abcam

Product datasheet

Human Vitamin D Binding Protein ELISA Kit ab223586

SimpleStep ELISA®

6 Images

Overview

Product name Human Vitamin D Binding Protein ELISA Kit

Detection method Colorimetric

Precision

Intra-assay

Sample	n	Mean	SD	CV%
Overall	6			3%

Inter-assay

Sample	n	Mean	SD	CV%
Overall	3			4.3%

Sample type Cell culture supernatant, Saliva, Milk, Urine, Serum, Hep Plasma, EDTA Plasma, Cit plasma

Assay type Sandwich (quantitative)

Sensitivity 2.8 pg/ml

Range 19.5 pg/ml - 1250 pg/ml

Recovery

Sample specific recovery

Sample type	Average %	Range
Saliva	99	86% - 107%
Milk	102	93% - 108%
Urine	102	99% - 108%
Serum	95	91% - 99%
Cell culture media	95	95% - 95%
Hep Plasma	92	88% - 96%

Sample type	Average %	Range
EDTA Plasma	101	94% - 105%
Cit plasma	98	94% - 102%

Assay time 1h 30m

Assay duration One step assay

Species reactivity
Reacts with: Human
Does not react with: Cow

Product overview
Vitamin D Binding Protein *in vitro* SimpleStep ELISA® (Enzyme-Linked Immunosorbent Assay) kit is designed for the quantitative measurement of Vitamin D Binding Protein in serum, plasma, saliva, urine, milk, and cell culture supernatant.

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.

Vitamin D Binding Protein, also known as gc-globulin, is a 458 - amino acid, glycosylated protein encoded by the gene GC, which is in the albumin gene family. The primary function of this protein is to bind Vitamin D and its metabolites and to transport them to tissue. Vitamin D Binding protein is highly expressed and secreted into serum primarily from hepatic cells. There are three common alleles of the protein (Gc1f, Gc1s, and Gc2), and several minor polymorphisms. Different glycosylation sites are found on the isoforms of Vitamin D binding protein, a selectively deglycosylated form produced by B cell β-galactosidase and T cell sialidase is known as Macrophage Activating Factor. MAF has been found to block angiogenic effects of several proteins on vascular endothelial cells.

Platform Pre-coated microplate (12 x 8 well strips)

Properties

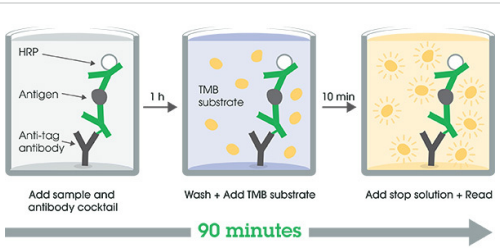
Storage instructions Store at +4°C. Please refer to protocols.

Components	1 x 96 tests
10X Wash Buffer PT (ab206977)	1 x 20ml
Antibody Diluent 5BI	1 x 6ml
10X Human Vitamin D Binding Protein Capture Antibody	1 x 600µl

Components	1 x 96 tests
10X Human Vitamin D Binding Protein Detector Antibody	1 x 600µl
Human Vitamin D Binding Protein 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

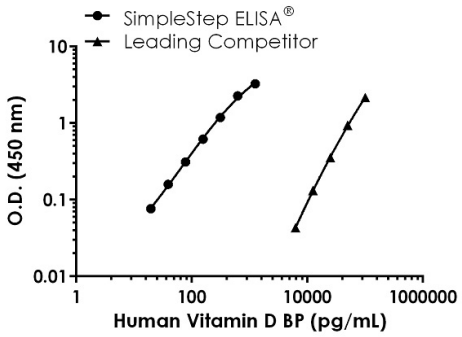
Function	Multifunctional protein found in plasma, ascitic fluid, cerebrospinal fluid, and urine and on the surface of many cell types. In plasma, it carries the vitamin D sterols and prevents polymerization of actin by binding its monomers. DBP associates with membrane-bound immunoglobulin on the surface of B-lymphocytes and with IgG Fc receptor on the membranes of T-lymphocytes.
Sequence similarities	Belongs to the ALB/AFP/VDB family. Contains 3 albumin domains.
Cellular localization	Secreted.

