

Product datasheet

Human ICAM1 ELISA Kit (CD54) ab174445

SimpleStep ELISA[®]

[1 References](#) [6 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, Heparin Plasma, EDTA Plasma, Citrate Plasma, Tissue Homogenate, Tissue Lysate

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:** Mouse, Rat, Rabbit, Goat, Guinea pig, Hamster, Cow, Dog, Pig**Product overview**

Abcam's ICAM1 (CD54) *in vitro* SimpleStepELISA® (Enzyme-Linked Immunosorbent Assay) kit is designed for the quantitative measurement of ICAM-1 protein in Human cell culture supernatant, plasma, serum and cell lysate samples.

The SimpleStep ELISA® 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.

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.

Tested applications**Suitable for:** Sandwich ELISA**Platform**

Microplate

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

Components	1 x 96 tests
10X ICAM-1 Capture Antibody	1 x 600µl
10X 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

Components	1 x 96 tests
Antibody Diluent 4BI	1 x 6ml
ICAM-1 Human 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

Applications

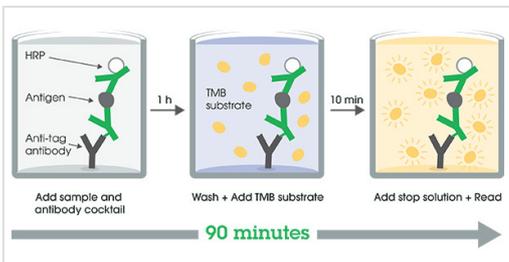
Our [Abpromise guarantee](#) covers the use of **ab174445** in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

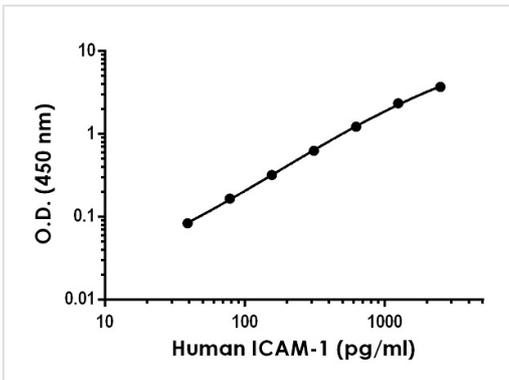
Application	Abreviews	Notes
Sandwich ELISA		Use at an assay dependent concentration.

Images

ELISA Protocol Summary

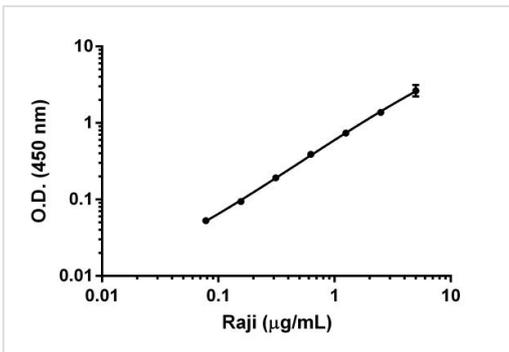


Other - Human ICAM1 ELISA Kit (CD54) (ab174445)



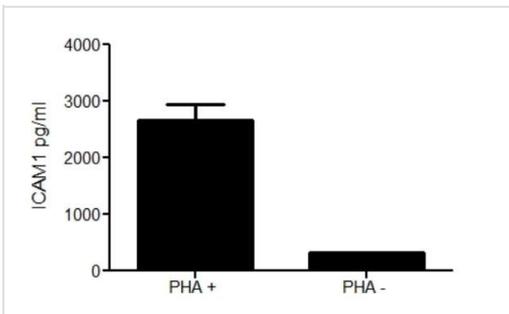
Example ICAM-1 standard curve

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



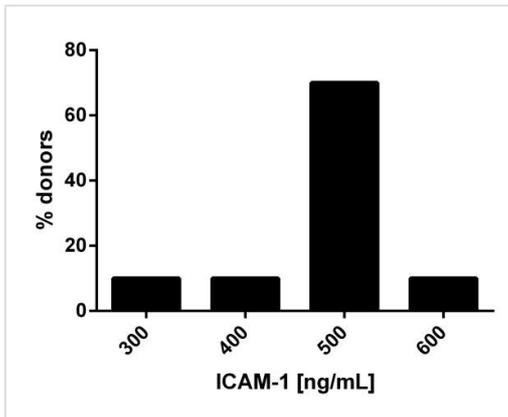
Example of ICAM-1 dynamic range in Raji cell lysates.

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 +/- SD) are graphed.



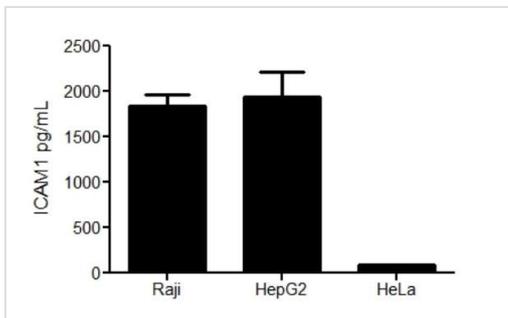
Specificity of ICAM-1 signal on stimulated and non stimulated media supernatants.

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.

Please note: All products are "FOR RESEARCH USE ONLY AND ARE NOT INTENDED FOR DIAGNOSTIC OR THERAPEUTIC USE"

Our Abpromise to you: Quality guaranteed and expert technical support

- Replacement or refund for products not performing as stated on the datasheet
- Valid for 12 months from date of delivery
- Response to your inquiry within 24 hours
- We provide support in Chinese, English, French, German, Japanese and Spanish
- Extensive multi-media technical resources to help you
- We investigate all quality concerns to ensure our products perform to the highest standards

If the product does not perform as described on this datasheet, we will offer a refund or replacement. For full details of the Abpromise, please visit <https://www.abcam.com/abpromise> or contact our technical team.

Terms and conditions

- Guarantee only valid for products bought direct from Abcam or one of our authorized distributors