Miltenyi Biotec

Human BDNF
research grade

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1. Description

Products Human BDNF, research grade.

Recombinant human brain-derived neurotrophic factor.

Content in µg	Order no.
10	130-138-876
100	130-138-877
1000	130-138-875

Biological activity The ED_{50} is ≤40 ng/mL corresponding to an activity of $\geq 2.5 \times 10^4$ U/mg.

▲ **Note:** The ED_{50} is determined by proliferation assay using SH-SY5Y cells in the presence of retinoic acid.

Primary structure Two identical non-covalently linked non-glycosylated polypeptide chains (119 amino acid residues each).

Molecular mass 13.5 kDa (monomer, calculated).

Source Produced in HEK293 cells.

Product format Lyophilized from a filtered (0.2 µm) buffer solution.

Stabilizer None.

Purity >95% as determined by SDS-PAGE analysis.

Endotoxin level Low endotoxin (<1.0 EU/µg cytokine) as determined by Limulus Amebocyte Lysate (LAL) assay.

Storage Lyophilized Human BDNF, research grade should be stored at –20 °C. The expiration date is indicated on the vial label. Upon reconstitution aliquots should be stored at –20 °C or below. Avoid repeated freeze-thaw cycles.

Reconstitution It is recommended to reconstitute lyophilized Human BDNF, research grade with deionized sterile-filtered water to a final concentration of 0.1–1.0 mg/mL in a minimal volume of 20 µL. Further dilutions should be prepared with 0.1% bovine serum albumin (BSA) or human serum albumin (HSA) in phosphate-buffered saline.

1.1 Background information

Brain-derived neurotrophic factor (BDNF) is a member of the neurotrophin family. It shares high structural homology with nerve growth factor (NGF), neurotrophin 3 (NT-3) and neurotrophin 4 (NT-4), but they all act via different high-affinity membrane receptors and differ in target specificity.

BDNF has been shown to support the survival of existing neurons, the growth and differentiation of new neurons and synapses, and their function in the peripheral and central nervous system. High expression levels of BDNF have been detected in the hippocampus, cerebellum, and cortex.

In addition, BDNF is expressed in the pituitary gland, spinal cord, heart, lung, and skeletal muscle.

BDNF has been shown to bind with high affinity and specifically activate the cell surface TrkB tyrosine receptor kinase. The amino acid sequence of human and mouse BDNF is identical.

1.2 Applications

Human BDNF can be used for a variety of applications, including:

- Promoting the growth and differentiation of neurons and synapses.
- Serving as a survival and differentiation factor in neuronal cell cultures.
- Activating Trk signaling pathways.
- Stimulating axon outgrowth *in vitro*.

Optimal concentration for a specific application should be determined by a dose-response experiment.

Refer to **www.miltenyibiotec.com** for all data sheets and protocols. Miltenyi Biotec provides technical support worldwide. Visit www.miltenyibiotec.com for local Miltenyi Biotec Technical Support contact information.

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APPLICATION METHODS.

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