

DESCRIPTION

Source *Spodoptera frugiperda*, Sf 21 (baculovirus)-derived BDNF protein
His129-Arg247
Accession # P23560
100% sequence homology with Mouse, Rat, Canine, Equine and all other mammalian proteins examined.

N-terminal Sequence Analysis His129

Predicted Molecular Mass 13.5 kDa

SPECIFICATIONS

SDS-PAGE 13-14 kDa, under reducing conditions.

Activity Measured in a cell proliferation assay using BaF mouse pro-B cells transfected with TrkB.
The ED₅₀ for this effect is 0.2-2 ng/mL.

Measured by its binding ability in a functional ELISA.
When Recombinant Human TrkB Fc Chimera (Catalog # 688-TK) is coated at 1 µg/mL, Recombinant Human BDNF binds with an apparent K_d <1 nM.

Endotoxin Level <0.10 EU per 1 µg of the protein by the LAL method.

Purity >97%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.

Formulation Lyophilized from a 0.2 µm filtered solution in Sodium Citrate and NaCl with BSA as a carrier protein. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution Reconstitute 5 µg vials at 100 µg/mL in water. Reconstitute 10 µg or larger vials at 250 µg/mL in water.

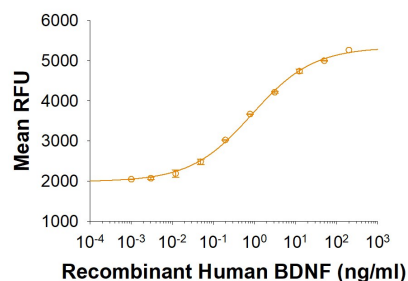
Shipping The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.

Stability & Storage **Use a manual defrost freezer and avoid repeated freeze-thaw cycles.**

- 12 months from date of receipt, -20 to -70 °C as supplied.
- 1 month, 2 to 8 °C under sterile conditions after reconstitution.
- 3 months, -20 to -70 °C under sterile conditions after reconstitution.

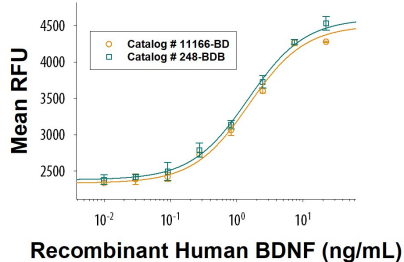
DATA

Bioactivity



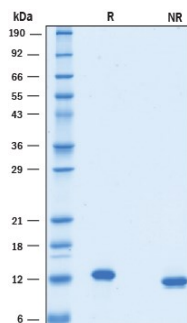
Recombinant Human BDNF Protein Bioactivity Recombinant Human BDNF (Catalog # 248-BDB) stimulates cell proliferation in the BaF mouse pro-B cell line transfected with TrkB. The ED₅₀ for this effect is 0.2-2 ng/mL.

Bioactivity



Recombinant Human BDNF Protein Bioactivity Comparison. As an alternative, please consider our next generation CHO-derived Recombinant Human BDNF (Catalog # 11166-BD). It has equivalent bioactivity to Sf 21 (baculovirus)-derived Recombinant Human BDNF (Catalog # 248-BDB). It combines R&D Systems quality with scalability that allows for a solid supply chain. Both Recombinant Human BDNF proteins are measured in a cell proliferation assay using BaF mouse pro-B cells transfected with TrkB.

SDS-PAGE



Recombinant Human BDNF Protein SDS-PAGE 2 µg/lane of Recombinant Human BDNF was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 13-14 kDa and 11-12 kDa, respectively.

BACKGROUND

Brain-derived neurotrophic factor (BDNF) is a member of the NGF family of neurotrophic factors (also named neurotrophins) that are required for the differentiation and survival of specific neuronal subpopulations in both the central as well as the peripheral nervous system. The neurotrophin family is comprised of at least four proteins including NGF, BDNF, NT-3, and NT-4/5. These secreted cytokines are synthesized as prepropeptides that are proteolytically processed to generate the mature proteins (1, 2). All neurotrophins have six conserved cysteine residues that are involved in the formation of three disulfide bonds and all share approximately 55% sequence identity at the amino acid level. Similarly to NGF, bioactive BDNF is predicted to be a non-covalently linked homodimer. BDNF cDNA encodes a 247 amino acid residue precursor protein with a signal peptide and a proprotein that are cleaved to yield the 119 amino acid residue mature BDNF. The amino acid sequence of mature BDNF is identical in all mammals examined. High levels of expression of BDNF have been detected in the hippocampus, cerebellum, fetal eye and placenta. In addition, low levels of BDNF expression are also found in the pituitary gland, spinal cord, heart, lung and skeletal muscle. BDNF binds with high affinity and specifically activates the TrkB tyrosine kinase receptor (3). The BDNF signaling pathway utilizes both AKT and ERK pathways to exert its pleiotrophic effects in the central nervous system. BDNF is widely used in cell culture to support neuronal cell differentiation and survival. It also promotes differentiation of pluripotent stem cells into neural progenitor cells.

References:

1. Eide, F.F. *et al.* (1993) Exp. Neurol. **121**:200.
2. Snider, W.D. (1994) Cell **77**:627.
3. Barbacid, M. (1994) J. Neurobiol. **25**:1386.