

## BDNF Protein, Mouse (R129A, R130A, HEK293, His, Solution)

Cat. No.:	HY-P74383
Synonyms:	Brain-derived neurotrophic factor; BDNF; ProBDNF
Species:	Mouse
Source:	HEK293
Accession:	P21237 (A19-R249, R129A, R130A)
Gene ID:	12064
Molecular Weight:	Approximately 27.4 kDa

### PROPERTIES

Appearance	Solution
Formulation	Supplied as a 0.22 µm filtered solution of PBS, pH 7.4.
Endotoxin Level	<1 EU/µg, determined by LAL method.
Reconstitution	N/A.
Storage & Stability	Stored at -80°C for 1 year. It is stable at -20°C for 3 months after opening. It is recommended to freeze aliquots at -80°C for extended storage. Avoid repeated freeze-thaw cycles.
Shipping	Shipping with dry ice

### DESCRIPTION

Background	<p>BDNF, a neurotrophin that belongs to NGF-beta family. BDNF is widely expressed in the CNS, gut and other tissues. BDNF regulates neurodevelopmental processes, including maturation, survival and differentiation of neuronal populations, and synaptic plasticity<sup>[1]</sup>.</p> <p>BDNF can bind to its high affinity receptor TrkB and activates signal transduction cascades (IRS1/2, PI3K, Akt), thereby inducing increased Ca<sup>2+</sup> intake and phosphorylation of transcription factors. BDNF can also bind to the p75NTR, but the affinity for the p75NTR receptor is lower than for TrkB. The activation of p75NTR increases apoptotic and inflammatory signaling in neurons and glial cells by activation of c-Jun N-terminal kinases (JNK) and NF-κB expression, respectively<sup>[2]</sup>. In BDNF knockout mouse, recombinant BDNF rescues deficits in basal synaptic transmission and hippocampal LTP<sup>[3]</sup>. Mouse BDNF shares &gt;97% aa sequence identity with human. Mouse BDNF shares &gt;99% aa sequence identity with rat.</p> <p>BDNF is a neurotransmitter modulator which is vital in maturation, survival and differentiation of neuronal populations during development. BDNF also participates in neuronal plasticity, which is essential for learning and memory<sup>[1]</sup>.</p>
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### REFERENCES

[1]. Bathina S, et al. Brain-derived neurotrophic factor and its clinical implications. Arch Med Sci. 2015 Dec 10;11(6):1164-78.

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- [2]. Lima Giacobbo B, et al. Brain-Derived Neurotrophic Factor in Brain Disorders: Focus on Neuroinflammation. *Mol Neurobiol.* 2019 May;56(5):3295-3312.
- [3]. Patterson SL, et al. Recombinant BDNF rescues deficits in basal synaptic transmission and hippocampal LTP in BDNF knockout mice. *Neuron.* 1996 Jun;16(6):1137-45.
- [4]. Blurton-Jones M, et al. Neural stem cells improve cognition via BDNF in a transgenic model of Alzheimer disease. *Proc Natl Acad Sci U S A.* 2009 Aug 11;106(32):13594-9.
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**Caution: Product has not been fully validated for medical applications. For research use only.**

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