Store at –20°C

#3897

Human Brain-Derived Neurotrophic Factor (BDNF)

☑ 10 µg

Cell Signaling TECHNOLOGY®

Orders ■ 877-616-CELL (2355)
orders@cellsignal.com
Support ■ 877-678-TECH (8324)
info@cellsignal.com
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New 09/08

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

Molecular Wt.	Source	Purity
26 kDa	Human Recombinant Protein expressed in E. coli	>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). Proneurotrophis 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.

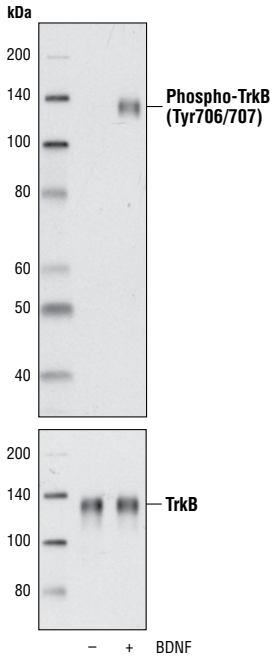
Background References:

(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).

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

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.

#3897 MSDS

Material Safety Data Sheet (MSDS) for BDNF

Cell Signaling TECHNOLOGY®

I. Identification:

Product name: BDNF
Product Catalog: 3897
Manufacturer Supplier: Cell Signaling Technology
3 Trask Lane
Danvers, MA 01923 USA
978-867-2300 TEL
978-867-2400 FAX
978-578-6737 EMERGENCY TEL

II. Composition/Information:

Substance Name: Brain derived neurotrophic factor, human recombinant
CAS#: None

III. Hazard Identification:

CAUTION: This product is not for use in humans. To the best of our knowledge, the chemical, physical, and toxicological properties of this material have not been established.

NFPA Rating: Health: 3 Flammability: 0 Reactivity: 0

IV. First Aid Measures:

Inhalation: If inhaled, remove to fresh air. If breathing is difficult, get medical attention.
Ingestion: If swallowed, wash out mouth with water provided person is conscious. Get medical attention.
Skin exposure: In case of contact, immediately wash skin with soap and water for at least 15 minutes. Remove contaminated clothing. Wash clothing before reuse.
Eye exposure: In case of contact with eyes, immediately flush eyes with water for at least 15 minutes. Get medical attention.

V. Fire Fighting Measures:

Flash Point: Data not available.
Autoignition Temperature: Data not available.
Explosion: Data not available.
Fire extinguishing media: Water spray, dry chemical, alcohol foam, or carbon dioxide.
Firefighting: Wear protective clothing and self-contained breathing apparatus to prevent contact with skin and eyes. May emit toxic fumes under fire conditions.

VI. Accidental Release Measures:

Wear appropriate personal protective equipment. Sweep up material and avoid raising dust. Transfer to a closed chemical waste container for disposal. Wash spill site after material has been picked up for disposal.

VII. Handling And Storage:

Storage: Store in tightly closed container at -20°C.
Avoid inhalation. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling.

VIII. Exposure Controls/Personal:

Ventilation System: A system of local and/or general exhaust is required.
Skin Protection: Wear compatible chemical resistant gloves and protective clothing.
Eye protection: wear protective safety glasses or chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.

IX. Physical And Chemical Properties

Appearance:	powder
pH:	data not available
Melting Point:	data not available
Boiling Point:	data not available
Freezing Point:	data not available
Volatile Organic Compounds:	data not available
Solubility:	data not available

X. Stability and Reactivity:

Stability: Stable under normal conditions. Avoid strong oxidizing agents.
Hazardous Decomposition: Data not available.

XI. Toxicological Information:

Acute Effects: Not established. May cause irritation inhaled, ingested or absorbed.
Chronic Effects: Not established. May be harmful if inhaled, ingested or absorbed.

Potential Health Effects: Not established.
Inhalation: May be harmful, may be irritating to mucous membranes and upper respiratory tract.
Skin: May be harmful if absorbed through skin. May cause skin irritation.
Eyes: May be harmful if absorbed through the eyes. May cause eye irritation.
Ingestion: May be harmful if swallowed.

To the best of our knowledge, the chemical, physical, and toxicological properties of this material have not been established.

XII. Ecological Information:

Data not available.

XIII. Disposal Considerations:

Dispose of in accordance with federal, state, local environmental regulations.

XIV. Transport Information:

DOT: Proper Shipping Name: This substance is considered non-hazardous for transport.

IATA: Proper Shipping Name: This substance is considered non-hazardous for air transport.

XV. Regulatory Information:

EU Regulations/Classifications/Labeling Information: None.
US Regulatory Information: None.
SARA Listed: None.
Canada (WHMIS): DSL No, NDSL No.

XVI. Other Information:

This compound is sold only for research use only. It is not for use in humans. To the best of our knowledge, this document is accurate. It is intended to serve as a guide for safe use of this product in a laboratory setting by experienced personnel. The burden of safe use of this material rests entirely with the user. Cell Signaling Technology, Inc., shall not be held liable for any damage resulting from the handling of or from contact with the above product.