

## Product datasheet

# Human IL-1 $\alpha$ ELISA Kit ab178008

Recombinant **SimpleStep ELISA**

[1 References](#) [7 Images](#)

### Overview

**Product name** Human IL-1a ELISA Kit

**Detection method** Colorimetric

**Precision**

Intra-assay

Sample	n	Mean	SD	CV%
Serum	8			2%

Inter-assay

Sample	n	Mean	SD	CV%
Serum	3			5.9%

**Sample type** Cell culture supernatant, Serum, Hep Plasma, EDTA Plasma, Cit plasma

**Assay type** Sandwich (quantitative)

**Sensitivity** 0.82 pg/ml

**Range** 3.91 pg/ml - 250 pg/ml

**Recovery**

Sample specific recovery

Sample type	Average %	Range
Cell culture supernatant	92	83% - 101%
Serum	90	86% - 95%
Hep Plasma	83	80% - 87%
EDTA Plasma	77	73% - 83%
Cit plasma	90	86% - 95%

**Assay time** 1h 30m

**Assay duration** One step assay

## Species reactivity

**Reacts with:** Human

## Product overview

**As of July 16, 2020, Human IL-1a SimpleStep ELISA® kit has been re-developed. We have identified new recombinant monoclonal antibodies to provide improved performance and consistency.**

Human IL-1a ELISA kit (ab178008) is a single-wash 90 min sandwich ELISA designed for the quantitative measurement of IL-1a protein in human cell culture supernatant, plasma, serum and cell lysate samples. It uses our proprietary SimpleStep ELISA® technology. Quantitate human IL-1a with 0.82 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.

**Note:** Normal human serum IL-1a levels are below the detection limit of this kit.

## Notes

Interleukin 1 (IL-1) refers to two proteins encoded by two different genes (IL-1a and IL-1b), both of which share the same cell surface receptors. IL-1a is a proinflammatory cytokine typically expressed under normal conditions in skin keratinocytes, some epithelial cells as well as some cells in the central nervous system. Under pathological conditions, IL-1a is also strongly expressed by monocytes, tissue macrophages, dendritic cells, B lymphocytes and NK cells. IL-1a is synthesized as a 31kDa precursor, some of which is cleaved prior to secretion into a 17.5kDa protein. IL-1a is biologically active both in a paracrine or systemic mode of action. The paracrine effects are mediated by the uncleaved portion of IL-1a, which is transported to the cell surface where it activates the IL-1 receptor type I (IL-1RI) of adjacent cells. The systemic effect is mediated by cleaved IL-1a, which is secreted into the bloodstream.

Signaling of IL-1 via its receptor, results in recruitment of the IL-1 R accessory protein (IL-1RAcP). This leads to a series of phosphorylation and ubiquitination events that ultimately activate the nuclear factor kB (NF-kB) and signal via the c-Jun N-terminal kinase (JNK) and the p38 mitogen-activated protein kinase (MAPK) pathways. These signaling events generate local and systemic responses that mediate acute phase inflammation, a critical host response to injury and infection. Under these circumstances, IL-1 induces fever, pain sensitivity, vasodilation, hypotension and slow wave sleep. All these responses are essential processes geared towards the re-establishment of tissue homeostasis. However, prolonged and inappropriate IL-1 induction has been shown to be associated with sepsis, rheumatoid arthritis, inflammatory bowel disease, acute and chronic myelogenous leukemia, insulin-dependent diabetes mellitus and atherosclerosis.

## Platform

Microplate

## Properties

**Storage instructions**

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

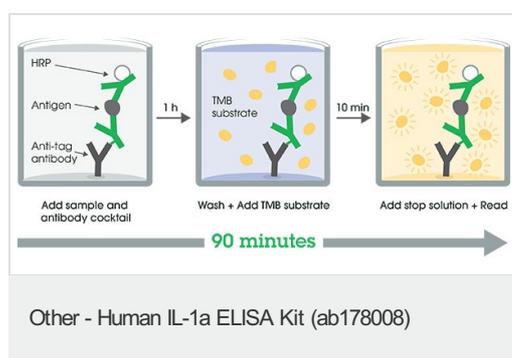
Components	1 x 96 tests
10X Human IL-1a Detector Antibody	1 x 600µl
10X Wash Buffer PT (ab206977)	1 x 20ml
Antibody Diluent 5BI	1 x 6ml
Human IL-1a Capture Antibody	2 vials
Human IL-1a Lyophilized Recombinant Protein	2 vials
Plate Seals	1 unit
Sample Diluent NS (ab193972)	1 x 50ml
SimpleStep Pre-Coated 96-Well Microplate (ab206978)	1 unit
Stop Solution	1 x 12ml
TMB Development Solution	1 x 12ml

