

Human ICAM1 ELISA Kit (CD54) ab174445

SimpleStep ELISA

14 References 7 Images

Overview

Product name Human ICAM1 ELISA Kit (CD54)

Detection method Colorimetric

Precision Intra-assay

Sample	n	Mean	SD	CV%
Overall	6			6%

Inter-assay

Sample	n	Mean	SD	CV%
Overall	24			7%

Sample type Cell culture supernatant, Serum, Cell culture extracts, Adherent cells, Hep Plasma, EDTA Plasma, Cit plasma

Assay type Sandwich (quantitative)

Sensitivity 1.6 pg/ml

Range 39.06 pg/ml - 2500 pg/ml

Recovery Sample specific recovery

Sample type	Average %	Range
Serum	103	99% - 110%
Plasma	113	96% - 126%
Cell culture media	98	91% - 102%
Extraction Buffer	87	82% - 97%

Assay time 1h 30m

Assay duration One step assay

## Species reactivity

**Reacts with:** Human

**Does not react with:** Goat, Cow, Pig

## Product overview

Human ICAM-1 ELISA kit (CD54) (ab174445) is a single-wash 90 min sandwich ELISA designed for the quantitative measurement of ICAM-1 protein in human cell culture supernatant, plasma, serum and cell lysate samples. It uses our proprietary SimpleStep ELISA® technology. Quantitate human ICAM-1 with 1.6 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

ICAM1, is a cell surface glycoprotein typically expressed in endothelial cells and cells of the immune system. The extracellular portion of ICAM-1 forms five immunoglobulin like domains attached to a single hydrophobic transmembrane region and a short cytoplasmic tail. ICAM-1, binds to the Leukocyte Integrins LFA-1 (CD11a/CD18) and Mac-1 (CD11b/CD18) as well as to non integrin ligands such as CD43, fibrinogen, hyaluronan, Rhinoviruses and Plasmodium falciparum-infected erythrocytes. Binding to LFA-1 facilitates trans-endothelial leukocyte migration to areas of inflammation via promotion of endothelial apical cups assembly.

ICAM-1 expression increases in the vascular endothelium, macrophages and lymphocytes in response to cytokine stimulation (IL-1 and TNF). Furthermore, ligation of ICAM-1 up-regulates its own expression in a positive-feedback loop to maintain a pro-inflammatory environment conducive to leukocytes endothelial transmigration.

Soluble ICAM-1 is reported to be present in normal serum, cerebrospinal fluid, urine and bronchoalveolar lavage fluid. Elevated levels of soluble ICAM-1 have been associated with multiple organ failure, atherosclerosis, autoimmune disorders, diabetes, obesity, hypertension, liver disease as well as cancer, and several studies have correlated serum levels of sICAM-1 with the severity of these diseases.

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

Microplate

## Properties

### Storage instructions

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

Components	1 x 96 tests
10X Human ICAM-1 Capture Antibody	1 x 600µl
10X Human ICAM-1 Detector Antibody	1 x 600µl
10X Wash Buffer PT (ab206977)	1 x 20ml
50X Cell Extraction Enhancer Solution (ab193971)	1 x 1ml
5X Cell Extraction Buffer PTR (ab193970)	1 x 10ml
Antibody Diluent 4BI	1 x 6ml
Human ICAM-1 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

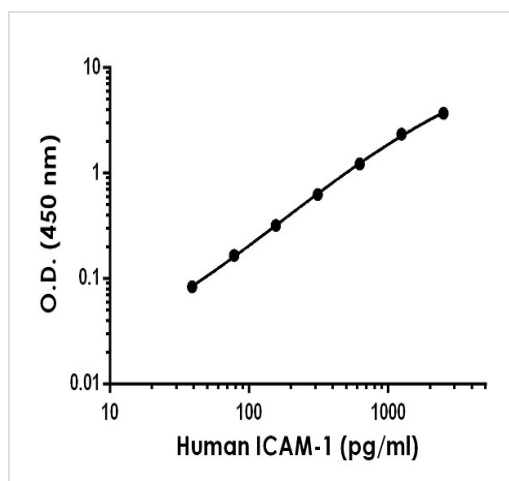
## Relevance

ICAM1 is a 85-110 kDa single chain type 1 integral membrane glycoprotein with an extracellular domain of five immunoglobulin superfamily repeats, a transmembrane region and a cytoplasmic domain. It shares considerable amino acid sequence homology with ICAM3 and with ICAM2. ICAM1 is expressed by activated endothelial cells. It is detected on cells of many other lineages (e.g. epithelial cells, fibroblasts, chondrocytes, B lymphocytes, T lymphocytes (low), monocytes, macrophages, dendritic cells and neutrophils), with lower levels that increase in inflammation. ICAM1 is also detected in some carcinoma and melanoma cells. Soluble ICAM1 is detectable in the plasma and is elevated in patients with various inflammatory syndromes. It is the receptor for rhinoviruses and malaria.

