

Product datasheet

Human BDNF ELISA Kit ab212166

SimpleStep ELISA

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Overview

Product name Human BDNF ELISA Kit

Detection method Colorimetric

Precision

Intra-assay

Sample	n	Mean	SD	CV%
Serum	5			2.8%

Inter-assay

Sample	n	Mean	SD	CV%
Serum	3			5.3%

Sample type

Cell culture supernatant, Serum, Hep Plasma, EDTA Plasma, Cit plasma

Assay type

Sandwich (quantitative)

Sensitivity

2.4 pg/ml

Range

15.6 pg/ml - 1000 pg/ml

Recovery

Sample specific recovery

Sample type	Average %	Range
Cell culture supernatant	106	103% - 109%
Serum	97	94% - 104%
Hep Plasma	103	96% - 112%
EDTA Plasma	98	85% - 108%
Cit plasma	103	95% - 111%

Assay time

1h 30m

Assay duration

One step assay

Species reactivity

Product overview

Reacts with: Human

Human BDNF ELISA Kit (ab212166) is a single-wash 90 min sandwich ELISA designed for the quantitative measurement of BDNF protein in cell culture supernatant, serum, cit plasma, edta plasma, and hep plasma. It uses our proprietary SimpleStep ELISA® technology. Quantitate Human BDNF with 2.4 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.

SPECIES REACTIVITY

This kit recognizes human BDNF protein and is cross-reactive to mouse and rat BDNF protein.

ASSAY SPECIFICITY

This kit recognizes both native and recombinant human BDNF protein in serum, plasma, and cell culture supernatant samples only.

Cell and tissue extract samples have not been tested with this kit.

CROSS REACTIVITY

Recombinant TRKB was prepared at 50 ng/mL and 500 pg/mL and assayed for cross reactivity. No cross-reactivity was observed.

INTERFERENCE

Recombinant TRKB was prepared at 50 ng/mL and 1 ng/mL and tested for interference with human BDNF at 200 pg/mL. 39% Inference was observed with 1ng/mL and 76% Interference was observed with 50 ng/mL.

Notes

BDNF (Brain derived neurotrophic factor) is a member of the neurotrophin family of growth factors that includes nerve growth factor. BDNF is expressed as a proprotein that is cleaved to form mature BDNF (residues 129-247). This assay measures mature BDNF. Mature BDNF protein sequence is identical between human, mouse, rat and many additional species. BDNF binds to at least 2 receptors: TrkB and LNGFR.

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 BDNF Capture Antibody	1 x 600µl
10X Human BDNF Detector Antibody	1 x 600µl
10X Wash Buffer PT (ab206977)	1 x 20ml
Antibody Diluent CPI - HAMA Blocker (ab193969)	1 x 6ml
Human BDNF 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 During development, promotes the survival and differentiation of selected neuronal populations of the peripheral and central nervous systems. Participates in axonal growth, pathfinding and in the modulation of dendritic growth and morphology. Major regulator of synaptic transmission and plasticity at adult synapses in many regions of the CNS. The versatility of BDNF is emphasized by its contribution to a range of adaptive neuronal responses including long-term potentiation (LTP), long-term depression (LTD), certain forms of short-term synaptic plasticity, as well as homeostatic regulation of intrinsic neuronal excitability.

Tissue specificity Brain. Highly expressed in hippocampus, amygdala, cerebral cortex and cerebellum. Also expressed in heart, lung, skeletal muscle, testis, prostate and placenta.

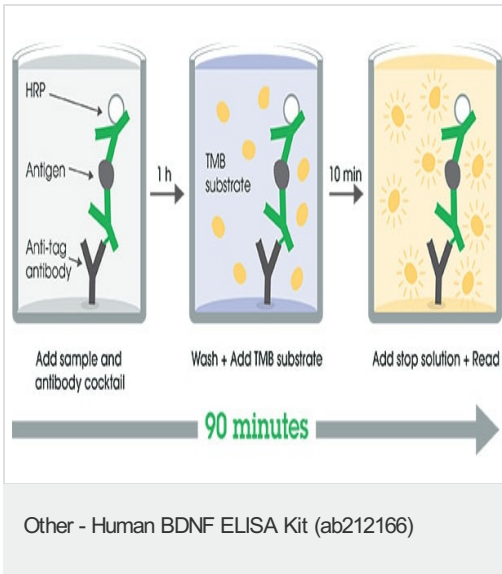
Involvement in disease Bulimia nervosa 2
Congenital central hypoventilation syndrome

Sequence similarities Belongs to the NGF-beta family.

