Recombinant Human BDNF

Catalog Number: 11166-BD

DESCRIPTION

Source	Chinese Hamster Ovary cell line, CHO-derived human BDNF protein His129-Arg247 Accession # P23560.1
N-terminal Sequence Analysis	His129
Predicted Molecular Mass	13.5 kDa

SPECIFICATIONS

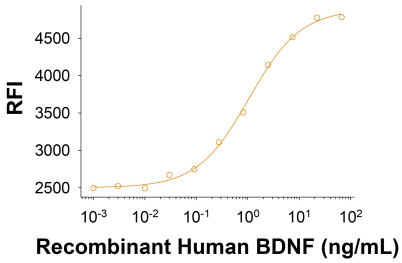
SDS-PAGE	11-15 kDa, under reducing conditions.
Activity	Measured in a cell proliferation assay using BaF mouse pro-B cells transfected with TrkB. The ED_{50} for this effect is 0.200-2.00 ng/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 100-500 µg/mL in PBS.
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.

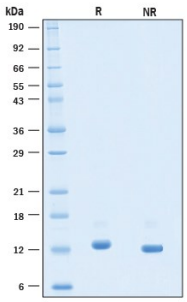
DATA

Bioactivity



Recombinant Human BDNF Protein Bioactivity. Measured in a cell proliferation assay using BaF mouse pro-B cells transfected with TrkB. The ED_{50} for this effect is 0.200-2.00 ng/mL.

SDS-PAGE



Recombinant Human BDNF Protein SDS-PAGE. 2 µg/lane of Recombinant Human BDNF Protein (Catalog # 11166-BD) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 11-15 kDa.

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BACKGROUND

Brain-derived neurotrophic factor (BDNF) is a member of the neurotrophin family of growth factors 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 BDNF, nerve growth factor (NGF), neurotrophin-3 (NT3), and NT4/5. Human BDNF is initially expressed as a proprotein, which is then cleaved to yield a mature protein. Mature BDNF is a non-covalently linked homodimer, with each monomer containing antiparallel β-strands and a characteristic cystine knot motif. Within the mature domain, human BDNF shares the identical amino acid sequence with mature mouse and rat BDNF. BDNF is strongly expressed in various regions of the brain, including the hippocampus and cerebellum, and weaker expression has been detected in the thymus, liver, spleen, heart, and lung. BDNF participates in axonal growth and pathfinding and in the modulation of dendritic growth and morphology and in later stages of development regulates synaptic transmission and plasticity and acts as a central modulator of pain. BDNF binds with high affinity and specifically activates the TrkB tyrosine kinase receptor. BDNF signaling via TrkB is essential for adult synaptic plasticity and the formation of memories. The BDNF signaling pathway utilizes both AKT and ERK pathways to exert its pleiotrophic effects in the central nervous system. Decreased expression of BDNF is seen in many neurological diseases such as Alzheimer's disease, Parkinson's disease, Huntington's disease, and autism. Further, BDNF is proposed as a biomarker for psychiatric disorders such as bipolar disease and depression and has been implicated in posttraumatic stress disorder, phobia, and panic disorder. A single amino acid substitution, Val66Met, has been shown to lead to reduced, activity-dependent BDNF secretion and memory impairment.

References:

1. Numakawa, T. *et al.* (2010) Histol. Histopathol. **25**:237.
2. Egan, M.F. *et al.* (2003) Cell **112**:257.
3. Pruunsild, P. *et al.* (2007) Genomics **90**:397.
4. Bathina, S. and Das, U.N. (2015) AMS **11**:1164.
5. Binder, D.K. and Scharfman, H.E.(2004) Growth Factors **22**:123.
6. Cattaneo, A. *et al.* (2016) Transl. Psychiatry **6**:e958.
7. Andero, R. *et al.* (2011) Am J. Psychiatry **168**:163.

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