

Product Contents

Brain Derived Neurotrophic Factor, Human, Recombinant (rhBDNF):

Part No.	Size
G149A	5µg

Description: Human Recombinant Brain-Derived Neurotrophic Factor (rhBDNF) is a 27kDa homodimer originally shown to promote the outgrowth of spinal sensory neurons (1). rhBDNF is produced from recombinant DNA expressed in bacteria.

Rehydration: The dried rhBDNF is soluble in water and most aqueous buffers. Reconstitute in water to a final concentration of 0.1mg/ml. This solution can be diluted into other buffered solutions or stored at -20°C for up to three months.

Storage Conditions: Store desiccated at -20°C. See the expiration date on the product information label. Store reconstituted rhBDNF in aliquots at -20°C, where it is stable for three months. Avoid multiple freeze-thaw cycles and exposure to frequent temperature changes.

Usage Note: The actual weight of dried factor is not confirmed after the material has been dried down and may vary from the weight indicated on the product label. If the exact weight of factor to be used is important, then it is recommended that the amount of material in the vial be assayed before use.

Quality Control Assays

Identity: The identity of rhBDNF is verified by ELISA using Anti-Human BDNF pAb (Cat.# G1641) for detection. A microtiter plate is coated with rhBDNF diluted serially from 10µg/ml to 0.01µg/ml; rhBDNF is detected with Anti-Human BDNF pAb at a concentration of 1µg/ml. The half-maximal absorbance under these conditions must occur at an rhBDNF concentration of ≤1µg/ml.

Part# 9PIG149

Revised 5/05



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Part# 9PIG149

Printed in USA. Revised 5/05

I. Description

Brain Derived Neurotrophic Factor (BDNF), a 27kDa homodimer originally derived from human brain that shares high sequence homology with NGF, NT-3 and NT-4/5 (1), influences many neuron types in the CNS (2,3). BDNF was first shown to promote the outgrowth of spinal sensory neurons (4) but has since been shown to support the survival and outgrowth of sensory neurons, ganglion neurons, dopaminergic neurons, cholinergic neurons, GABAergic neurons and motoneurons (2). BDNF can signal the differentiation of pluripotent neural crest cells into sensory neurons (5). It shows no supportive effects on NGF-sensitive sympathetic neurons. In fact, trigeminal neurons, which are responsive to BDNF and NT-3 early in development, switch their dependency to that of NGF alone (6). And, whereas BDNF or NGF promote the survival of chicken embryonic dorsal root ganglion neurons, these neurons eventually diverge into two distinct subpopulations that are dependent on one or the other of these same neurotrophins (7,8).

BDNF is produced primarily in the brain and spinal cord by glial cells (9) but is also produced by Schwann cells associated with peripheral motor neurons (10). BDNF is found at much lower levels in heart, lung and platelets (11,12). BDNF, like the other neurotrophins, binds to p75^{NTR}, the low-affinity neurotrophin receptor, and may initiate programmed cell death by acting through this receptor (13). However, it activates signal transduction by the dimerization and autophosphorylation of the TrkB receptor (14). BDNF and NT-3 induce message for neuritin, a glycosyl-phosphatidylinositol-anchored protein that is expressed in post-mitotic differentiating neurons (15). For a review on BDNF and other neurotrophins, please see reference 13.

II. Standard Applications

Use rhBDNF to investigate neuronal physiology. Applications include:

- Examination of the survival of sensory neurons (16), cortical neurons (17), ganglion neurons (18) and motor neurons (19).
- Receptor/ligand studies (20).
- Investigation of dopamine and serotonin metabolism (21).
- Studying potentiation of neuromuscular synapses (22).

III. Related Products

E_{max}[®] ImmunoAssay Systems

Product	Size	Cat. #
BDNF E _{max} [®] ImmunoAssay Systems	5 × 96 wells	G7611
	2 × 96 wells	G7610
NGF E _{max} [®] ImmunoAssay Systems	5 × 96 wells	G7631
	2 × 96 wells	G7630
NT-3 E _{max} [®] ImmunoAssay Systems	5 × 96 wells	G7641
	2 × 96 wells	G7640
GDNF E _{max} [®] ImmunoAssay Systems	5 × 96 wells	G7621
	2 × 96 wells	G7620

Primer Pairs

Product	Size	Cat. #
β-Actin Primer Pair	20 reactions	G5740
CNTF Primer Pair	20 reactions	G5770
TrkB Primer Pair	20 reactions	G5790
NT-3 Primer Pair	20 reactions	G6801
p75 Primer Pair	20 reactions	G6861

Items Available Separately

Product	Size	Cat. #
Anti-Human BDNF pAb	200µg	G1641
Anti-Human NT-3 pAb	200µg	G1651
rhNT-3	5µg	G1501
mNGF, 2.5S	100µg	G5141
mNGF, 7S	100µg	G5151
Anti-NGF mAb	100µg	G1131
Anti-Pan Trk pAb	200µg	G1581
Anti-Trk In pAb	100µg	G1561
Anti-Human p75 pAb	200µg	G3231
Anti-Rat CNTF pAb	200µg	G1631
rhGDNF	5µg	G2781
Anti-Human GDNF pAb	200µg	G2791
Anti-TGFβ1 pAb	100µg	G1221

IV. References

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