abcam

Product datasheet

Human Osteoprotegerin ELISA Kit ab189580

SimpleStep ELISA

5 References   4 Images

Overview

Product name	Human Osteoprotegerin ELISA Kit
Detection method	Colorimetric
Precision	

Intra-assay

Sample	n	Mean	SD	CV%
Serum	8			6%

Inter-assay

Sample	n	Mean	SD	CV%
Serum	3			9%

Sample type	Cell culture supernatant, Serum, Hep Plasma, EDTA Plasma, Cit plasma
Assay type	Sandwich (quantitative)
Sensitivity	11 pg/ml
Range	31.25 pg/ml - 2000 pg/ml
Recovery	

Sample specific recovery

Sample type	Average %	Range
Serum	101	100% - 103%
Cell culture media	88	81% - 96%
Hep Plasma	89	84% - 92%
EDTA Plasma	98	86% - 104%
Cit plasma	88	86% - 90%

Assay time	1h 30m
Assay duration	One step assay

Species reactivity	**Reacts with:** Human
	Does not react with: Goat, Cow

Product overview

Human Osteoprotegerin ELISA Kit (ab189580) is a single-wash 90 min sandwich ELISA designed for the quantitative measurement of Osteoprotegerin protein in cell culture supernatant, cit plasma, edta plasma, hep plasma, and serum. It uses our proprietary SimpleStep ELISA® technology. Quantitate Human Osteoprotegerin with 11 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

Human Osteoprotegerin (OPG), also known as Tumor necrosis factor receptor superfamily member 11B (TNFRSF11B), is a 46kDa glycoprotein member of the tumor necrosis factor receptor superfamily. This cytokine is a homodimer expressed and secreted by multiple adult tissues such as the lung, liver, spleen, prostate, ovary, adrenal gland and bone marrow. It plays a critical function in bone homeostasis by acting as a decoy receptor for TNFSF11/RANKL and for the receptor activator of nuclear factor-kappa-B ligand. OPG therefore decreases bone resorption by inhibiting osteoclast differentiation and activation of osteoclast and by stimulating osteoclast apoptosis.

OPG deficiency has been found in Juvenile Paget disease, a rare autosomal recessive osteopathy that presents in infancy and early childhood characterized by rapidly remodeling woven bone, osteopenia, debilitating fractures and deformities due to accelerated bone remodeling. OPG may also play a role in arterial calcification and high levels of OPG have been found to be an independent risk factor for cardiovascular disease and vascular mortality.

Platform

Microplate

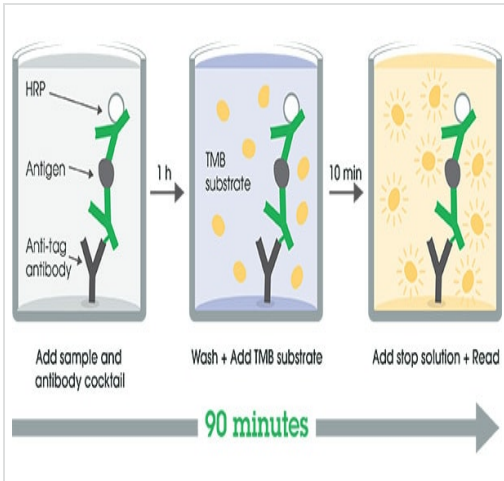## Properties

Storage instructions

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

Components	1 x 96 tests
10X Human Osteoprotegerin Capture Antibody	1 x 600µl
10X Human Osteoprotegerin Detector Antibody	1 x 600µl
10X Wash Buffer PT (ab206977)	1 x 20ml

| Components	1 x 96 tests
Antibody Diluent CPI - HAMA Blocker (ab193969)	1 x 6ml
Human Osteoprotegerin Lyophilized Recombinant Protein	2 vials
Plate Seals	1 unit
Sample Diluent 25BS	1 x 20ml
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

Acts as decoy receptor for RANKL and thereby neutralizes its function in osteoclastogenesis. Inhibits the activation of osteoclasts and promotes osteoclast apoptosis in vitro. Bone homeostasis seems to depend on the local RANKL/OPG ratio. May also play a role in preventing arterial calcification. May act as decoy receptor for TRAIL and protect against apoptosis. TRAIL binding blocks the inhibition of osteoclastogenesis.

