

pro BDNF (9C1): sc-65513

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 (9C1) is a mouse monoclonal antibody raised against recombinant 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 (9C1) is available conjugated to agarose (sc-65513 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-65513 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-65513 PE), fluorescein (sc-65513 FITC), Alexa Fluor[®] 488 (sc-65513 AF488), Alexa Fluor[®] 546 (sc-65513 AF546), Alexa Fluor[®] 594 (sc-65513 AF594) or Alexa Fluor[®] 647 (sc-65513 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-65513 AF680) or Alexa Fluor[®] 790 (sc-65513 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

pro BDNF (9C1) 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 BDNF precursor: 32 kDa.

Molecular Weight of mature 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. Germanà, A., et al. 2010. Expression of brain-derived neurotrophic factor and TrkB in the lateral line system of zebrafish during development. *Cell. Mol. Neurobiol.* 30: 787-793.
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4. Crish, S.D., et al. 2013. Failure of axonal transport induces a spatially coincident increase in astrocyte BDNF prior to synapse loss in a central target. *Neuroscience* 229: 55-70.
5. Kong, X., et al. 2014. Neuroprotective effect of buyang huanwu decoction on rat ischemic/reperfusion brain damage by promoting migration of neural precursor cells. *Rejuvenation Res.* 17: 264-275.
6. Cao, W., et al. 2014. Early enriched environment induces an increased conversion of proBDNF to BDNF in the adult rat's hippocampus. *Behav. Brain Res.* 265: 76-83.
7. Yuan, D., et al. 2014. Edaravone protect against retinal damage in streptozotocin-induced diabetic mice. *PLoS ONE* 9: e99219.
8. Di Loreto, S., et al. 2014. Regular and moderate exercise initiated in middle age prevents age-related amyloidogenesis and preserves synaptic and neuroprotective signaling in mouse brain cortex. *Exp. Gerontol.* 57: 57-65.
9. Ben-Soussan, T.D., et al. 2015. Increased cerebellar volume and BDNF level following quadrato motor training. *Synapse* 69: 1-6.
10. Ilchibaeva, T.V., et al. 2015. Brain-derived neurotrophic factor (BDNF) and its precursor (proBDNF) in genetically defined fear-induced aggression. *Behav. Brain Res.* 290: 45-50.
11. Zhang, Y.P., et al. 2018. Mifepristone attenuates depression-like changes induced by chronic central administration of interleukin-1β in rats. *Behav. Brain Res.* 347: 436-445.
12. Gharami, K. and Biswas, S.C. 2019. Glutamate treatment mimics LTP- and LTD-like biochemical activity in viable synaptosome preparation. *Neurochem. Int.* 134: 104655.
13. Barbereau, C., et al. 2020. Neuroprotective brain-derived neurotrophic factor signaling in the Tau-P301L tauopathy zebrafish model. *Pharmacol. Res.* 158: 104865.

RESEARCH USE

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

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