

# 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 tropomyosin receptor kinase B (TrkB), and activates AKT and ERK pathways (Mattson et al.). It is expressed in the 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, and contributes to adaptive neuronal responses including long-term potentiation, long-term depression, certain forms of short-term synaptic plasticity, and 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 glial cell line-derived neurotrophic factor (GDNF) and other supplements, is commonly used to differentiate human pluripotent stem cell (hPSC)-derived neural progenitor cells into neurons (Brafman).

## Product Information

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

## Specifications

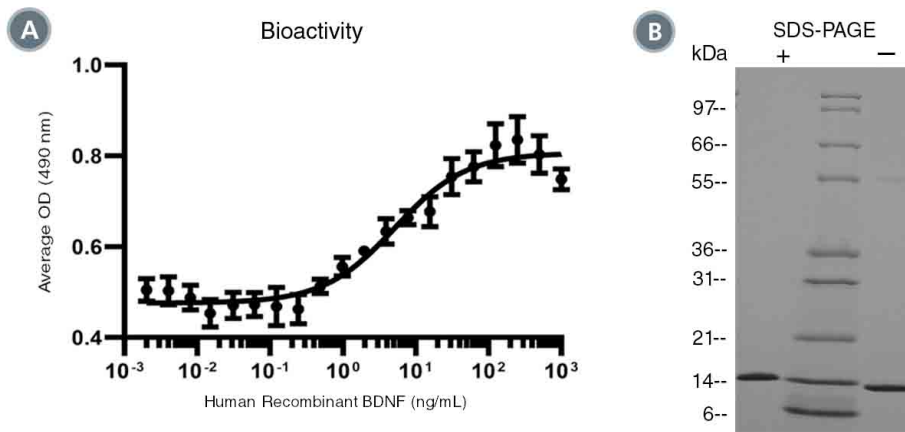
Activity:	<b>Lot #1000038506 or higher:</b> The specific activity is $\geq 2.5 \times 10^4$ units/mg ( $EC_{50} \leq 40$ ng/mL) as determined by a cell proliferation assay using a neuroblastoma cell line stably expressing TrkB (BR6). <b>All other lots:</b> The specific activity is $\geq 5.0 \times 10^2$ units/mg ( $EC_{50} \leq 2$ µg/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 $\leq 1$ 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 a neuroblastoma cell line stably expressing TrkB (BR6). Cell proliferation was measured using a colorimetric 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 5 ng/mL. For a representative bioactivity plot of C6 cell proliferation, contact us at [techsupport@stemcell.com](mailto:techsupport@stemcell.com).

(B) 1  $\mu$ g 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 molecular mass of 27.3 kDa.

## Related Products

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## References

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