

Human CD31 ELISA Kit (PECAM) αb190814

Recombinant SimpleStep ELISA[®]

2 References 10 Images

Overview

Product name Human CD31 ELISA Kit (PECAM)

Detection method Colorimetric

Precision					Intra-assay
	Sample	n	Mean	SD	CV%
	cell extract	8			3.4%

					Inter-assay
	Sample	n	Mean	SD	CV%
	cell extract	3			3.3%

Sample type Cell culture supernatant, Saliva, Urine, Serum, Cell culture extracts, Tissue Extracts, Hep Plasma, EDTA Plasma, Cit plasma

Assay type Sandwich (quantitative)

Sensitivity 44 pg/ml

Range 226.6 pg/ml - 14500 pg/ml

Recovery			Sample specific recovery
	Sample type	Average %	Range
	Urine	80	76% - 84%
	Serum	113	109% - 119%
	Hep Plasma	74	71% - 80%
	EDTA Plasma	103	102% - 106%
	Cit plasma	91	88% - 95%

Assay time 1h 30m

Assay duration	One step assay
Species reactivity	Reacts with: Human, Rhesus monkey Does not react with: Cow
Product overview	<p>Human CD31 ELISA Kit (PECAM) (ab190814) is a single-wash 90 min sandwich ELISA designed for the quantitative measurement of CD31 (PECAM) protein in cell culture extracts, cell culture supernatant, cit plasma, edta plasma, hep plasma, saliva, serum, tissue extracts, and urine. It uses our proprietary SimpleStep ELISA® technology. Quantitate Human CD31 (PECAM) with 44 pg/ml sensitivity.</p> <p>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:</p> <ul style="list-style-type: none"> - 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 <p>A 384-well SimpleStep ELISA® microplate (ab203359) is available to use as an alternative to the 96-well microplate provided with SimpleStep ELISA® kits.</p>
Notes	<p>CD31, also known as PECAM-1, is a cell adhesion molecule which is required for leukocyte trans-endothelial migration (TEM) under most inflammatory conditions. CD31 is a 130-kDa glycoprotein constitutively expressed on endothelial cells, platelets, neutrophils, monocytes, lymphocytes and basophils. CD31 molecules is expressed in large amounts in the intracellular junctions of endothelial cells. Experiments using antibody results in blocking CD31 homophilic interaction and inhibition of leukocytes transmigration. Expression of CD31 on the cell surface is regulated by receptor shedding resulting in generation of a soluble 100-kDa extracellular domain form and a truncated 28-kDa fragment containing the transmembrane and cytoplasmic domain of CD31.</p> <p>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.</p>
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 CD31 Capture Antibody	1 x 600µl
10X Human CD31 Detector Antibody	1 x 600µl

Components	1 x 96 tests
10X Wash Buffer PT (ab206977)	1 x 20ml
50X Cell Extraction Enhancer Solution (ab193971)	2 x 1ml
5X Cell Extraction Buffer PTR (ab193970)	1 x 10ml
Antibody Diluent 4BI	1 x 6ml
Denaturant	1 x 500µl
Human CD31 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

Function

Induces susceptibility to atherosclerosis (By similarity). Cell adhesion molecule which is required for leukocyte transendothelial migration (TEM) under most inflammatory conditions. Tyr-690 plays a critical role in TEM and is required for efficient trafficking of PECAM1 to and from the lateral border recycling compartment (LBRC) and is also essential for the LBRC membrane to be targeted around migrating leukocytes. Prevents phagocyte ingestion of closely apposed viable cells by transmitting 'detachment' signals, and changes function on apoptosis, promoting tethering of dying cells to phagocytes (the encounter of a viable cell with a phagocyte via the homophilic interaction of PECAM1 on both cell surfaces leads to the viable cell's active repulsion from the phagocyte. During apoptosis, the inside-out signaling of PECAM1 is somehow disabled so that the apoptotic cell does not actively reject the phagocyte anymore. The lack of this repulsion signal together with the interaction of the eat-me signals and their respective receptors causes the attachment of the apoptotic cell to the phagocyte, thus triggering the process of engulfment). Isoform Delta15 is unable to protect against apoptosis. Modulates BDKRB2 activation. Regulates bradykinin- and hyperosmotic shock-induced ERK1/2 activation in human umbilical cord vein cells (HUVEC).