Images



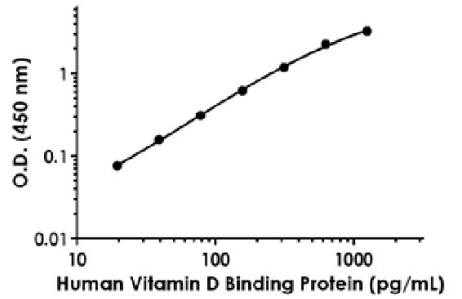
Other - Human Vitamin D Binding Protein ELISA Kit (ab223586)

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.



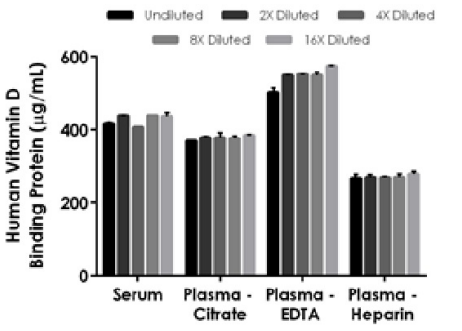
Human Vitamin D Binding Protein Competitor standard curve comparison

Standard curve comparison between Human Vitamin D Binding Protein SimpleStep ELISA® kit and traditional ELISA kit from leading competitor. SimpleStep ELISA kit shows increased sensitivity.



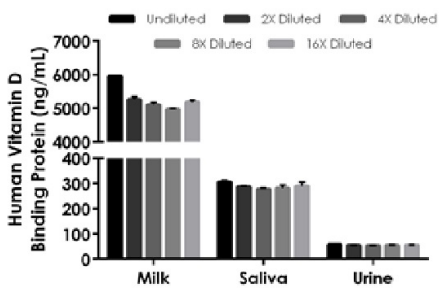
Example of human Vitamin D Binding Protein standard curve in Sample Diluent NS.

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



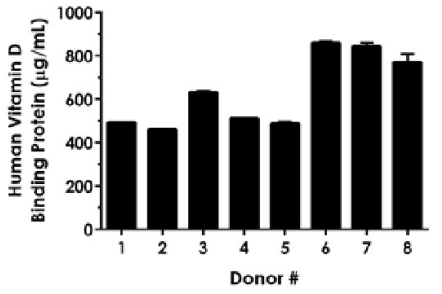
Interpolated concentrations of native Vitamin D Binding Protein in human serum and plasma samples.

The concentrations of Vitamin D Binding Protein were measured in duplicates, interpolated from the Vitamin D Binding Protein standard curves and corrected for sample dilution. All undiluted samples start at 1:500,000 in Sample Diluent NS. The interpolated dilution factor corrected values are plotted (mean +/- SD, n=2). The mean Vitamin D Binding Protein concentration was determined to be 427 µg /mL in neat serum, 380 µg /mL in neat plasma (citrate), 552 µg /mL in neat plasma (EDTA), and 271 µg/mL in neat plasma Heparin.



Interpolated concentrations of native Vitamin D Binding Protein in human milk, saliva, and urine samples.

The concentrations of Vitamin D Binding Protein were measured in duplicates, interpolated from the Vitamin D Binding Protein standard curves and corrected for sample dilution. All undiluted samples start at 1:500,000 in Sample Diluent NS. The interpolated dilution factor corrected values are plotted (mean +/- SD, n=2). The mean Vitamin D Binding Protein concentration was determined to be 5,280 ng /mL in neat milk, 288 ng/mL in neat saliva, and 56 ng /mL in neat urine.



Serum from ten individual healthy human female donors was measured in duplicate.

Interpolated dilution factor corrected values are plotted (mean +/- SD, n=2). The mean Vitamin D Binding Protein concentration was determined to be 632 µg/mL with a range of 460 – 866 µg/mL.

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