CELLULAR ENGINEERING TECHNOLOGIES

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Product Information Sheet

Human Recombinant Brain-Derived Neurotrophic Factor I (BDNF) Protein

Catalog Number: GR1001-100, GR1001-50, GR1001-10

Product Overview	
Product Name	**Human recombinant Brain-Derived Neurotrophic Factor I (BDNF) Protein**
Catalog #s	GR1001-100, GR1001-50, GR1001-10
Quantity	100µg (GR1001-100), 50µg (GR1001-50) and 10µg (GR1001-10)
Alternative Names	Abrineurin, ANON2, BULN2, Brain-derived neurotrophic factor and BDNF
Expression Source	Humanized Pichia Yeast
Species	Human
NCBI Gene ID	627
UniProt	P23560
Product Form	Lyophilized powder

Product Description

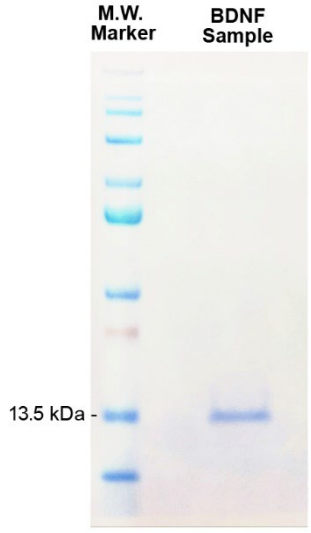
Brain-derived neurotrophic factor (BDNF) is an activity-dependent neurotrophic factor that supports differentiation[1], maturation[2] and survival of neurons[3] and provides a neuroprotective effect under adverse conditions. BDNF stimulates and controls growth of new neurons from neural stem cells.

BDNF binds to neurons of the central nervous system and peripheral nervous system expressing tropomyosin receptor kinase B (TrkB) and the low-affinity nerve growth factor receptor (p75). It also activates signal transduction cascades (IRS1/2), PI3K, Akt), crucial for CREB and CBP production, that encode proteins involved in neural plasticity, stress resistance and cell survival[4].

Research areas for human recombinant BDNF are neurodegenerative disorders (e.g. Alzheimer's, Parkinson's and Huntington's diseases), neuropsychiatric disorders (e.g. anxiety, depression, PTSD and schizophrenia) and neurodevelopmental disorders (e.g. autism spectrum disorder).

BDNF is synthesized in the endoplasmic reticulum (ER) as a 32-35 kDa precursor protein (pro BDNF) that moves through the Golgi apparatus and trans-Golgi network (TGN). The terminal domain of pro-BDNF is cleaved by a distinct protein convertase enzyme to form 13.5 kDa biologically active mature BDNF (mBDNF)[5].

SDS-PAGE



Technical Specifications		
Construct Detail	120 amino acid protein consisting of the mature form of BDNF.	
Source	Humanized pichia yeast stable cell line expressing BDNF growing in chemically defined media with no animal component or antibiotics	
Formulation	10 x PBS pH 7.4	
Molecular Weight	SDS-PAGE	13.5kDa (Calculated) 27.0kDa Homodimer
Purity	SDS-PAGE	>95%
Endotoxin	LAL	<1 EU/µg
Bioactivity (Species)	DATA PENDING	DATA PENDING

FOR RESEARCH APPLICATIONS ONLY. NOT FOR DIAGNOSTIC OR THERAPEUTIC USE.

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Preparation Instructions	
Shipping Temperature	Ambient temperature
Formulation	10 x PBS pH 7.4
Reconstitution	Briefly centrifuge the vial before opening. It is recommended to reconstitute the protein in sterile 1xPBS pH 7.4 containing 0.1% endotoxin-free recombinant human serum albumin (HSA).

Storage and Stability		
	Temperature	**Storage Time**
Lyophilized Form	-20°C to -80°C	Until expiration date
Lyophilized Form	Room temperature	2 weeks
Reconstituted Form	-20°C to -80°C	6 months
Avoid repeated freeze-thaw cycles.		

[1] Binder DK, Scharfman HE. Brain-derived neurotrophic factor. Growth Factors. 2004;22:123s–31.
[2] Acheson A, Conover JC, Fandl JP, et al. A BDNF autocrine loop in adult sensory neurons prevents cell death. *Nature.* 1995;374:450–3.
[3] Huang EJ, Reichardt LF. Neurotrophins: roles in neuronal development and function. *Ann Rev Neurosci.* 2001;24:677–736.
[4] Kaplan DR, Miller FD. Signal transduction by the neurotrophin receptors. *Curr Opin Cell Biol.* 1998;9:213–21.
[5] Bothwell M. Functional interactions of neurotrophins and neurotrophins receptors. (Review) Annu Rev Neurosci. 1995;18:223–53.

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