**Relevance**

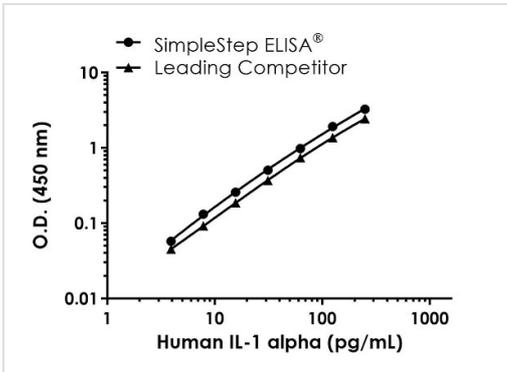
IL-1 alpha is a member of the interleukin 1 cytokine family. It is a pleiotropic cytokine involved in various immune responses, inflammatory processes, and hematopoiesis. IL-1 alpha is produced by monocytes and macrophages as a proprotein, which is proteolytically processed and released in response to cell injury, and thus induces apoptosis. This gene and eight other interleukin 1 family genes form a cytokine gene cluster on chromosome 2. It has been suggested that the polymorphism of these genes is associated with rheumatoid arthritis and Alzheimer's disease.

**Cellular localization**

Secreted

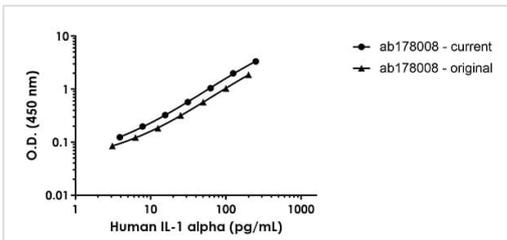
**Images**

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.



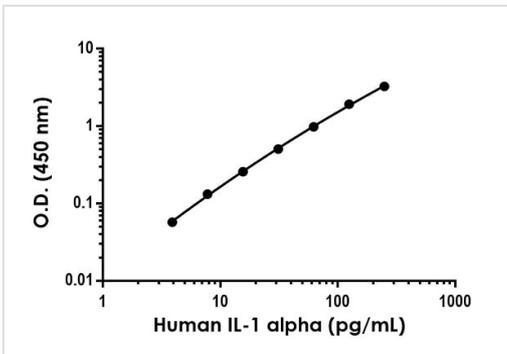
Standard Curve comparison between Human IL-1 alpha SimpleStep ELISA kit and traditional ELISA kit from leading competitor.

Human IL-1a competitor curve comparison



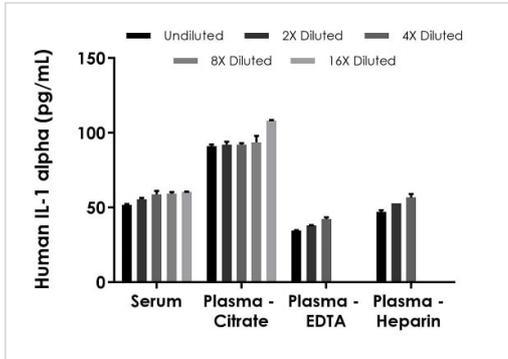
Standard Curve comparison between the original Human IL-1a SimpleStep ELISA kit and current Human IL-1a SimpleStep ELISA kit.

Human IL-1a standard curve comparison



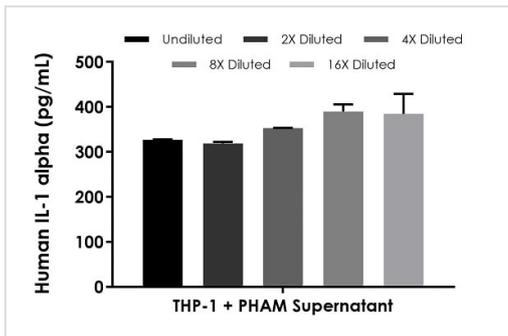
The IL-1 alpha standard curve was prepared as described in Section 10. Raw data values are shown in the table. Background-subtracted data values (mean +/- SD) are graphed.

Example of human IL-1 alpha standard curve in Sample Diluent NS.



Interpolated concentrations of spike IL-1 alpha in human serum and plasma samples.

The concentrations of IL-1 alpha were measured in duplicates, interpolated from the IL-1 alpha standard curves and corrected for sample dilution. Undiluted samples are as follows: serum 25%, plasma (citrate) 50%, plasma (EDTA) 25%, and plasma (heparin) 25%. The interpolated dilution factor corrected values are plotted (mean +/- SD, n=2).



Interpolated concentrations of native IL-1 alpha in human cell culture supernatant samples.

The concentrations of IL-1 alpha were measured in duplicate, interpolated from the IL-1 alpha standard curves and corrected for sample dilution. Undiluted samples are as follows: THP-1 + PHAM supernatant 12.5%. The interpolated dilution factor corrected values are plotted (mean +/- SD, n=2). The mean IL-1 alpha concentration was determined to be 354.5 pg/mL in serum THP-1 PHAM supernatant.

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Sandwich ELISA - Human IL-1a ELISA Kit  
(ab178008)

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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