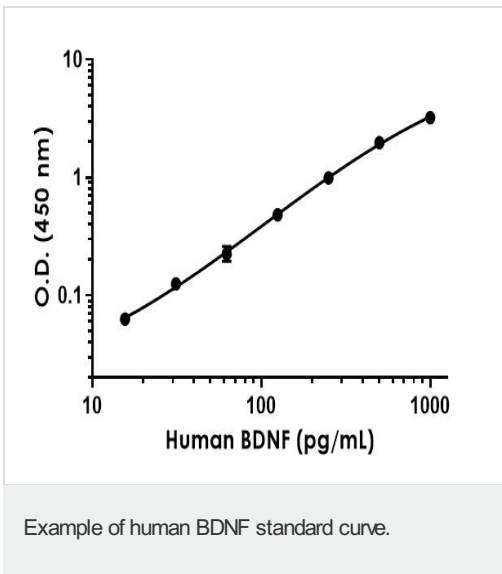
Post-translational modifications The propeptide is N-glycosylated and glycosulfated.
Converted into mature BDNF by plasmin (PLG).

Cellular localization Secreted.

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.



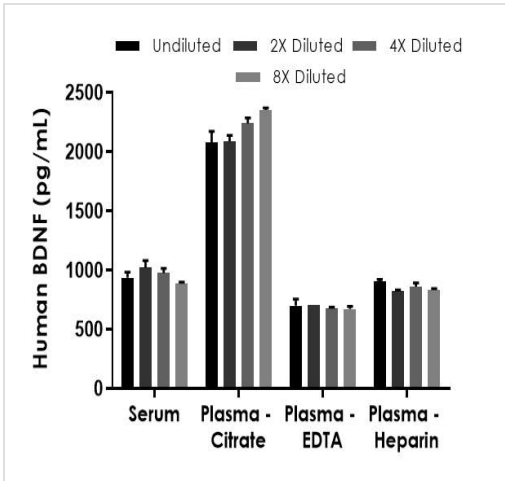
Background-subtracted data values (mean +/- SD) are graphed.

Example of human BDNF standard curve.

Standard Curve Measurements			
Concentration (pg/mL)	O.D 450 nm		Mean O.D
	1	2	
0	0.082	0.081	0.081
15.6	0.149	0.139	0.144
31.3	0.209	0.203	0.206
62.5	0.330	0.284	0.307
125	0.557	0.566	0.561
250	1.077	1.067	1.072
500	2.022	2.089	2.055
1,000	3.294	3.282	3.288

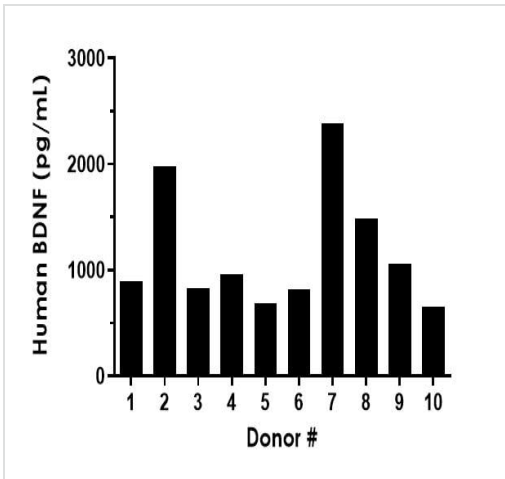
The BDNF standard curve was prepared as described. Raw data values are shown in the table. Background-subtracted data values (mean +/- SD) are graphed.

Example of human BDNF standard curve in Sample Diluent NS.



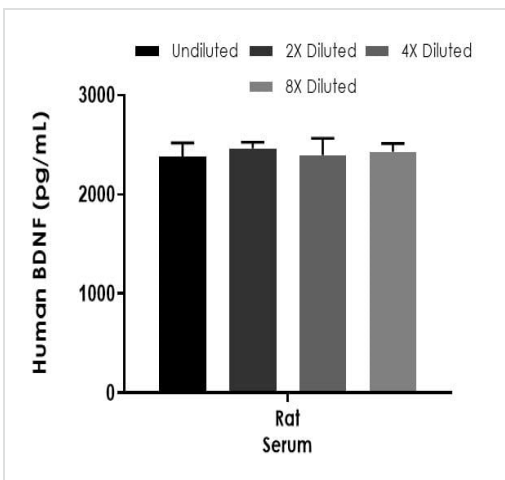
Interpolated concentrations of native BDNF in human serum, and plasma samples

The concentrations of BDNF were measured in duplicates, interpolated from the BDNF standard curves and corrected for sample dilution. Undiluted samples are as follows: serum 10%, plasma (citrate) 10%, plasma (EDTA) 10%, and plasma (heparin) 10%. The interpolated dilution factor corrected values are plotted (mean +/- SD, n=2). The mean BDNF concentration was determined to be 954 pg/mL in serum, 2,189 pg/mL in plasma (citrate), 690 pg/mL in plasma (EDTA) and 856 pg/mL in plasma (heparin).



