

Mature BDNF/proBDNF Combo Rapid ELISA Kit (BEK-2211/2217): Human, Mouse, Rat

Catalogue No.: BEK-2240

Description: The Biosensis Mature BDNF/proBDNF Combo Rapid™ enzyme-linked immunosorbent assay (ELISA) Kit combines individual, but complementary ELISA kits for the two most important BDNF isoforms: Mature BDNF (BEK-2211) and full-length proBDNF (BEK-2217).

Both kits are sandwich ELISAs, useful for the quantification of mature BDNF and proBDNF in less than 4 hours in cell culture supernatants, serum, plasma (citrate), cell lysates and brain extracts only if used as directed, with a simplified protocol and no loss of sensitivity or specificity. Please refer to the most current kit protocols for BEK-2211 (Mature BDNF Rapid™ ELISA) and BEK-2217 (proBDNF Rapid™ ELISA), for specific use instructions for each substrate application, in particular blood samples. For human blood samples, we suggest the use of BEK-2241 Mature BDNF/proBDNF Combo kit.

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

Both ELISA kits contain high quality protein calibrators. The Mature BDNF ELISA kit employs a recombinant E.coli-derived human mature BDNF standard approved by the World Health Organization (WHO, www.nibsc.org). The amino acid sequence of mature BDNF is identical for human, mouse, rat and a number of other species. This kit therefore is suitable to measure mature BDNF in all these species and uses the same antibodies and antigen. The proBDNF ELISA kit employs a recombinant mammalian, 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

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use only and is not to be used for diagnostic or clinical procedures.

Related products: BEK-2211-1P: Mature BDNF Rapid™ ELISA Kit BEK-2211-2P: Mature BDNF Rapid™ ELISA Kit BEK-2217-1P: proBDNF Rapid™ ELISA Kit BEK-2217-2P: proBDNF Rapid™ ELISA Kit BL-004-500, Heterophilic antibody blocker: Sample diluent additive for accurate quantification of proBDNF in human serum and plasma.

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. **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: Mature BDNF ELISA:
Human, mouse, rat BDNF and numerous other species. Although the BDNF assay antibodies are raised against the mature domain, the mature BDNF ELISA preferentially detects mature BDNF over full-length proBDNF.

proBDNF ELISA:
Human, mouse and rat proBDNF. The capture antibody used in the proBDNF 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.

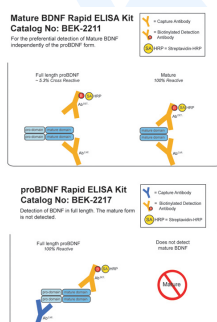
Cross-reactivity: Cross-reactivity of BDNF isoforms: Mature BDNF ELISA: No cross-reactivity is observed for nerve growth factor (NGF), neurotrophin-3 (NT-3), NT-4/5, glial cell line-derived neurotrophic

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factor (GDNF) and vascular endothelial growth factor (VEGF165) tested at 25 ng/mL in assay buffer. The reactivity of full-length proBDNF (0.125 ng/mL - 5 ng/mL) was determined in six independent assays using proBDNF proteins from four different sources (mammalian and bacterial, wild-type and mutated). The average cross-reactivity of proBDNF was found to be 5.3% +/- 0.5% in weight (w/v) concentration, or 12.1% +/- 1.2% in molar concentration (mean +/- SEM). proBDNF ELISA: 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:** Please refer to BEK-2211 (Mature BDNF Rapid™ ELISA Kit) and BEK-2217 (proBDNF Rapid™ ELISA Kit).
- Kit components:** The ELISA kit box contains 2 x 96-well pre-coated strip plates (1 x BDNF antibody, 1 x proBDNF antibody), protein standards, QC sample, detection reagents, heterophilic antibody blocker, wash and sample buffers, substrate buffer and detailed protocols.
- Range:** Mature BDNF: 7.8 - 500 pg/mL proBDNF: 15.6 - 1000 pg/mL
- Sensitivity:** Typical limit of detection (LOD) for mature BDNF is less than 2 pg/mL, and 10 pg/mL for proBDNF determined as 150% of the blank value.
- Kit protocol:** Please refer to our online product listing for current protocol/MSDS versions.
- MSDS:** Please refer to our online product listing for current protocol/MSDS versions.



Graphical representation of mature BDNF (BEK-2211) and proBDNF (BEK-2217) assay setups and BDNF isoform cross-reactivities. BEK-2240 combines both assays in 1 kit.

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