

proBDNF Protein (WT-human)
proBrain-Derived Neurotrophic Factor (WT-human), Recombinant,E.coli
Catalog # PG10005

Specification

proBDNF Protein (WT-human) - Product Information

proBDNF Protein (WT-human) - Additional Information

Storage
-20°C

Precautions

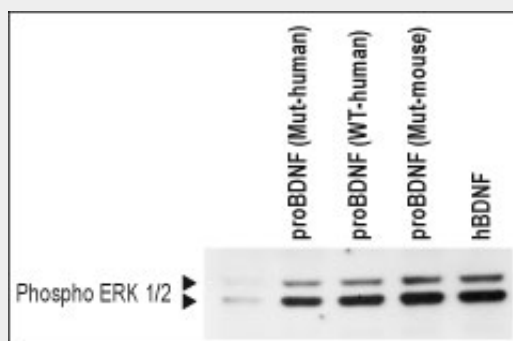
proBDNF Protein (WT-human) is for research use only and not for use in diagnostic or therapeutic procedures.

proBDNF Protein (WT-human) - Protocols

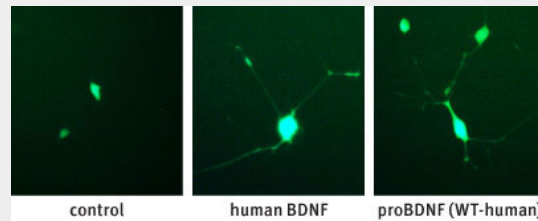
Provided below are standard protocols that you may find useful for product applications.

- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

proBDNF Protein (WT-human) - Images



proBDNF_(WT-human) - Agent proBDNF (WT-human) mediates ERK1 2 activation in TrkB transfected HEK293 cells. Transfected cells were serum depleted for 2 h and then challenged with or without proBDNF (Mut-human), proBDNF (WT-human)(#PG10005), proBDNF (Mut-mouse) or hBDNF for 10 min. Cell proteins were resolved by SDS-PAGE and detected with anti-TrkB and anti-phospho-ERK1/2.



proBDNF_(WT-human) - Abgent proBDNF (WT-human) mediates neurite outgrowth in TrkB transfected PC12 cells. Cells were transiently transfected with TrkB/pcDNA3 containing the green fluorescence protein (GFP) as a reporter. One day post transfection, the cells were stimulated with 20 ng/ml proBDNF (WT-human) (#PG10005) or 10ng/ml hBDNF . Development of neurites was visualized after 6 days using bright light microscopy.

proBDNF Protein (WT-human) - Background

BDNF is a neurotrophic factor produced by proteolytic cleavage of its precursor, proBDNF. The biologically relevant form of the protein was thought to be the mature form, BDNF.¹ The actions of BDNF are mediated via the binding to TrkB or p75.^{2,3} The precursor form was thought to be important for the correct folding, secretion and trafficking of the mature protein. A single-nucleotide polymorphism (Val66 to Met) in the pro-domain of the human BDNF gene impairs intracellular trafficking and regulated secretion of BDNF in primary cortical neurons and neurosecretory cells but not in endothelial and vascular cells.⁴ This has been shown to affect memory and lead to abnormal hippocampal function in humans.⁵ The finding that proBDNF and not mature BDNF is the preferred ligand for p75, has ushered in a new era which reexamines the biological roles of the two forms.⁶ Some biological roles for proBDNF have been proposed. It has been shown to be a pro-apoptotic ligand for sympathetic neurons⁷ expressing both p75 and sortlin, and to be involved in LTD⁸. On the other hand it has also been shown to elicit prototypical TrkB responses in biological assays, such as TrkB tyrosine phosphorylation, and activation of ERK1/2.⁹ In brain homogenates a mixture of both, proBDNF and mature BDNF has been found^{10,11} and in cortical neurons secretion of proBDNF has been shown.⁷ Binding of both proBDNF and mature BDNF to TrkB has been proposed to be via the R103 residue in the mature portion.⁹

proBDNF Protein (WT-human) - References

- 1 . Bibel, M and Barde, Y.A.(2000)Genes Dev.14,29292 . Cahoon-Metzger, S.M.et al. (2001) Dev. Biol.232,246.3 . Troy, C.M.et al. (2002) J. Biol. Chem.277,34295.4 . Chen, Z.Y.et al. (2004) J. Neurosci.24,4401.5 . Egan, M.F.et al.(2003)Cell112,257.6 . Lee, R.et al.,(2001)Science294,1945.7 . Teng, H.K.et al. (2005) J. Neurosci.25,5455.8 . Woo, N.H.et al.(2005)Nat. Neurosci.8,1069.9 . Fayard, B.et al. (2005) J. Neurosci. Res.80,18.10 . Michalski, B and Fahnstock, M. (2003)Mol. Brain Res.111,148.11 . Zhou, X.F.et al.(2004)J. Neurochem.91,704.