

BDNF

Brain-derived Neurotrophic Factor

human, recombinant, *E. coli*

Cat. No.	Amount
PR-405	10 µg

For *in vitro* use only
Quality guaranteed for 12 months
Store at -20°C

Avoid freeze / thaw cycles

Form

Lyophilized. BDNF was lyophilized in 20 mM sodium citrate buffer pH 5.0.

Solubility

It is recommended to reconstitute the lyophilized BDNF in sterile bidest H₂O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA).

Activity

ED₅₀: 50 ng/ml, calculated by the dosedependent induction of ACHE (acetylcholine esterase) in rat basal forebrain primary septal culture.

Endotoxin

Less than 0.1 ng/µg (IEU/µg) of BDNF.

Molecular Weight

27 kDa

Purity

≥ 95% by SDS-PAGE, RP-HPLC and FPLC

Description

BDNF is a member of the nerve growth factor family of trophic factors. In the brain BDNF has a trophic action on retinal, cholinergic, and dopaminergic neurons, and in the peripheral nervous system it acts on both motor and sensory neurons. Some protein domains of BDNF are identical with those of NGF and another neurotrophic factor, designated NT-3 (neurotrophin-3). Polyclonal antibodies raised against murine NGF have been shown to cross-react with both NT-3 and BDNF.

Recombinant Human Brain-Derived Neurotrophic Factor produced in *E. coli* is a homodimer, nonglycosylated, polypeptide chain containing 2 x 119 amino acids and having a total molecular mass of 26.9 kDa.

BDNF is purified by proprietary chromatographic techniques.

Selected References:

- Thompson *et al.* (1999) Brain-derived neurotrophic factor is an endogenous modulator of nociceptive responses in the spinal cord. *Proc. Natl. Acad. Sci. U S A.* **96**:7714.
- Mellstrom *et al.* (2004) The BDNF gene: exemplifying complexity in Ca²⁺-dependent gene expression. *Crit. Rev. Neurobiol.* **16**:43.
- Vinet *et al.* (2004) Chronic treatment with desipramine and fluoxetine modulate BDNF, CaMKKalpha and CaMKKbeta mRNA levels in the hippocampus of transgenic mice expressing antisense RNA against the glucocorticoid receptor. *Neuropharmacology* **47**:1062.
- Imamura *et al.* (2005) Additional repression of activity-dependent cfos and BDNF mRNA expression by lipophilic compounds accompanying a decrease in Ca²⁺ influx into neurons. *Neurotoxicology* **26**:17.
- Klintsova *et al.* (2004) Altered expression of BDNF and its highaffinity receptor TrkB in response to complex motor learning and moderate exercise. *Brain. Res.* **1028**:92.
- Yamada *et al.* (2004) Interaction of BDNF/TrkB signaling with NMDA receptor in learning and memory. *Drug News Perspect.* **17**:435.