



## proBDNF Rapid ELISA Kit: Human, Mouse, Rat (2 Plates)

**Catalogue No.:** BEK-2217-2P

**Description:** Try our new proBDNF Rapid ELISA kit (BEK-2237-2P) for increased sensitivity in human blood samples!

The Biosensis proBDNF Rapid™ enzyme-linked immunosorbent assay (ELISA) Kit is a sandwich ELISA that allows the specific, fast and reliable quantification of proBDNF in less than 4 hours in cell culture supernatants, cell lysates, serum, citrate-plasma and tissue extracts only if used as directed. Please refer to the kit protocol for specific use instructions for each substrate application, in particular human blood samples.

This ELISA kit consists of a pre-coated polyclonal anti-proBDNF capture antibody, a biotinylated anti-matureBDNF detection antibody and horseradish peroxidase (HRP)-conjugated streptavidin. The addition of a substrate (3,3',5,5'-tetramethylbenzidine, TMB) yields a colored reaction product which is directly proportional to the concentration of proBDNF present in samples and protein standards. A proBDNF positive control (QC sample) is provided to assure consistent assay performance.

This proBDNF ELISA kit employs a recombinant, cleavage-resistant human proBDNF standard produced by Biosensis and validated against externally available proBDNF proteins.

Due to a high degree of amino acid sequence homology, mouse and rat proBDNF can be quantified and expressed as human proBDNF equivalents. Internal Biosensis validation suggests that the use of the human standard provided in this kit will provide estimates that are identical, or close, to the actual levels of rat and mouse proBDNF present in rodent samples.

Note that accurate proBDNF quantification in human serum and citrate-plasma requires the addition of Heterophilic Antibody Blocker BL-004-500 provided in the kit, and available for purchase separately.

This ELISA kit has not been tested for other applications. It has been configured for research use only and is not to be used for diagnostic or clinical procedures.

**Related products:** BL-004-500, Heterophilic antibody blocker: Sample diluent additive for accurate quantification of proBDNF in human serum and citrate-plasma. BEK-2240: Mature BDNF/proBDNF Combo Rapid™ ELISA Kit

**Batch No.:** Refer to the product label.

**Antigen:** BDNF belongs to the neurotrophin family and regulates the survival and differentiation of neurons during development. The alterations in BDNF expression induced by various kinds of brain insult including stress, ischemia, seizure activity and hypoglycemia, may contribute to some pathologies such as depression, epilepsy, Alzheimer's Disease, and Parkinson's disease.

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**FUNCTION:** BDNF promotes the survival of neuronal populations that are all located either in the central nervous system or directly connected to it. BDNF is also a 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. **SUBUNIT:** Monomers and homodimers. **Binds to NTRK2/TRKB.** **SUBCELLULAR LOCATION:** Secreted protein. **Post Translation Modification (PTM):** The propeptide is N-glycosylated and glycosulfated. **PTM:** Converted into mature BDNF by plasmin (PLG). **DISEASE:** Defects in BDNF are a cause of congenital central hypoventilation syndrome (CCHS); also known as congenital failure of autonomic control or Ondine curse. CCHS is a rare disorder characterized by abnormal control of respiration in the absence of neuromuscular or lung disease, or an identifiable brain stem lesion. A deficiency in autonomic control of respiration results in inadequate or negligible ventilatory and arousal responses to hypercapnia and hypoxemia. CCHS is frequently complicated with neurocristopathies such as Hirschsprung disease that occurs in about 16% of CCHS cases. **SIMILARITY:** Belongs to the NGF-beta family.

