abcam

Product datasheet

Human SOD2 ELISA Kit ab178012

SimpleStep ELISA®

3 References 6 Images

Overview

Product name Human SOD2 ELISA Kit

Detection method Colorimetric

Precision

Intra-assay

Sample	n	Mean	SD	CV%
HepG2	5			3.8%

Inter-assay

Sample	n	Mean	SD	CV%
HepG2	3			4.2%

Sample type Cell culture extracts, Tissue Extracts

Assay type Sandwich (quantitative)

Sensitivity 0.22 ng/ml

Range 0.78 ng/ml - 50 ng/ml

Recovery

Sample specific recovery

Sample type	Average %	Range
Cell culture media	92.1	85.5% - 95.6%
Fetal Bovine Serum	79	75.7% - 82%

Assay time 1h 30m

Assay duration One step assay

Species reactivity **Reacts with:** Human

Product overview Human SOD2 (Superoxide Dismutase 2) ELISA kit (ab178012) is a single-wash 90 min sandwich ELISA designed for the quantitative measurement of SOD2 protein in human cell and tissue extracts. It uses our proprietary SimpleStep ELISA® technology. Quantitate human SOD2 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 SimpeStep ELISA® kits.

Notes

The principle cellular anti-oxidant enzymes are the superoxide dismutase family (SOD, E.C. 1.15.1.1). These enzymes dismutate superoxide into hydrogen peroxide which is further detoxified by other cellular defenses such as glutathione peroxidase and catalase. Superoxide and its products have been implicated in a wide range of diseases including cancer, inflammation, neurodegenerative diseases, diabetes and aging. The SOD family has 3 members, two of which are Cu-Zn type – the extracellular SOD3 and the cytoplasmic SOD1. The other member is the mitochondrial Mn (manganese) type SOD2. The mitochondrial Mn-SOD2 is a homotetramer of subunit mass 23 kDa in the mitochondrial matrix. SOD2 has been shown to be essential since knockout mice die shortly after birth. SOD2 levels may be downregulated in tumor cells and studies show that over expression of SOD2 in tumor cells may suppress cell division and cancer growth (Oberley, Biomedecine & Pharmacotherapy, 2005, 59, p143-8).

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

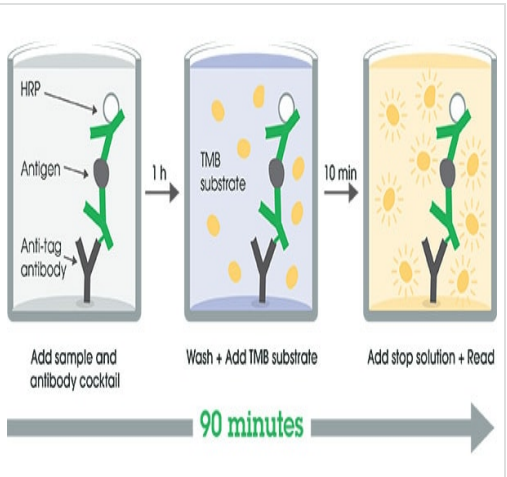
Store at +4°C. Please refer to protocols.

Components	1 x 96 tests
10X Human SOD2 Capture Antibody	1 x 600µl
10X Human SOD2 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 5B	1 x 6ml

Components	1 x 96 tests
Human SOD2 Lyophilized Recombinant Protein	2 vials
Plate Seals	1 unit
Sample Diluent NS (ab193972)	1 x 12ml
SimpleStep Pre-Coated 96-Well Microplate (ab206978)	1 unit
Stop Solution	1 x 12ml
TMB Development Solution	1 x 12ml

