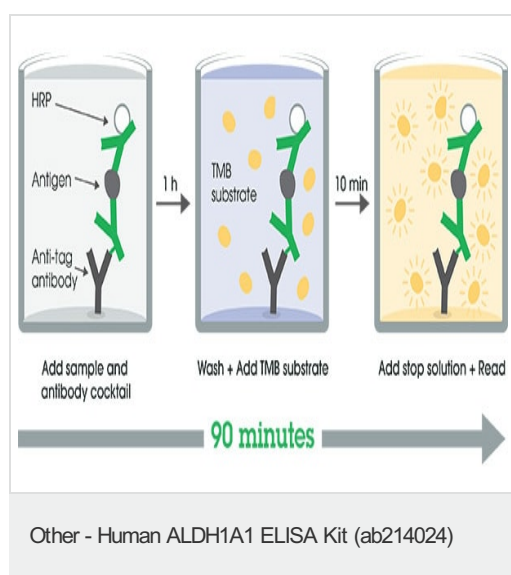
**Storage instructions** Store at +4°C. Please refer to protocols.

Components	1 x 96 tests
10X Human ALDH1A1 Capture Antibody	1 x 600µl
10X Human ALDH1A1 Detector Antibody	1 x 600µl
10X Wash Buffer PT (ab206977)	1 x 20ml
50X Cell Extraction Enhancer Solution (ab193971)	1 x 1ml

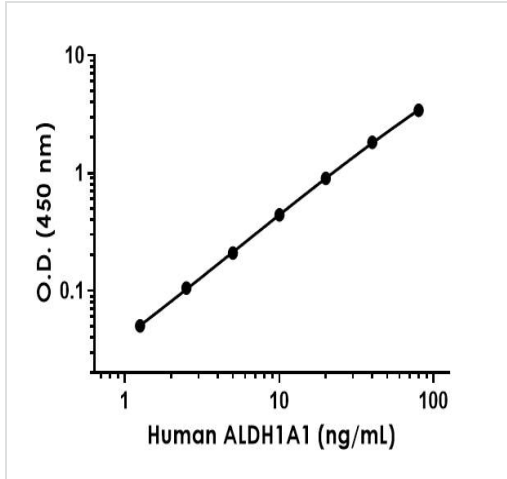
Components	1 x 96 tests
5X Cell Extraction Buffer PTR (ab193970)	1 x 10ml
Antibody Diluent 4BI	1 x 6ml
Human ALDH1A1 Lyophilized Recombinant Protein	2 vials
Plate Seals	1 unit
Sample Diluent NS (ab193972)	1 x 50ml
SimpleStep Pre-Coated 96-Well Microplate (ab206978)	1 unit
Stop Solution	1 x 12ml
TMB Development Solution	1 x 12ml

<b>Function</b>	Binds free retinal and cellular retinol-binding protein-bound retinal. Can convert/oxidize retinaldehyde to retinoic acid.
<b>Pathway</b>	Cofactor metabolism; retinol metabolism.
<b>Sequence similarities</b>	Belongs to the aldehyde dehydrogenase family.
<b>Cellular localization</b>	Cytoplasm.

## Images

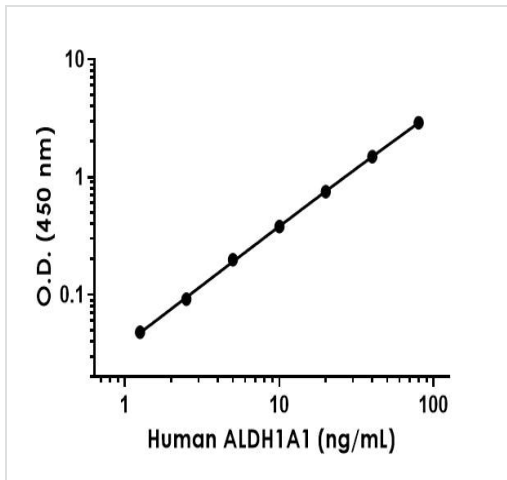


SimpleStep ELISA technology allows the formation of the antibody-antigen complex in one single step, reducing assay time to 90 minutes. Add samples or standards and antibody mix to wells all at once, incubate, wash, and add your final substrate. See protocol for a detailed step-by-step guide.