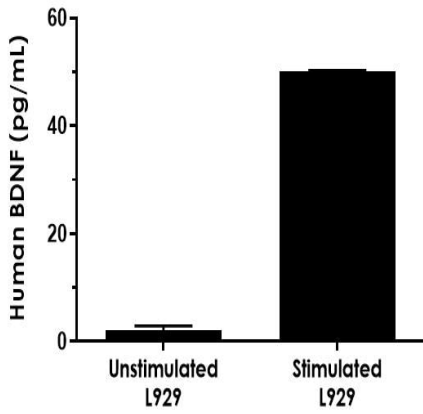
Serum from ten individual healthy human male and female donors was measured in duplicate.

Interpolated dilution factor corrected values are plotted (mean +/- SD, n=2). The mean BDNF concentration was determined to be 1,176 pg/mL with a range of 653 – 2,387 pg/mL.



Interpolated concentrations of native BDNF in rat serum sample.

The concentrations of BDNF were measured in duplicates, interpolated from the BDNF standard curves and corrected for sample dilution. Undiluted samples are as follows: serum 10%. The interpolated dilution factor corrected values are plotted (mean +/- SD, n=2). The mean BDNF concentration was determined to be 2,471 pg/mL in serum.



Comparison of secreted BDNF in unstimulated and PMA/PHA-stimulated L929 Cells.

L929 cells were grown in the absence (unstimulated) or presence of Phorbol Myristate Acetate (PMA) and phytohemagglutinin (PHA) (stimulated) for 3 days. BDNF was measured in 2-fold diluted cell culture supernatants of unstimulated and PMA/PHA stimulated L929 and cell culture media. Measured values were interpolated from the BDNF Standard Curve diluted in Sample Diluent NS and corrected for dilution factor. Mean of duplicate values +/-SD are graphed: 2.3 pg/mL unstimulated, 50 pg/mL stimulated, and undetectable in media.

Dilution Factor	Interpolated value	10% Human Serum	10% Human Plasma (Citrate)	10% Human Plasma (Heparin)	10% Human Plasma (EDTA)
Undiluted	pg/mL	93.5	207.6	90.4	70.2
	% Expected value	100	100	100	100
2	pg/mL	51.0	104.4	41.3	35.2
	% Expected value	109	101	91	100
4	pg/mL	24.4	56.0	21.5	17.1
	% Expected value	104	108	95	97
8	pg/mL	11.1	29.4	10.4	8.4
	% Expected value	95	113	92	96
16	pg/mL	ND	15.3	ND	ND
	% Expected value		118		

ND - Not Detectable

Linearity of dilution in Sample Diluent NS.

Linearity of dilution is determined based on interpolated values from the standard curve. Linearity of dilution defines a sample concentration interval in which interpolated target concentrations are directly proportional to sample dilution.

Native BDNF was measured in the following biological samples in a 2-fold dilution series. Sample dilutions are made in Sample Diluent NS.

Dilution Factor	Interpolated value	20% Rat Serum
Undiluted	pg/mL	238.3
	% Expected value	100
2	pg/mL	123.2
	% Expected value	103
4	pg/mL	59.9
	% Expected value	101
8	pg/mL	30.4
	% Expected value	102
16	pg/mL	16.8
	% Expected value	112

Linearity of dilution in Sample Diluent NS.

Linearity of dilution is determined based on interpolated values from the standard curve. Linearity of dilution defines a sample concentration interval in which interpolated target concentrations are directly proportional to sample dilution.

Native BDNF was measured in the following biological samples in a 2-fold dilution series. Sample dilutions are made in Sample Diluent NS.

Dilution Factor	Interpolated value	50% Cell Culture Media	50% L929 Stimulated Supernatant
Undiluted	pg/mL	529.2	573.4
	% Expected value	100	100
2	pg/mL	248.8	247.9
	% Expected value	94	86
4	pg/mL	128.3	128.8
	% Expected value	97	90
8	pg/mL	63.5	61.6
	% Expected value	96	86
16	pg/mL	32.9	32.2
	% Expected value	99	90

Linearity of dilution in Sample Diluent NS.

Linearity of dilution is determined based on interpolated values from the standard curve. Linearity of dilution defines a sample concentration interval in which interpolated target concentrations are directly proportional to sample dilution.

Recombinant BDNF was spiked into the following biological samples and diluted in a 2-fold dilution series in Sample Diluent NS.

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