

## Recombinant Canine BDNF Protein DataSheet

Catalog Number: GR122047

### Background

Brain-derived neurotrophic factor, also known as BDNF, is a secreted protein<sup>[1]</sup> that is encoded by the *BDNF* gene.<sup>[2]</sup> BDNF is a member of the "neurotrophin" family of growth factors, which are related to the canonical "Nerve Growth Factor", NGF. Neurotrophic factors are found in the brain and the periphery. BDNF acts on certain neurons of the central nervous system and the peripheral nervous system, helping to support the survival of existing neurons, and encourage the growth and differentiation of new neurons and synapses.<sup>[3]</sup> In the brain, it is active in the hippocampus, cortex, and basal forebrain—areas vital to learning, memory, and higher thinking.<sup>[4]</sup> BDNF itself is important for long-term memory.<sup>[5]</sup> BDNF was the second neurotrophic factor to be characterized after nerve growth factor (NGF). BDNF is made in the endoplasmic reticulum and secreted from dense-core vesicles. It binds carboxypeptidase E (CPE), and the disruption of this binding has been proposed to cause the loss of sorting of BDNF into dense-core vesicles. The phenotype for BDNF knockout mice can be severe, including postnatal lethality. Other traits include sensory neuron losses that affect coordination, balance, hearing, taste, and breathing. Knockout mice also exhibit cerebellar abnormalities and an increase in the number of sympathetic neurons. Various studies have shown possible links between BDNF and conditions such as depression,<sup>[6][7]</sup> bipolar disorder,<sup>[8]</sup> schizophrenia, obsessive-compulsive disorder, Alzheimer's disease, Huntington's disease, Rett syndrome, and dementia, as well as anorexia nervosa and bulimia nervosa.

### References

1. Robinson RC, Radziejewski C, Stuart DI, Jones EY (April 1995). *Biochemistry* **34** (13): 4139–46.
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4. Yamada K, Nabeshima T (April 2003). *J. Pharmacol. Sci.* **91** (4): 267–70.
5. Bekinschtein P, Cammarota M, et al. (2008). *Proc. Natl. Acad. Sci. U.S.A.* **105** (7): 2711–6.
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7. Brunoni AR, Lopes M, Fregni F (December 2008). *Int. J. Neuropsychopharmacol.* **11** (8): 1169–80.
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### Description

**Source:** *E coli*-derived

**Compositions:** His129–Arg247

**Accession #** Q7YRB4

**Predicted Molecular Mass:** 14 kDa (monomer)

### Specifications

**Activity** Measured in a cell proliferation assay using Baf-TirkB-BD mouse Pro-B cells transfected with TrkB. The ED50 for this effect is typically 2-5 ng/mL.

**Endotoxin Level:** <0.1 EU per 1 µg of the protein by the LAL method.

**Purity:** >96%, by SDS-PAGE under reducing conditions and visualized by silver stain.

**Formulation:** Lyophilized from a 0.2 µm filtered solution in sodium citrate and NaCl with BSA as a carrier protein.

### Preparation and Storage

**Reconstitution:** Reconstitute at 100 µg/mL in sterile PBS containing 1 mg/ml of human or serum albumin.

**Shipping** The product is shipped at ambient temperature or with wet ice. Upon receipt, store it immediately at the temperature recommended below.

**Stability & Storage:** Use a manual defrost freezer and avoid repeated freeze thaw cycles.

- 6 months, -20 °C as supplied.
- 3 months, -20 to -70°C under sterile conditions after reconstitution.

### DECLARATION

THIS REAGENT IS FOR IN VITRO LABORATORY TESTING AND RESEARCH USE ONLY. DO NOT USE IT FOR CLINICAL DIAGNOSTICS. DO NOT USE OR INJECT IT IN HUMANS AND ANIMALS.

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