## Cellular localization

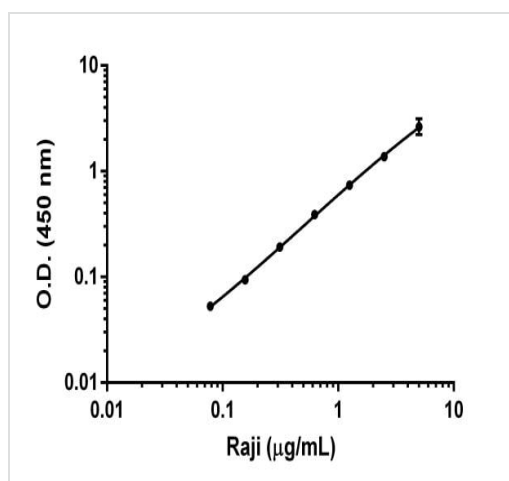
Membrane

## Images



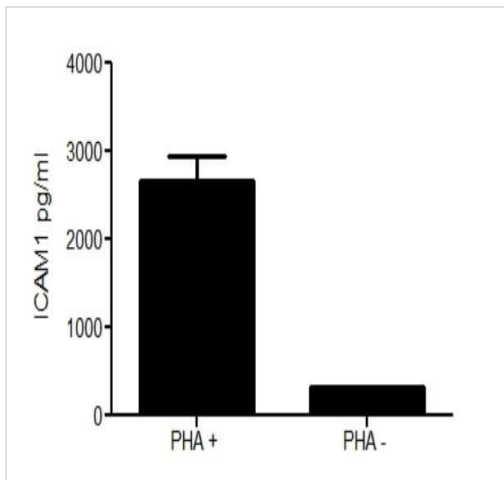
Background-subtracted data values (mean  $\pm$  SD) are graphed.

Example ICAM-1 standard curve



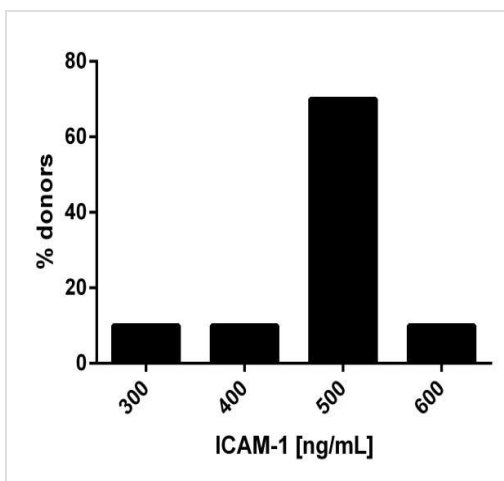
The curve was prepared by loading 5 µg/mL of Raji cell extracts, followed by a 1:2 titration series. Background-subtracted data values (mean  $\pm$  SD) are graphed.

Example of ICAM-1 dynamic range in Raji cell lysates.



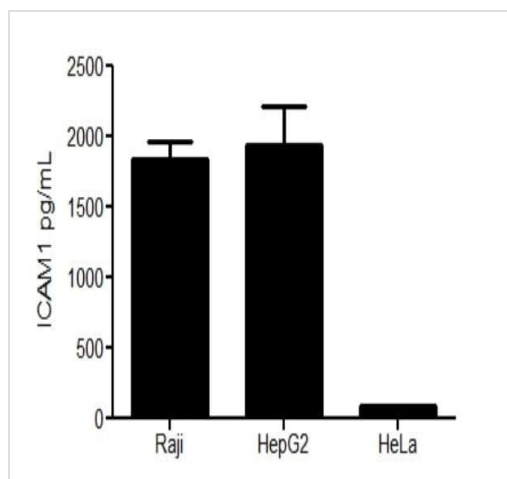
Specificity of ICAM-1 signal on stimulated and non stimulated media supernatants.

Human PBMCs were cultured in RPMI supplemented with 10% fetal calf serum, 2 mM L-glutamine, 100 U/mL penicillin, and 100 µg/mL streptomycin. Cells were cultured for 2 days at 37°C in the presence or absence of PHA. The concentrations of ICAM-1 were interpolated from the calibration curve and corrected for sample dilution. The mean ICAM-1 concentration was determined to be 320 pg/mL in unstimulated PBMC supernatants and 2,654 pg/mL in stimulated PBMC supernatants.



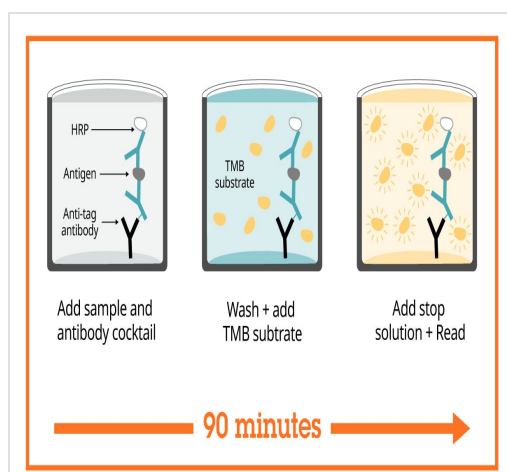
Frequency histogram of ICAM-1 levels in serum of individual normal healthy donors.

The levels of ICAM-1 in serum samples were tested from ten individual healthy donors. Levels were interpolated from the standard curve and corrected for sample dilution. The levels of ICAM-1 are shown for the percentage of individuals within each 100 ng/mL bin center of the distribution. The mean level of ICAM-1 was 469 ng/mL with a range of 347 to 629 ng/mL and a standard deviation of 77 ng/mL.



Comparison of ICAM-1 levels in three Human cell culture lysates.

The levels of ICAM-1 protein were assessed in three Human cell line lysates loaded at 2.5 µg/mL of protein. The raw OD 450 nm signal for each sample was interpolated from an ICAM1 standard curve.



Sandwich ELISA - Human ICAM1 ELISA Kit (CD54) (ab174445)

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.

**Get more done with  
SimpleStep ELISA**



**Easy to use**

Single-wash 90-minute protocol



**Flexible**

Matched antibody pairs available



**Precision antibodies**

High sensitivity, specificity and reproducibility



**Scalable**

Now in 10-pack and 384-well formats

To learn more about the advantages of SimpleStep ELISA® kits see [here](#).

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