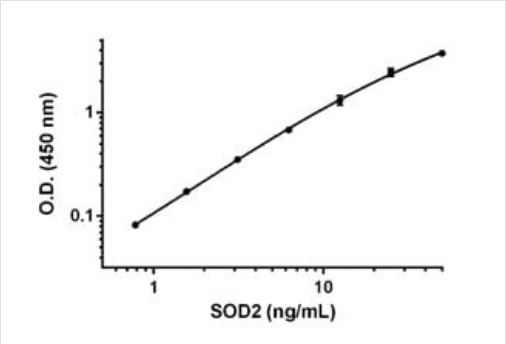
Function	Destroys superoxide anion radicals which are normally produced within the cells and which are toxic to biological systems.
Involvement in disease	Genetic variation in SOD2 is associated with susceptibility to microvascular complications of diabetes type 6 (MVCD6) [MIM:612634]. These are pathological conditions that develop in numerous tissues and organs as a consequence of diabetes mellitus. They include diabetic retinopathy, diabetic nephropathy leading to end-stage renal disease, and diabetic neuropathy. Diabetic retinopathy remains the major cause of new-onset blindness among diabetic adults. It is characterized by vascular permeability and increased tissue ischemia and angiogenesis.
Sequence similarities	Belongs to the iron/manganese superoxide dismutase family.
Post-translational modifications	Nitrated under oxidative stress. Nitration coupled with oxidation inhibits the catalytic activity.
Cellular localization	Mitochondrion matrix.

Images



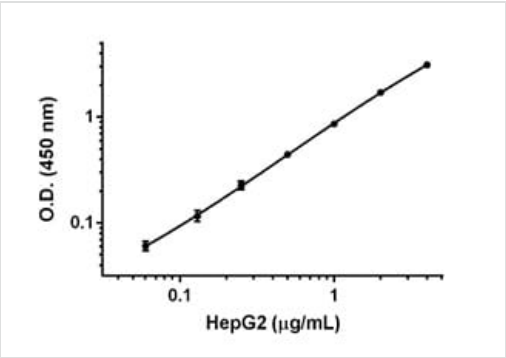
Other - Human SOD2 ELISA Kit (ab178012)

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.



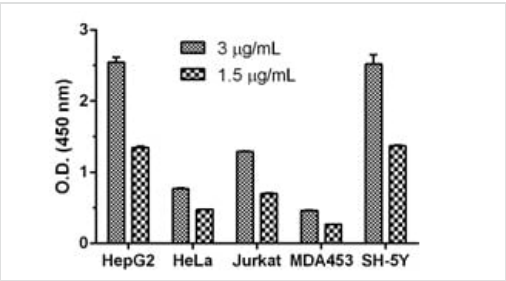
Example of SOD2 standard curve.

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



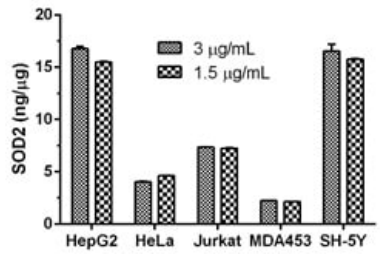
Titration of HepG2 cell lysate within the working range of the assay.

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



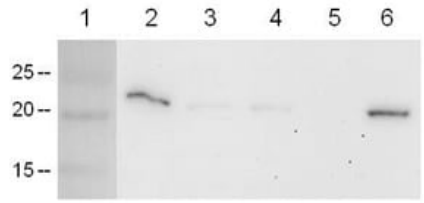
Comparison of SOD2 expression in various cell lines (HepG2, HeLa, Jurkat, MDA-MB-453 (MDA453) and SH-SY5Y (SH-5Y)) using SOD2 Human SimpleStep™ ELISA Kit.

Background-subtracted data values from triplicate measurements of two lysate concentrations (3 and 1.5 µg/mL) are graphed as mean +/- SD.



Quantification of SOD2 expression in various cell lines

Quantification of SOD2 expression in various cell lines (HepG2, HeLa, Jurkat, MDA-MB-453 (MDA453) and SH-SY5Y (SH-5Y)) using SOD2 Human SimpleStep ELISA Kit™.



Comparison of SOD2 expression in various cell lines by Western blotting.

Cell lysates (20 µg) of HepG2 (lane 2), HeLa (lane 3), Jurkat (lane 4), MDA-MB-453 (lane 5) and SH-SY5Y (lane 6) were analyzed by Western blotting using **ab13533** as primary antibody. Lane 1 shows migration of molecular weight marker.

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