BDNF siRNA – Brain-Derived Neurotrophic Factor Isoform a Preproprotein (Human)

PRODUCT OVERVIEW

Product Name	BDNF, siRNA
Full Product Name	BDNF siRNA (Human)
Product Gene Name	BDNF sirna
Product Synonym Names	Brain-derived neurotrophic factor; BDNF; Abrineurin
Host	Synthetic
Species Reactivity	Human
Form/Format	Lyophilized powder
Purity/Purification	> 97%
Specificity	BDNF siRNA (Human) is a target-specific 19-23 nt siRNA oligo duplexes designed to knock down gene expression.
Preparation and Storage	Shipped at 4 degree C. Store at -20 degree C for one year.
Molecular Weight	31,116 Da
OMIM	113505
3D Structure	ModBase 3D Structure for P23560
Negative Control	siRNA Negative Control (Catalog# MBS8241404) is a non-targeting 21 nt siRNA recommended as a negative control for experiments using targeted siRNA transfection.
Quality Control	Oligonucleotide synthesis is monitored base by base through trityl analysis to ensure appropriate coupling efficiency. The oligo is subsequently purified by affinity-solid phase extraction. The annealed RNA duplex is further analyzed by mass spectrometry to verify the exact composition of the duplex. Each lot is compared to the previous lot by mass spectrometry to ensure maximum lot-to-lot consistency.
Directions for Use	We recommends transfection with 100 nM siRNA 48 to 72 hours prior to cell lysis. Before resuspending, briefly centrifuge the tube to ensure the lyophilized siRNA is at the bottom of the tube. Resuspend the siRNA oligos to an appropriate concentration with DEPC water. For each vial, suitable for 250 transfections in 24 well plate (20 pmol for each well).
Components	We offer pre-designed sets of 3 different target-specific siRNA oligo duplexes of human BDNF gene. Each vial contains 5 nmol of lyophilized siRNA. The duplexes can be transfected individually or pooled together to achieve knockdown of the target gene, which is most commonly assessed by qPCR or western blot. Our siRNA oligos are also chemically modified (2'-OMe) at no extra charge for increased stability and enhanced knockdown in vitro and in vivo.
Applications Tested/Suitable for BDNF sirna	RNA Interference (RNAi)
Related Product Information for BDNF sirna	MBS8230608 is an siRNA targeting BDNF. Also known as BDNF siRNA (Human). Reactive in Human. Host: Synthetic. siRNA to inhibit BDNF expression using RNA interference
Other Notes	Small volumes of BDNF sirna vial(s) may occasionally become entrapped in the seal of the product vial during shipment and storage. If necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the container`s cap. Certain products may require to ship with dry ice and additional dry ice fee may apply.

ADDITIONAL DETAILS

NCBI/Uniprot data below describe general gene information for BDNF. It may not necessarily be applicable to this product.

NCBI GI #	219842288
NCBI GeneID	627
NCBI Accession #	NP_001137277.1
UniProt Primary Accession #	P23560
UniProt Secondary Accession #	Q598Q1; Q6DN19; Q6YNR2; Q6YNR3; Q9BYY7; Q9UC24; A7LA85; A7LA92; D3DQZ2
UniProt Related Accession #	P23560
GenBank Nucleotide #	NM_001143805.1
NCBI Official Full Name	brain-derived neurotrophic factor isoform a preproprotein
NCBI Official Synonym Full Names	brain-derived neurotrophic factor
NCBI Official Symbol	BDNF
NCBI Official Synonym Symbols	ANON2; BULN2
UniProt Protein Name	Brain-derived neurotrophic factor
UniProt Synonym Protein Names	Abrineurin
Protein Family	Brain-derived neurotrophic factor
UniProt Gene Name	BDNF
UniProt Synonym Gene Names	BDNF
UniProt Entry Name	BDNF_HUMAN
NCBI Protein Information	brain-derived neurotrophic factor
NCBI Summary for BDNF	The protein encoded by this gene is a member of the nerve growth factor family. It is induced by cortical neurons, and is necessary for survival of striatal neurons in the brain. Expression of this gene is reduced in both Alzheimer's and Huntington disease patients. This gene may play a role in the regulation of stress response and in the biology of mood disorders. Multiple transcript variants encoding distinct isoforms have been described for this gene. [provided by RefSeq, Jan 2009]

UniProt Comments for BDNF	BDNF: During development, promotes the survival and differentiation of selected neuronal populations of the peripheral and central nervous systems. Participates in axonal growth, pathfinding and in the modulation of dendritic growth and morphology. Major regulator of synaptic transmission and plasticity at adult synapses in many regions of the CNS. The versatility of BDNF is emphasized by its contribution to a range of adaptive neuronal responses including long-term potentiation (LTP), long-term depression (LTD), certain forms of short-term synaptic plasticity, as well as homeostatic regulation of intrinsic neuronal excitability. Defects in BDNF are a cause of congenital central hypoventilation syndrome (CCHS); also known as congenital failure of autonomic control or Ondine curse. CCHS is a rare disorder characterized by abnormal control of respiration in the absence of neuromuscular or lung disease, or an identifiable brain stem lesion. A deficiency in autonomic control of respiration results in inadequate or negligible ventilatory and arousal responses to hypercapnia and hypoxemia. CCHS is frequently complicated with neurocristopathies such as Hirschsprung disease that occurs in about 16% of CCHS cases. Belongs to the NGF-beta family. 5 isoforms of the human protein are produced by alternative promoter. Protein type: Secreted, signal peptide; Cell development/differentiation; Cytokine; Secreted Chromosomal Location of Human Ortholog: 11p13 Cellular Component: extracellular space; mitochondrial crista; synaptic vesicle; perinuclear region of cytoplasm; cytoplasmic membrane-bound vesicle; cytoplasm; dendrite; extracellular region; terminal button; perikaryon Molecular Function: growth factor activity; neurotrophin TRKB receptor binding Biological Process: circadian rhythm; axon guidance; mechanoreceptor differentiation; behavioral fear response; mitochondrial electron transport, NADH to ubiquinone; regulation of neuron differentiation; axon extension; response to hormone stimulus; positive regulation of long-term neuronal synaptic plasticity; response to vitamin A; negative regulation of neuroblast proliferation; ureteric bud development; dendrite development; regulation of retinal cell programmed cell death; feeding behavior; negative regulation of neuron apoptosis; response to electrical stimulus; negative regulation of synaptic transmission, GABAergic; inner ear development; response to food; nervous system development; chronic inflammatory response; response to light intensity; neuron recognition; regulation of short-term neuronal synaptic plasticity; learning; regulation of axon extension; negative regulation of striated muscle development; positive regulation of peptidyl-serine phosphorylation; positive regulation of synaptogenesis; response to hyperoxia; axon target recognition; glutamate secretion; response to fluoxetine; response to hypoxia; nerve development; response to activity; regulation of excitatory postsynaptic membrane potential; positive regulation of neuron differentiation; transmembrane receptor protein tyrosine kinase signaling pathway; neurite morphogenesis; gamma-aminobutyric acid signaling pathway Disease: Bulimia Nervosa, Susceptibility To, 1; Obsessive-compulsive Disorder; Bulimia Nervosa, Susceptibility To, 2; Central Hypoventilation Syndrome, Congenital
Research Articles on BDNF	**1.** Smokers with and without nicotine dependence had higher levels of serum BDNF.
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