- Other Names:** Brain-derived neurotrophic factor; BDNF; Abrineurin
- Accession:** P23560 BDNF\_HUMAN;
- Specificity:** Human proBDNF. The capture antibody used in this ELISA kit binds to epitopes within the pro-domain of proBDNF. Thus, this ELISA detects the full length and potentially truncated form of proBDNF and does not quantify mature BDNF.
- Cross-reactivity:** A cross-reactivity of 2% in weight concentration (0.9% in molar concentration) has been observed for mature BDNF assayed at 25 ng/mL (893 pmol/L) in Assay Diluent A. Due to a high degree of sequence homology, this human proBDNF ELISA kit cross-reacts with the mouse and rat form of proBDNF. Other species have not yet been tested, but cross-reactivity with a wide range of mammalian forms of proBDNF is expected. The antibodies do not cross-react with nerve growth factor (NGF), neurotrophin-3 (NT-3) or NT-4/5.
- Storage:** Store at 2-8C
- Expiry Date:** 12 months from purchase.
- Specific References:** Duarte-Castells L et al. (2019) "7,8-dihydroxyflavone blocks the development of behavioral sensitization to MDPV, but not to cocaine: differential role of the BDNF-TrkB pathway." *Biochem Pharmacol.* [Epub ahead of print]. Application: Mouse RIPA tissue homogenates.
- Osborne A, Wang AX, Tassoni A, Widdowson PS, Martin KR (2018) "Design of a Novel Gene Therapy Construct to Achieve Sustained Brain-Derived Neurotrophic Factor Signalling in Neurons." *Hum Gene Ther.* [Epub ahead of print]. Application: Human cell line supernatant.
- Rahman MS, Millischer V, Zeebari Z, Forsell Y, Lavebratt C (2017) "BDNF Val66Met and childhood adversity on response to physical exercise and internet-based cognitive behavioural

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therapy in depressed Swedish adults." *J Psychiatr Res.* 93:50-58. Application: Human serum.

Riffault B, Kourdougli N, Dumon C, Ferrand N, Buhler E, Schaller F, Chambon C, Rivera C, Gaiarsa JL, Porcher C (2016) "Pro-Brain-Derived Neurotrophic Factor (proBDNF)-Mediated p75NTR Activation Promotes Depolarizing Actions of GABA and Increases Susceptibility to Epileptic Seizures". *Cereb. Cortex* [Epub ahead of print]. Application: Rat cortex and hippocampus RIPA extracts.

Hashimoto T, Shiina A, Hasegawa T, Kimura H, Oda Y, Niitsu T, Ishikawa M, Tachibana M, Muneoka K, Matsuki S, Nakazato M, Iyo M (2016) "Effect of mirtazapine versus selective serotonin reuptake inhibitors on benzodiazepine use in patients with major depressive disorder: a pragmatic, multicenter, open-label, randomized, active-controlled, 24-week trial." *Ann Gen Psychiatry.* 15(27) Application: Human serum.

Niimi M, Hashimoto K, Kakuda W, Miyano S, Momosaki R, Ishima T, Abo M. (2016) "Role of Brain-Derived Neurotrophic Factor in Beneficial Effects of Repetitive Transcranial Magnetic Stimulation for Upper Limb Hemiparesis after Stroke." *PLoS One.* 11(3):e0152241 Application: Human serum.

Sary CM, Sun X, Giffard RG (2015) "Astrocytes Protect against Isoflurane Neurotoxicity by Buffering pro-brain-derived Neurotrophic Factor." *Anesthesiology.* 123(4):810-9 Application: Rat neuron and astrocyte cell culture supernatants.

Riffault B, Medina I, Dumon C, Thalman C, Ferrand N, Friedel P, Gaiarsa JL, Porcher C. (2014)

"Pro-Brain-Derived Neurotrophic Factor Inhibits GABAergic Neurotransmission by Activating Endocytosis and Repression of GABAA Receptors." *J. Neurosci.* 34(40):13516-34 Application: Rat hippocampal culture supernatants.

**Kit components:**

The ELISA kit box contains 2 x 96-well pre-coated strip plates, protein standards, QC sample, detection reagents, heterophilic antibody blocker, wash and sample buffers, substrate buffer and detailed protocols.

**Range:**

15.6 - 1000 pg/mL

**Sensitivity:**

Typical limit of detection (LOD) for proBDNF is 10 pg/mL determined as 150% of the blank value.

**Kit protocol:**

Please refer to our online product listing for current protocol/MSDS versions.

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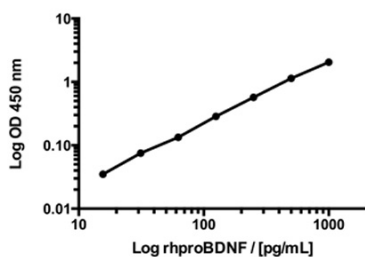
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**MSDS:**

Please refer to our online product listing for current protocol/MSDS versions.



This standard curve generated in our laboratories is for demonstration purposes only, but can be used as a guide to expected performance. A standard curve should be generated for each assay.

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