

proBDNF Protein (Mut-human)

proBrain-Derived Neurotrophic Factor (Mutated-human), Recombinant, E. coli
Catalog # PG10004

Specification**proBDNF Protein (Mut-human) - Product Information****proBDNF Protein (Mut-human) - Additional Information****Storage**

-20°C

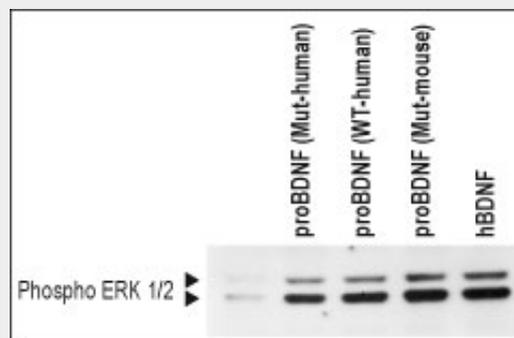
Precautions

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

proBDNF Protein (Mut-human) - Protocols

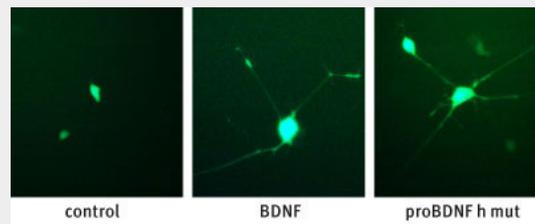
Provided below are standard protocols that you may find useful for product applications.

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

proBDNF Protein (Mut-human) - Images

proBDNF_(Mut-human) - Agent proBDNF (Mut-human) activates ERK1 2 MAPK in TrkB transfected HEK 293 cells. HEK 293 cells stably expressing TrkB receptor were serum-starved for 2h and then challenged for 10 min in the presence or absence of proBDNF (Mut-human) (#PG10004), proBDNF (WT-human), proBDNF (Mut-mouse) or hBDNF. Cell proteins were resolved by SDS PAGE and the level of ERK1/2 phosphorylation determined using

anti-phosphoERK.



proBDNF_(Mut-human) - Abgent proBDNF (Mut-human) mediates neurites 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 (Mut-human) (#PG10004) or 10ng/ml hBDNF . Development of neurites was visualized after 6 days using bright light microscopy.

proBDNF Protein (Mut-human) - Background

BDNF is a neurotrophic factor produced by proteolytic cleavage of its precursor, proBDNF.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 (Mut-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)*Cell*112, 257.6 . Lee, R.et al.,(2001)*Science*294, 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. et al. (2003) *Mol. Brain Res.*111, 148.11 . Zhou, X.F. et al.(2004)*J. Neurochem.*91, 704.