Tissue specificity

Expressed on platelets and leukocytes and is primarily concentrated at the borders between endothelial cells. Isoform Long predominates in all tissues examined. Isoform Delta12 is detected only in trachea. Isoform Delta14-15 is only detected in lung. Isoform Delta14 is detected in all tissues examined with the strongest expression in heart. Isoform Delta15 is expressed in brain, testis, ovary, cell surface of platelets, human umbilical vein endothelial cells (HUVECs), Jurkat T-cell leukemia, human erythroleukemia (HEL) and U937 histiocytic lymphoma cell lines (at protein level).

Sequence similarities

Contains 6 Ig-like C2-type (immunoglobulin-like) domains.

Domain

The Ig-like C2-type domains 2 and 3 contribute to formation of the complex with BDKRB2 and in regulation of its activity.

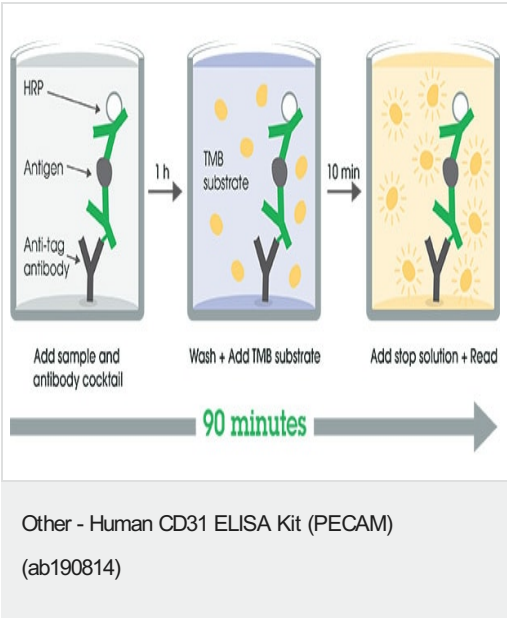
Post-translational modifications

Phosphorylated on Ser and Tyr residues after cellular activation. In endothelial cells Fyn mediates mechanical-force (stretch or pull) induced tyrosine phosphorylation.

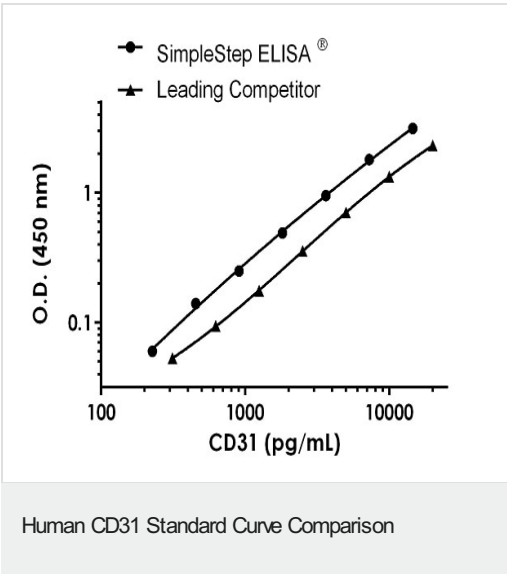
Cellular localization

Membrane. Cell junction. Localizes to the lateral border recycling compartment (LBRC) and recycles from the LBRC to the junction in resting endothelial cells and Cell junction. Localizes to the lateral border recycling compartment (LBRC) and recycles from the LBRC to the junction in resting endothelial cells.

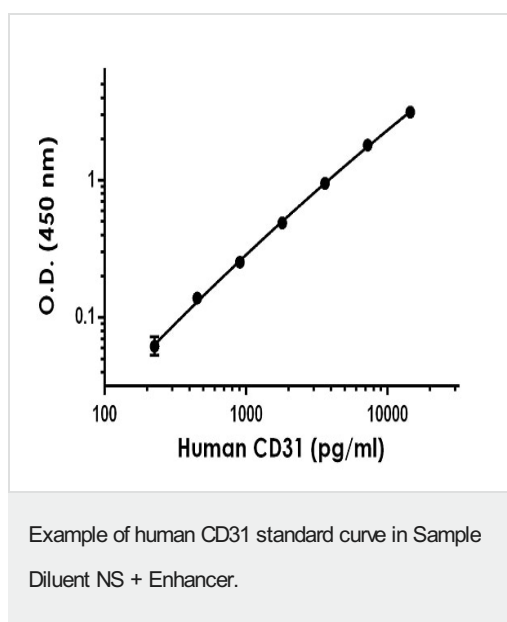
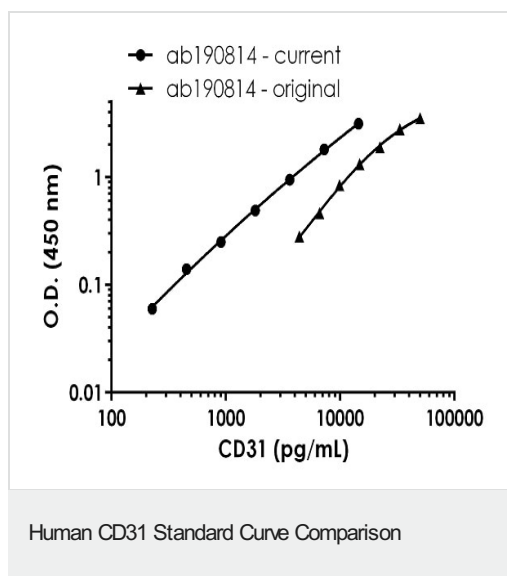
Images

