

Rabbit antibody to rh BDNF: whole serum

Catalogue No.:	R-088-100
Description:	<p>BDNF belongs to the neurotrophin family and regulates the survival and differentiation of neurons during development. The alterations in BDNF expression induced by various kinds of brain insult including stress, ischemia, seizure activity and hypoglycemia, may contribute to some pathologies such as depression, epilepsy, Alzheimer's, and Parkinson's disease. Microglia release BDNF that may contribute to neuroinflammation and neuropathic pain. FUNCTION: Promotes the survival of neuronal populations that are all located either in the central nervous system or directly connected to it. 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. SUBUNIT: Monomers and homodimers. Binds to NTRK2/TRKB. SUBCELLULAR LOCATION: Secreted protein. Post Translation Modification (PTM): The propeptide is N-glycosylated and glycosulfated. PTM: Converted into mature BDNF by plasmin (PLG) (By similarity). DISEASE: 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. SIMILARITY: Belongs to the NGF-beta family.</p>
Batch No.:	See product label
Unit size:	100 uL
Antigen:	Recombinant human BDNF
Other Names:	Brain-derived neurotrophic factor; Abrianeurin; proBDNF;
Accession:	BDNF_HUMAN
Produced in:	Rabbit
Purity:	Whole serum
Applications:	<p>IHC, ELISA (1 site), Western Blot, inhibition of biological activity in vitro/in vivo. Recommended to be used at a dilution of 1:1000 for immunohistochemistry, ELISA and Western blot. 1:10 to 1:50 for inhibition of biological activity in vitro. Use neat for in vivo studies at 5-10 uL/g body weight. This antiserum stains cell bodies and some nerve terminals in the dorsal horn of the rat spinal cord, however, does not stain finest nerve terminals. Western Blotting: Antibody does detect BDNF forms in tissue lysates but there are multiple bands present, many of which are uncharacterized. The antibody detects 14 kDa (mature BDNF), 32 kDa (proBDNF) and a 18 kDa BDNF isoform (see blot examples). In cell lysates, only 18 kDa and 32 kDa BDNF are detected. The reason for these differences has not been characterized. Alternative antibodies for Western Blotting are: R-017-500 (IgG-purified form of R-088-100 for tissue homogenate analysis); R-1707-100 (cell lysates and tissue homogenates), R-083-100/R-066-500 (cell</p>

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lysates, tissue homogenates and human serum); M-1744-50/100 (human serum and tissue homogenates). Biosensis recommends optimal dilutions/concentrations should be determined by the end user.

- Specificity:** Less than 0.1% cross-reactivity against NGF, NT3 and NT4/5 by dot blot.
- Cross-reactivity:** Known to react with BDNF from rat, mouse and human. Expected to react with BDNF from other species due to amino acid sequence homology.
- Form:** Lyophilised
- Reconstitution:** Reconstitute in 100 uL of sterile water. Centrifuge to remove any insoluble material.
- Storage:** After reconstitution keep aliquots at -20C for a higher stability, and at 2-8C with an appropriate antibacterial agent. Avoid repetitive freeze/thaw cycles. Glycerol (1:1) may be added for an additional stability.
- Expiry Date:** 12 months after purchase
- Specific References:**
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 2. Soderquist R.G. et al (2009) PEGylation of brain-derived neurotrophic factor for preserved biological activity and enhanced spinal cord distribution J Biomed Mater Res A. 2009 Dec;91(3):719-29.
 3. Tang S. et al (2010) Immunolocalization of pro- and mature-brain derived neurotrophic factor (BDNF) and receptor TrkB in the human brainstem and hippocampus. Brain Res. Oct 1;1354:1-14.
 4. Sadri-Vakili G. et al (2010) Cocaine-induced chromatin remodeling increases brain-derived neurotrophic factor transcription in the rat medial prefrontal cortex, which alters the reinforcing efficacy of cocaine. J Neurosci. 2010 Sep 1;30(35):11735-44.
 5. Maldonado M.A. et al (2008) Motor skill training, but not voluntary exercise, improves skilled reaching after unilateral ischemic lesions of the sensorimotor cortex in rats. Neurorehabil Neural Repair. 2008 May-Jun;22(3):250-61.
 6. Nakajima H. et al (2007) Rescue of rat anterior horn neurons after spinal cord injury by retrograde transfection of adenovirus vector carrying brain-derived neurotrophic factor gene. J Neurotrauma. 2007 Apr;24(4):703-12.
 7. Zhang H.T. et al (2007) Immunohistochemical distribution of NGF, BDNF, NT-3, and NT-4 in adult rhesus monkey brains. J Histochem Cytochem. 2007 Jan;55(1):1-19.
 8. Carrasco M.A. et al (2007) Regulation of glycinergic and GABAergic synaptogenesis by brain-derived neurotrophic factor in developing spinal neurons. Neuroscience. 2007 Mar 16;145(2):484-94.
 9. Zhang H.T. et al (2008) Temporal changes in the level of neurotrophins in the spinal cord and associated precentral gyrus following spinal hemisection in adult Rhesus monkeys J Chem Neuroanat. 2008 Dec;36(3-4):138-43.
- General References:**
1. A Acheson et al (1995) Nat. 74: 450-3
 2. Q Yan et al (1994) J. Neurosci. 14(9): 5281-91

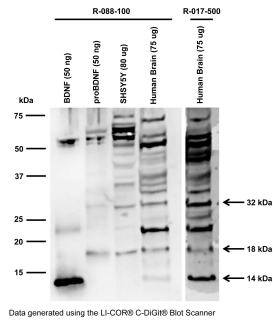
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3. XF Zhou et al (1996) *Neurosci.* 74: 945-53
4. XF Zhou, et al (1998) *Exp. Neurol.* 149: 237-42
5. B Mellstrom et al (2004) *Crit Rev Neurobiol* 16, 43-9
6. I Tapia-Arancibia et al (2004) *Front Neuroendocrinol* 25, 77-107
7. S Pezet, et al (2002) *Brain Res Brain Res Rev* 40, 240-9
8. Barde Y. A. et al (1989) *EMBO J.* 1: 549
9. Conner J et al. (1997) *J. Neurosci.* 17: 2295
10. JA Coull et al (2005) *Nature.* Dec 15;438(7070):1017-21.
11. C Gomes et al (2013) *J Neuroinflammation.* Jan 30;10:16.

References:

BDNF Antibodies for Western Blotting



Western blot analysis of BDNF expression in SH-SY5Y cell lysate (RIPA) and human brain. Polyclonal rabbit antibodies to rhBDNF R-088-100 (whole serum, 1:1000) and R-017-500 (IgG, 10 µg/mL) detect monomeric BDNF at 14 kDa in human brain (Tris-homogenate). ProBDNF is detected at the expected molecular weight of 32 kDa for glycosylated proBDNF monomer. A 18 kDa BDNF-isoform is shown that has previously been detected with other BDNF antibodies (Tongiorgi et al., 2012; Silhol et al., 2017). This 18 kDa band is also visible in the proBDNF protein sample, Lane 2.

Western Blotting Method: SDS-PAGE: denaturing and reducing, 12% Bis-Tris gel; Transfer: Tris-Glycine buffer, semi-dry transfer; Membrane: nitrocellulose (0.22 µm); Blocking: 5% skim milk in TBST, 1 hour at RT; Primary antibody: overnight at 4°C; Secondary antibody: anti-rabbit-HRP (1/6000), 2 hours at RT; Detection: Chemiluminescence.

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