

#3897 Store at -20°C

Human Brain-Derived Neurotrophic Factor (BDNF)

✓ 10 µg



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rev. 02/07/17

For Research Use Only. Not For Use In Diagnostic Procedures.

Molecular Wt.	Source	Purity
26 kDa	Human Recombinant Protein expressed in <i>E. coli</i>	>96%

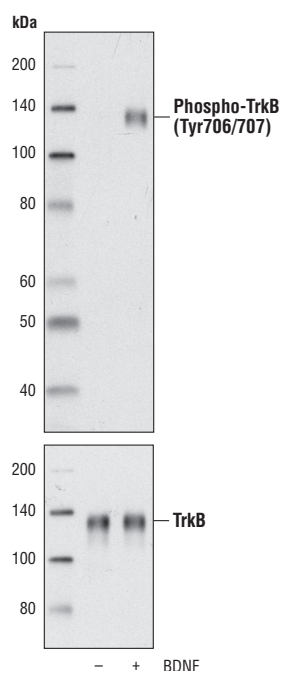
Background: Neurotrophins are comprised of at least four family members including NGF, BDNF, NT-3 and NT-4 and all are known to influence growth, development, differentiation and survival of neurons (1). Proneurotrophins bind to p75NTR but not to the family of Trk receptor tyrosine kinases (Trk) and following maturation, BDNF binds and activates TrkB. Trk receptors in turn activate three major signaling pathways: (a) Ras-MAPK signaling, which promotes neuronal differentiation and neurite outgrowth, (b) PI3 Kinase-Akt signaling, which promotes survival and growth of neurons, and (c) PLC-γ1-PKC signaling, which promotes synaptic plasticity (2). BDNF is a major regulator of transmission and plasticity at adult synapses. Moreover, the precursor proBDNF and the mature protein mBDNF drive opposite effects on long-term potentiation and long-term depression (3). BDNF has also been implicated in body weight regulation and activity: heterozygous BDNF knockout mice are hyperphagic, obese, and hyperactive (4).

Source/Purification: Recombinant human BDNF was expressed in *E. coli* and is supplied in a lyophilized form. A greater than 96% purity was determined by reverse phase-HPLC and SDS-PAGE.

Directions for Use: Working concentration of BDNF generally ranges from 50-100 ng/ml.

Background References:

- (1) Minichiello, L. and Klein, R. (1996) *Genes Dev* 10, 2849-58.
- (2) Reichardt, L.F. (2006) *Philos Trans R Soc Lond B Biol Sci* 361, 1545-64.
- (3) Martinowich, K. et al. (2007) *Nat Neurosci* 10, 1089-93.
- (4) Kernie, S.G. et al. (2000) *EMBO J* 19, 1290-300.



Western blot analysis of extracts from NIH/3T3 cells transfected with TrkB and treated with 50 ng/ml Brain-Derived Neurotrophic Factor (BDNF) for 5 minutes using Phospho-TrkA (Tyr674/675)/TrkB (Tyr706/707) (C50F3) Rabbit mAb #4621 (upper) and total TrkB (80G2) Rabbit mAb (lower).

Entrez-Gene ID #627
Swiss-Prot Acc. #P23560

Storage: Recombinant human BDNF is supplied as lyophilized material that is very stable at -20°C. It is recommended to reconstitute with sterile water at a concentration of 0.1 mg/ml which can be further diluted in aqueous solutions as needed. Addition of a carrier protein (0.1% HSA or BSA) is recommended for long term storage.

Companion Products:

- Human Neurotrophin-3 (NT-3) #3898
- Human Neurotrophin-4 (NT-4) #3887
- NGF Antibody #2046
- Phospho-TrkA (Tyr490)/TrkB (Tyr516) (C35G9) Rabbit mAb #4619
- Phospho-TrkA (Tyr674/675)/TrkB (Tyr706/707) (C50F3) Rabbit mAb #4621
- TrkB (80E3) Rabbit mAb #4603
- TrkB (80G2) Rabbit mAb #4607
- Phototope®-HRP Western Blot Detection System, Anti-rabbit IgG, HRP-linked Antibody #7071
- Anti-rabbit IgG, HRP-linked Antibody #7074
- Prestained Protein Marker, Broad Range (Premixed Format) #7720
- Biotinylated Protein Ladder Detection Pack #7727
- 20X LumiGLO® Reagent and 20X Peroxide #7003

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Applications Key: W—Western IP—Immunoprecipitation IHC—Immunohistochemistry ChIP—Chromatin Immunoprecipitation IF—Immunofluorescence F—Flow cytometry E-P—ELISA-Peptide
Species Cross-Reactivity Key: H—human M—mouse R—rat Hm—hamster Mk—monkey Mi—mink C—chicken Dm—D. melanogaster X—Xenopus Z—zebra fish B—bovine
 Dg—dog Pg—pig Sc—S. cerevisiae All—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.