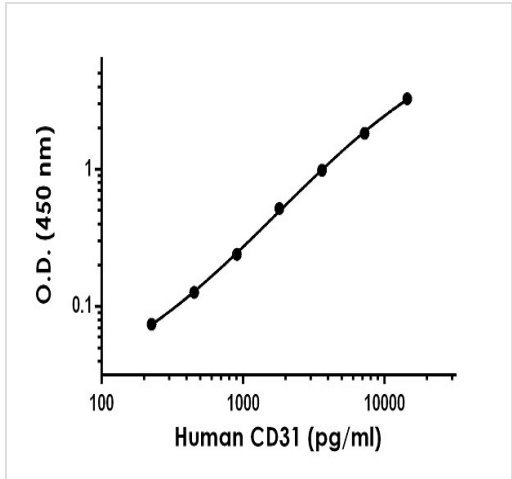


SimpleStep ELISA technology allows the formation of the antibody-antigen complex in one single step, reducing assay time to 90 minutes. Add samples or standards and antibody mix to wells all at once, incubate, wash, and add your final substrate. See protocol for a detailed step-by-step guide.



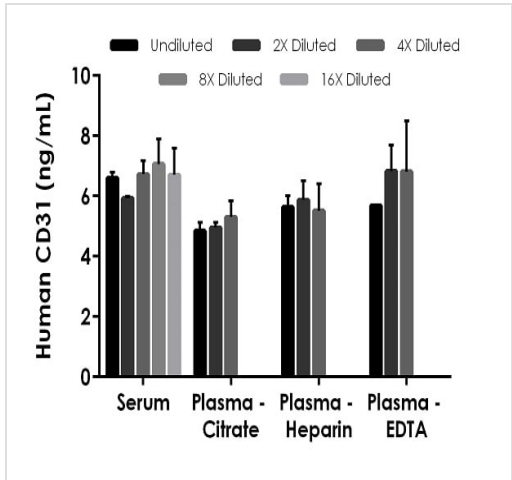
Standard Curve comparison between human CD31 SimpleStep ELISA kit and traditional ELISA kit from leading competitor. SimpleStep ELISA kit shows increased sensitivity.





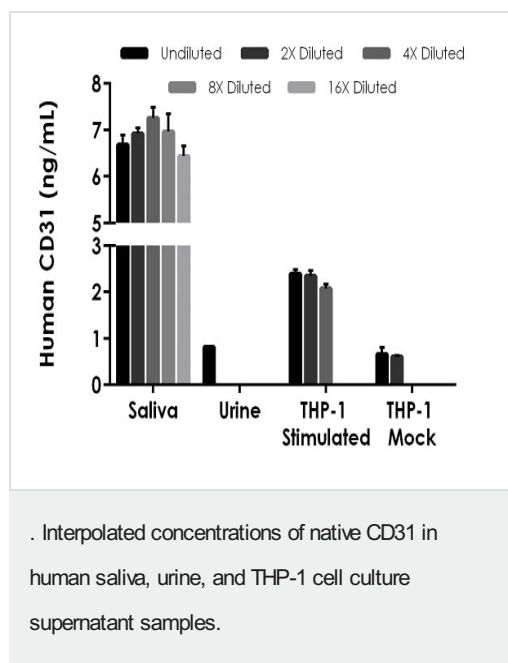
Example of human CD31 standard curve in 1X Cell Extraction Buffer PTR + Enhancer.

The CD31 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.

