

Cytokines

Human Recombinant BDNF



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Brain-derived neurotrophic factor

Catalog #	78005	10 µg
	78005.1	100 µg
	78005.3	500 µg
	78005.2	1000 µg

Product Description

Brain-derived neurotrophic factor (BDNF), like nerve growth factor (NGF), neurotrophin-3 (NT-3), and neurotrophin-4 (NT-4), is a member of the NGF family of neurotrophins, which are required for the differentiation and survival of specific neuronal subpopulations in both the central and the peripheral nervous systems (Minichiello & Klein; Minichiello et al.). BDNF binds with high affinity to the TRKB kinase receptor, and activates AKT and ERK pathways (Mattson et al.). It is expressed in hippocampus, cortex, and synapses of the basal forebrain. BDNF acts as a survival factor for human embryonic stem cells when plated on either feeder cells or Corning® Matrigel® (Pyle et al.). BDNF regulates synaptic transmission and plasticity at adult synapses in the central nervous system, contributes to adaptive neuronal responses including long-term potentiation, long-term depression, certain forms of short-term synaptic plasticity, as well as homeostatic regulation of neuronal excitability (Reichardt). It also has a role in neurogenesis by promoting survival and growth of dorsal root ganglion cells, and hippocampal and cortical neurons (Binder & Scharfman). BDNF, together with Human Recombinant GDNF (glial cell line-derived neurotrophic factor; Catalog #78058), BrainPhys™ Neuronal Medium (Catalog #05790), and other supplements, can be used to differentiate human pluripotent stem cell (hPSC)-derived neural progenitor cells into neurons (Bardy et al.).

Product Information

Alternative Names:	Abrineurin, ANON2, BULN2, Neurotrophin, MGC34632
Accession Number:	P23560
Amino Acid Sequence:	MHSDPARRGE LSVCDISEW VTAADKKTAV DMSGGTVTVL EKVPVSKGQL KQYFYETKCN PMGYTKEGCR GIDKRHWNSQ CRTTQSYVRA LTMDSKKRIG WRFIRIDTSC VCTLTIKRGR
Predicted Molecular Mass:	13.6 kDa monomer; 27.3 kDa dimer
Species:	Human
Cross Reactivity:	Mouse, Rat
Formulation:	Lyophilized from a sterile-filtered solution containing 0.1% trifluoroacetic acid.
Source:	E. coli

Specifications

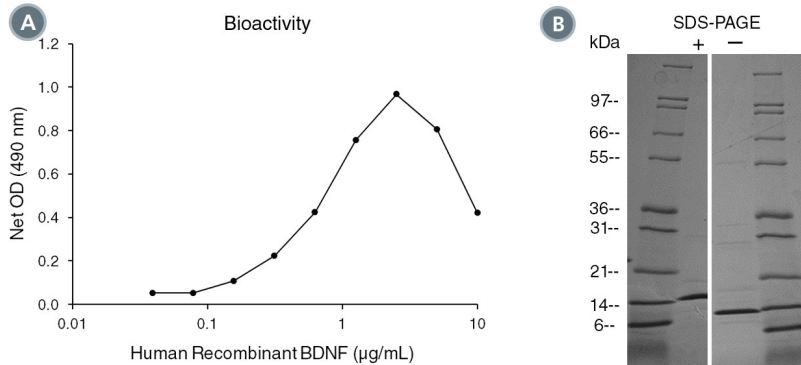
Activity:	The specific activity is $\geq 5 \times 10^2$ units/mg ($EC_{50} \leq 2 \mu\text{g/mL}$) as determined by a cell proliferation assay using C6 cells.
Purity:	$\geq 95\%$
Endotoxin Level:	Measured by kinetic Limulus amoebocyte lysate (LAL) analysis and is ≤ 1 EU/ μg protein.

Preparation and Storage

Storage:	Store at -20°C to -80°C.
Stability:	Stable as supplied for 12 months from date of receipt.
Preparation:	Centrifuge vial before opening. Reconstitute the product in sterile water to at least 0.1 mg/mL by pipetting the solution down the sides of the vial. Do not vortex.

OPTIONAL: After reconstitution, if product will not be used immediately, dilute with concentrated bovine serum albumin (BSA) to a final BSA concentration of 0.1%. The effect of storage of stock solution on product performance should be tested for each application. As a general guide, do not store at 2 - 8°C for more than 1 month or at -20°C to -80°C for more than 3 months. Avoid repeated freeze-thaw cycles.

Data



(A) The biological activity of Human Recombinant BDNF was tested by its ability to promote the proliferation of C6 cells. Cell proliferation was measured after 7 days of culture using a fluorometric assay method. The EC50 is defined as the effective concentration of the growth factor at which cell proliferation is at 50% of maximum. The EC50 in the above example is 0.65 µg/mL.

(B) 1 µg of Human Recombinant BDNF was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining. Human Recombinant BDNF is a homodimer of 13.6 kDa subunits with a predicted total molecular mass of 27.3 kDa.

Related Products

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References

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