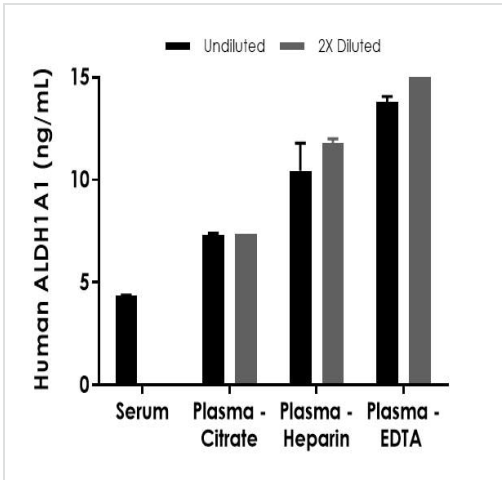
Background-subtracted data values (mean +/- SD) are graphed.

Example of human ALDH1A1 standard curve in Sample Diluent NS.



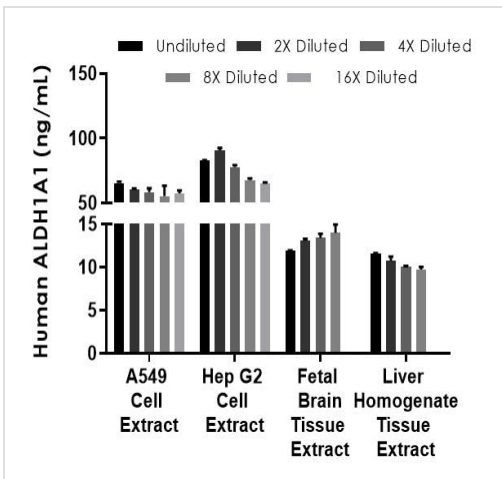
Background-subtracted data values (mean +/- SD) are graphed.

Example of human ALDH1A1 standard curve in Sample Diluent 1X Cell Extraction Buffer PTR.



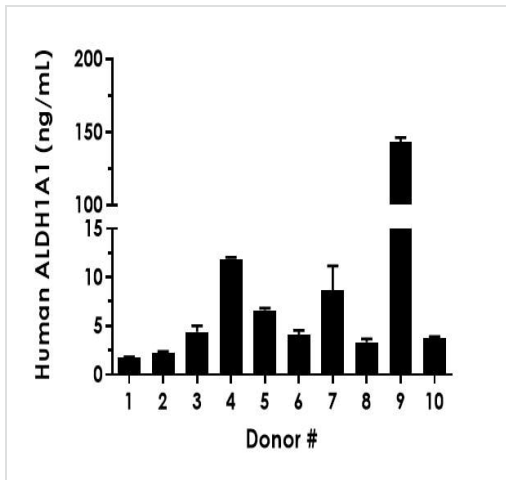
Interpolated concentrations of native ALDH1A1 in human serum and plasma samples.

The concentrations of ALDH1A1 were measured in duplicates, interpolated from the ALDH1A1 standard curves and corrected for sample dilution. Undiluted samples are as follows: serum 100%, plasma (citrate) 50%, plasma (heparin) 50%, and plasma (EDTA) 50%. Interpolated dilution factor corrected values are plotted (mean +/- SD, n=2). The mean ALDH1A1 concentration was determined to be 4.38 ng/ml in serum, 7.37 ng/ml in plasma (citrate), 11.12 ng/ml in plasma (heparin), and 14.40 ng/ml in plasma (EDTA).



Interpolated concentrations of native ALDH1A1 in human A549, Hep G2, fetal brain, and liver homogenate extract samples.

Based on 25 µg/mL, 20 µg/mL, 100 µg/mL, and 1.25 µg/mL extract loads, respectively. The concentrations of ALDH1A1 were measured in duplicate and interpolated from the ALDH1A1 standard curve and corrected for sample dilution. The interpolated dilution factor corrected values are plotted (mean +/- SD, n=2). The mean ALDH1A1 concentration was determined to be 59.4 ng/mL, 76.8 ng/mL, 13.1 ng/mL, and 10.5 ng/mL in A549, Hep G2, fetal brain, and liver homogenate extract samples, respectively.



Interpolated dilution factor corrected values are plotted (mean +/- SD, n=2). The mean ALDH1A1 concentration was determined to be 18.98 ng/mL with a range of 1.72 – 143.05 ng/mL.

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

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Consistent and reproducible results

**Long-term and scalable supply**  
Recombinant technology

**Success from the first experiment**  
Confirmed specificity

**Ethical standards compliant**  
Animal-free production

Sandwich ELISA - Human ALDH1A1 ELISA Kit  
(ab214024)

To learn more about the advantages of recombinant antibodies see [here](#).

**Please note:** All products are "FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES"

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