PRODUCT INFORMATION

BDNF (R129A, R130A mutant; mouse, recombinant)

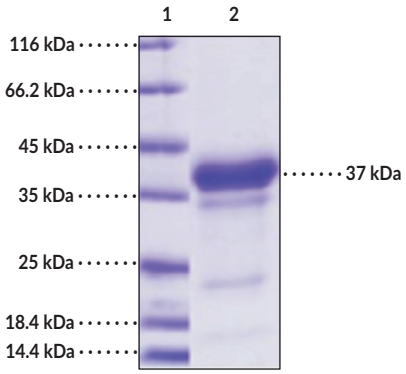
Item No. 42754

Overview and Properties

Synonym:	Brain-derived Neurotrophic Factor
Source:	Recombinant mouse C-terminal His-tagged BDNF (R129A, R130A mutant) expressed in HEK293 cells
Amino Acids:	19-249
Uniprot No.:	P21237
Molecular Weight:	27.4 kDa
Storage:	-80°C (as supplied)
Stability:	≥1 year
Purity:	≥95% estimated by SDS-PAGE
Supplied in:	Lyophilized from sterile PBS, pH 7.4
Endotoxin Testing:	<1.0 EU/µg, determined by the LAL endotoxin assay

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Image



Lane 1: MW Markers
Lane 2: BDNF

SDS-PAGE Analysis of BDNF. This protein has a calculated molecular weight of 27.4 kDa. It has an apparent molecular weight of approximately 37 kDa by SDS-PAGE due to glycosylation.

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Description

BDNF is a neurotrophin that is involved in synaptic plasticity and the growth, proliferation, and survival of neurons.[1,2] It is synthesized as a precursor protein composed of a signal peptide, a prodomain, and mature BDNF sequence, which is secreted from neurons after cleavage of the proprotein.[1] Incorporation of R129A and R130A mutations into Bdnf removes the dibasic amino acid motif that is required for processing of proBdnf to mature Bdnf.[3] *Bdnf* is expressed in several brain regions to varying degrees with the highest levels in the hippocampus and cerebral cortex.[4] BDNF homodimerizes and induces neurotropic signaling through tropomyosin-related kinase B (TrkB) and the p75 neurotrophin receptor ($p75^{NTR}$).[1,5] BDNF increases the proliferation of choriocarcinoma cells *in vitro*.[5] It also induces long-term potentiation (LTP) in rat hippocampus.[6] Knockout of Bdnf decreases coordination and balance and sensory neuronal survival in mice.[7] Serum levels of *BDNF* are decreased in patients with depression or schizophrenia and brain expression of *BDNF* mRNA is decreased in patients with Alzheimer's disease.[2] Cayman's BDNF (R129A, R140A mutant; mouse, recombinant) protein consists of 242 amino acids, has a calculated molecular weight of 27.4 kDa, and a predicted N-terminus of Ala19 after signal peptide cleavage. By SDS-PAGE, the apparent molecular mass of the protein is 37 kDa due to glycosylation.

References

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5. Kawamura, N., Kawamura, K., Manabe, M., *et al*. Inhibition of brain-derived neurotrophic factor/tyrosine kinase B signaling suppresses choriocarcinoma cell growth. *Endocrinology* **151(7)**, 3006-3014 (2010).
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