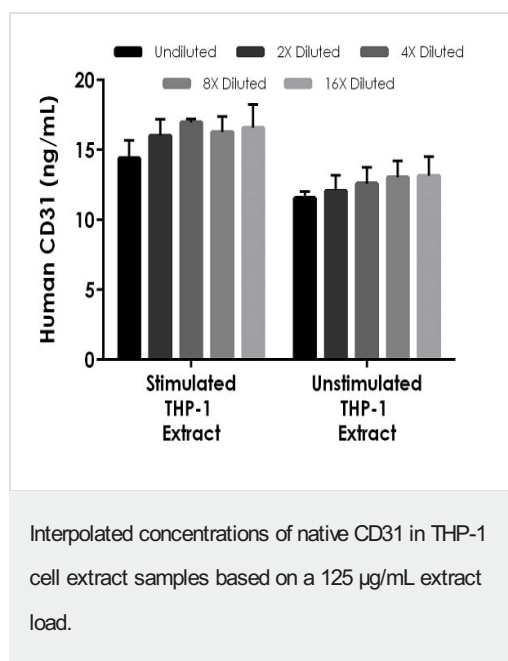


Interpolated concentrations of native CD31 in human serum and plasma samples.

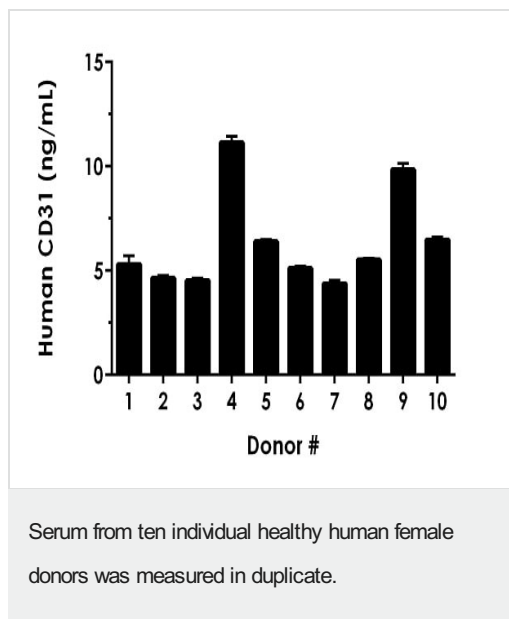
The concentrations of CD31 were measured in duplicates, interpolated from the CD31 standard curves and corrected for sample dilution. Undiluted samples are as follows: serum 36%, plasma (citrate) 9%, plasma (heparin) 9% and plasma (EDTA) 9%. The interpolated dilution factor corrected values are plotted (mean +/- SD, n=2). The mean CD31 concentration was determined to be 6.60 ng/mL in neat serum, 5.04 ng/mL in neat plasma (citrate), 5.67 ng/mL in neat plasma (heparin), and 6.44 ng/mL in neat plasma (EDTA).



THP-1 cells were cultured in the presence (stimulated) or absence (mock) of 5 µg/mL LPS and 50nM PMA for 24 hours. The concentrations of CD31 were measured in duplicates, interpolated from the CD31 standard curves and corrected for sample dilution. Undiluted samples are as follows: saliva 36%, urine 36%, THP-1 stimulated supernatant 18%, and THP-1 mock supernatant 18%. The interpolated dilution factor corrected values are plotted (mean \pm SD, n=2). The mean CD31 concentration was determined to be 6.85 ng/mL in neat saliva, 0.81 ng/mL in neat urine, 2.27 ng/mL in neat stimulated THP-1 supernatant, and 0.64 ng/mL in neat mock THP-1 supernatant.



THP-1 cells were cultured in the presence (stimulated) or absence (unstimulated) of 5 µg/mL LPS and 50nM PMA for 24 hours. The concentrations of CD31 were measured in duplicate and interpolated from the CD31 standard curve and corrected for sample dilution. The interpolated dilution factor corrected values are plotted (mean \pm SD, n=2). The mean CD31 concentration was determined to be 16.0 ng/mL in stimulated THP-1 cell extract and 12.5 ng/mL in unstimulated THP-1 cell extract.



Interpolated dilution factor corrected values are plotted (mean \pm SD, $n=2$). The mean CD31 concentration was determined to be 6.34 ng/mL with a range of 4.39 – 11.1 ng/mL

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Sandwich ELISA - Human CD31 ELISA
Kit (PECAM) (ab190814)

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

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