

pro BDNF (5H8): sc-65514

BACKGROUND

Neurotrophins function to regulate naturally occurring cell death of neurons during development. The prototype neurotrophin is nerve growth factor (NGF), originally discovered in the 1950s as a soluble peptide promoting the survival of, and neurite outgrowth from, sympathetic ganglia. Three additional structurally homologous neurotrophic factors have been identified. These include brain-derived neurotrophic factor (BDNF), neurotrophin-3 (NT-3) and neurotrophin-4 (NT-4) (also designated NT-5). These various neurotrophins stimulate the *in vitro* survival of distinct, but partially overlapping, populations of neurons. The cell surface receptors through which neurotrophins mediate their activity have been identified. For instance, the Trk A receptor is the preferential receptor for NGF, but also binds NT-3 and NT-4. The Trk B receptor binds both BDNF and NT-4 equally well, and binds NT-3 to a lesser extent, while the Trk C receptor only binds NT-3.

CHROMOSOMAL LOCATION

Genetic locus: BDNF (human) mapping to 11p14.1; Bdnf (mouse) mapping to 2 E3.

SOURCE

pro BDNF (5H8) is a mouse monoclonal antibody specific for an epitope mapping to amino acids 104-112 (PPLLFLEE) of pro BDNF of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

pro BDNF (5H8) is available conjugated to agarose (sc-65514 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-65514 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-65514 PE), fluorescein (sc-65514 FITC), Alexa Fluor[®] 488 (sc-65514 AF488), Alexa Fluor[®] 546 (sc-65514 AF546), Alexa Fluor[®] 594 (sc-65514 AF594) or Alexa Fluor[®] 647 (sc-65514 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-65514 AF680) or Alexa Fluor[®] 790 (sc-65514 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

pro BDNF (5H8) is recommended for detection of BDNF preproprotein of mouse, rat, human, bovine, porcine and canine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for BDNF siRNA (h): sc-42121, BDNF siRNA (m): sc-42122, BDNF shRNA Plasmid (h): sc-42121-SH, BDNF shRNA Plasmid (m): sc-42122-SH, BDNF shRNA (h) Lentiviral Particles: sc-42121-V and BDNF shRNA (m) Lentiviral Particles: sc-42122-V.

Molecular Weight of pro BDNF precursor: 32 kDa.

Molecular Weight of mature pro BDNF: 14 kDa.

Positive Controls: human platelet extract: sc-363773, SH-SY5Y cell lysate: sc-3812 or U-87 MG cell lysate: sc-2411.

STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

SELECT PRODUCT CITATIONS

1. Currais, A., et al. 2012. Diabetes exacerbates amyloid and neurovascular pathology in aging-accelerated mice. *Aging Cell* 11: 1017-1026.
2. Fields, J., et al. 2014. Role of neurotrophic factor alterations in the neurodegenerative process in HIV associated neurocognitive disorders. *J. Neuroimmune Pharmacol.* 9: 102-116.
3. Gibon, J., et al. 2015. Pro BDNF and p75NTR control excitability and persistent firing of cortical pyramidal neurons. *J. Neurosci.* 35: 9741-9753.
4. Na, E.S., et al. 2017. D-cycloserine improves synaptic transmission in an animal model of Rett syndrome. *PLoS ONE* 12: e0183026.
5. Lim, D.W., et al. 2018. Standardized *Citrus unshiu* peel extract ameliorates dexamethasone-induced neurotoxicity and depressive-like behaviors in mice. *Metab. Brain Dis.* 33: 1877-1886.
6. Wang, J., et al. 2019. Learning and memory deficits and Alzheimer's disease-like changes in mice after chronic exposure to microcystin-LR. *J. Hazard. Mater.* 373: 504-518.
7. Jaworska, J., et al. 2019. Effect of the HDAC inhibitor, sodium butyrate, on neurogenesis in a rat model of neonatal hypoxia-ischemia: potential mechanism of action. *Mol. Neurobiol.* 56: 6341-6370.
8. Lim, D.W., et al. 2019. Administration of Asian *Herb Bennet (Geum japonicum)* extract reverses depressive-like behaviors in mouse model of depression induced by corticosterone. *Nutrients* 11: 2841.
9. Chen, Q., et al. 2019. Farnesoid X receptor (FXR) aggravates Amyloid-β-triggered apoptosis by modulating the cAMP-response element-binding protein (CREB)/brain-derived neurotrophic Factor (BDNF) pathway *in vitro*. *Med. Sci. Monit.* 25: 9335-9345.
10. Auti, S.T. and Kulkarni, Y.A. 2019. Neuroprotective effect of cardamom oil against aluminum induced neurotoxicity in rats. *Front. Neurol.* 10: 399.
11. Wu, Y., et al. 2020. Intensity-dependent effects of consecutive treadmill exercise on spatial learning and memory through the p-CREB/BDNF/NMDAR signaling in hippocampus. *Behav. Brain Res.* 386: 112599.
12. Tian, P., et al. 2020. Towards a psychobiotic therapy for depression: bifidobacterium breve CCFM1025 reverses chronic stress-induced depressive symptoms and gut microbial abnormalities in mice. *Neurobiol. Stress* 12: 100216.
13. Wosnitzka, E., et al. 2020. A new mouse line reporting the translation of brain-derived neurotrophic factor using green fluorescent protein. *eNeuro* 7: ENEURO.0462-19.2019.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

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