Tissue specificity

Highly expressed in adult lung, heart, kidney, liver, spleen, thymus, prostate, ovary, small intestine, thyroid, lymph node, trachea, adrenal gland, testis, and bone marrow. Detected at very low levels in brain, placenta and skeletal muscle. Highly expressed in fetal kidney, liver and lung.

Involvement in disease

Defects in TNFRSF11B are the cause of juvenile Paget disease (JPD) [MIM:239000]; also known as hyperostosis corticalis deformans juvenilis or hereditary hyperphosphatasia or chronic congenital idiopathic hyperphosphatasia. JPD is a rare autosomal recessive osteopathy that presents in infancy or early childhood. The disorder is characterized by rapidly remodeling woven bone, osteopenia, debilitating fractures, and deformities due to a markedly accelerated rate of bone remodeling throughout the skeleton. Approximately 40 cases of JPD have been reported worldwide. Unless it is treated with drugs that block osteoclast-mediated skeletal resorption, the disease can be fatal.

Sequence similarities

Contains 2 death domains.
Contains 4 TNFR-Cys repeats.

Post-translational modifications

N-glycosylated. Contains sialic acid residues.
The N-terminus is blocked.

Cellular localization

Secreted.

Images

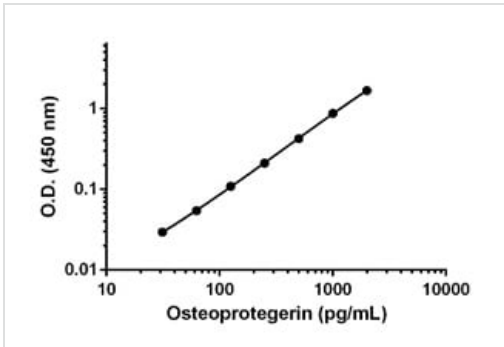Other - Human Osteoprotegerin ELISA Kit
(ab189580)

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.

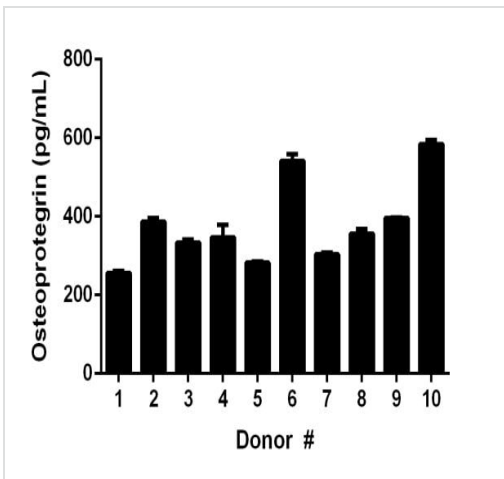Example of Osteoprotegerin standard curve in Sample Diluent 25BS.
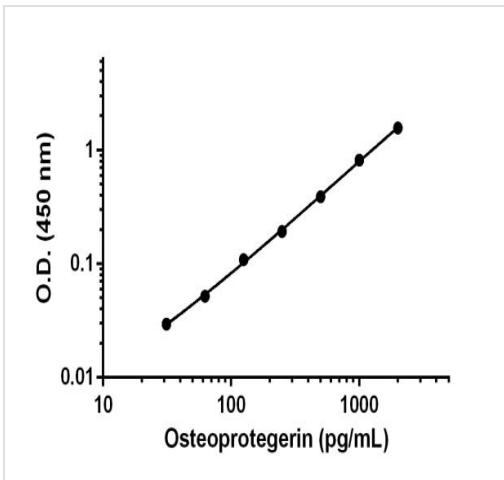
Background-subtracted data values (mean +/- SD) are graphed.

Example of Osteoprotegerin standard curve in Sample Diluent NS.

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

Ten individual healthy donors were evaluated for the presence of Osteoprotegerin in serum using this assay.

Results were interpolated from the standard curve in Sample Diluent 25BS and corrected by sample dilution (1:2). The mean level of Osteoprotegerin is 378.8 pg/mL with a range of 256.5 – 584.5 pg/mL and a standard deviation of 106.7 pg/mL.

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