

Cytokines

Human Recombinant BDNF, ACF

Brain-derived neurotrophic factor, animal component-free

| | | |
|-----------|---------|---------|
| Catalog # | 78133 | 10 µg |
| | 78133.1 | 100 µg |
| | 78133.2 | 1000 µg |



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Product Description

Brain-derived neurotrophic factor (BDNF), like nerve growth factor (NGF), neurotrophin-3 (NT-3), and neurotrophin-4 (NT-4), is a member of the NGF family of neurotrophins, which are required for the differentiation and survival of specific neuronal subpopulations in both the central and the peripheral nervous systems (Minichiello & Klein; Minichiello et al.). BDNF binds with high affinity to the tropomyosin receptor kinase B (TrkB) and activates AKT and ERK pathways (Mattson et al.). It is expressed in the hippocampus, cortex, and synapses of the basal forebrain. BDNF acts as a survival factor for human embryonic stem cells when plated on either feeder cells or Corning® Matrigel® (Pyle et al.). BDNF regulates synaptic transmission and plasticity at adult synapses in the central nervous system and contributes to adaptive neuronal responses including long-term potentiation, long-term depression, certain forms of short-term synaptic plasticity, as well as homeostatic regulation of neuronal excitability (Reichardt). It also has a role in neurogenesis by promoting survival and growth of dorsal root ganglion cells, and hippocampal and cortical neurons (Binder & Scharfman). BDNF, together with glial cell line-derived neurotrophic factor (GDNF) and other supplements, is commonly used to differentiate human pluripotent stem cell (hPSC)-derived neural progenitor cells into neurons (Brafman). This product is animal component-free.

Product Information

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| Alternative Names: | Abrineurin, ANON2, BULN2, MGC34632, Neurotrophin |
| Accession Number: | P23560 |
| Amino Acid Sequence: | MHSDPARRGE LSVCDISEW VTAADKKTAV DMSGGTVTVL EKVPVSKGQL KQYFYETKCN PMGYTKEGCR GIDKRHWNSQ CRTTQSYVRA LTMSKRRIG WRFIRIDTSC VCTLTIKRRG |
| Predicted Molecular Mass: | 13.6 kDa monomer; 27.3 kDa dimer |
| Species: | Human |
| Formulation: | Lyophilized from a sterile-filtered aqueous solution containing 0.1% trifluoroacetic acid |
| Source: | <i>E. coli</i> |

Specifications

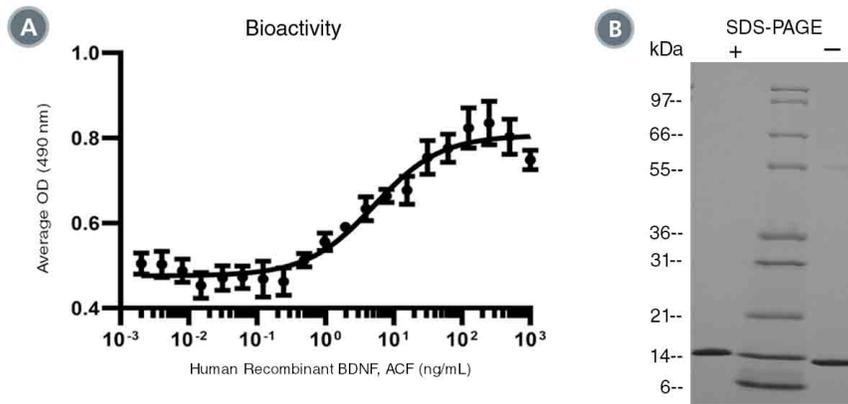
| | |
|------------------|--|
| Activity: | Lot #1000038506 or higher: The specific activity is $\geq 2.5 \times 10^4$ units/mg ($EC_{50} \leq 40$ ng/mL) as determined by a cell proliferation assay using a neuroblastoma cell line stably expressing TrkB (BR6). All other lots: The specific activity is $\geq 5.0 \times 10^2$ units/mg ($EC_{50} \leq 2$ µg/mL) as determined by a cell proliferation assay using C6 cells. |
| Purity: | $\geq 95\%$ |
| Endotoxin Level: | Measured by kinetic Limulus amoebocyte lysate (LAL) analysis and is ≤ 1 EU/µg protein. |

Preparation and Storage

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| Storage: | Store at -20°C to -80°C. |
| Stability: | Stable as supplied for 12 months from date of receipt. |
| Preparation: | Centrifuge vial before opening. Reconstitute the product in sterile water to at least 0.1 mg/mL by pipetting the solution down the sides of the vial. Do not vortex. |

OPTIONAL: After reconstitution, if product will not be used immediately, dilute with concentrated bovine serum albumin (BSA) to a final BSA concentration of 0.1%. The effect of storage of stock solution on product performance should be tested for each application. As a general guide, do not store at 2 - 8°C for more than 1 month or at -80°C for more than 3 months. Avoid repeated freeze-thaw cycles.

Data



(A) The biological activity of Human Recombinant BDNF, ACF was tested by its ability to promote the proliferation of a neuroblastoma cell line stably expressing TrkB (BR6). Cell proliferation was measured using a colorimetric assay method. The EC₅₀ is defined as the effective concentration of the growth factor at which cell proliferation is at 50% of maximum. The EC₅₀ in the above example is 5 ng/mL. For a representative bioactivity plot of C6 cell proliferation, contact us at techsupport@stemcell.com.

(B) 1 µg of Human Recombinant BDNF, ACF was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining. Human Recombinant BDNF, ACF is a homodimer of 13.6 kDa subunits with a predicted molecular mass of 27.3 kDa.

Related Products

For a complete list of cytokines, as well as related products available from STEMCELL Technologies, visit www.stemcell.com/cytokines or contact us at techsupport@stemcell.com.

References

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