

## Product Information

### Anti-pro-BDNF

produced in rabbit, affinity isolated antibody

Catalog Number **P1374**

**Synonym:** Anti-pro-Brain-derived Neurotrophic Factor

### Product Description

Anti-pro-BDNF is produced in rabbit using a peptide, (C)DEDQKVRPNEENNKDAD, corresponding to amino acid residues 72-88 of human BDNF (precursor) as the immunogen. This sequence has 16/17 residues identical in mouse and rat. The antibody was affinity isolated on immobilized immunogen.

Anti-pro-BDNF specifically recognizes pro-BDNF in rat glioma C6, human neuroblastoma SH-SY5Y cell lines, and mouse recombinant proBDNF by immunoblotting. The antibody is specific for proBDNF, and does not cross react with proNGF, proNT-3 or mature BDNF.

Brain derived neurotrophic factor (BDNF) is a member of the neurotrophin family of growth factors that includes nerve growth factor (NGF), neurotrophin-3 (NT-3) and neurotrophin-4/5 (NT-4/5).

Neurotrophins are synthesized as proneurotrophin precursors, processed within the intracellular transport pathway to yield proneurotrophins, and then further processed and dimerized to generate the mature form. Until recently, the proneurotrophins were thought to assist in the correct folding of the mature protein and the sorting of the neurotrophins into the constitutive or regulated secretory pathway, but to have little direct regulatory activity themselves. However, a growing body of evidence suggests that the uncleaved proneurotrophin precursors can be secreted from cells and that they may themselves mediate a variety of biological functions involving the same or different receptors as those activated by the mature forms.<sup>1-3</sup>

ProBDNF appears to be involved in several diverse biological processes. While mature BDNF facilitates hippocampal synaptic potentiation through TrkB, proBDNF, by activating p75(NTR), facilitates hippocampal long-term depression (LTD)<sup>1</sup>. ProBDNF has also been shown to act as a proapoptotic ligand in the nervous system in sympathetic neurons co-expressing both p75NTR and a coreceptor, sortilin.<sup>2</sup>

Finally, proBDNF was shown to be decreased in the brains of patients suffering from Alzheimer's disease even in the early stages. This loss correlated with loss of cognitive function, suggesting that proBDNF plays a role in synaptic loss and cellular dysfunction in Alzheimer's disease.<sup>3</sup>

### Reagents

The antibody is supplied lyophilized from phosphate buffered saline, pH 7.4, with 1% bovine serum albumin and ≤0.1 % sodium azide as preservative.

### Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

### Preparation Instructions

Reconstitute the lyophilized vial with 0.05 ml or 0.2 ml deionized water, depending on the package size purchased. Antibody dilutions should be made in buffer containing 1 % bovine serum albumin.

### Storage/Stability

Lyophilized powder can be stored intact at room temperature for several weeks. For extended storage, it should be stored at -20 °C or below. The reconstituted solution can be stored at 2-8 °C for up to 2 weeks. For longer storage, freeze in working aliquots. Repeated freezing and thawing, or storage in "frost-free" freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilution samples should be discarded if not used within 12 hours.

### Product Profile

Immunoblotting: the recommended working dilution is 1:200

**Note:** In order to obtain best results and assay sensitivities of different techniques and preparations, we recommend determining optimal working dilutions by titration test.

## References

1. Woo, N.H., et al., Activation of p75<sup>NTR</sup> by proBDNF facilitates hippocampal long-term depression. *Nat Neurosci.*, **8**, 1069-1077 (2005).
2. Teng, H.K., ProBDNF Induces Neuronal Apoptosis via Activation of a Receptor Complex of p75<sup>NTR</sup> and Sortilin. *J Neurosci.*, **25**, 5455-5463 (2005).
3. Peng, S., et al., Precursor form of brain-derived neurotrophic factor and mature brain-derived neurotrophic factor are decreased in the pre-clinical stages of Alzheimer's disease. *J Neurochem.*, **93**, 1412-1421 (2005).

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