

Glial-Derived Neurotrophic Factor Active Protein | Gdnf active protein

Mouse Glial-Derived Neurotrophic Factor Recombinant

CATALOG #	HOST
AAA76397	E coli (Note: Host protein expression may be lot-specific and can be subject to change during production, including bulk orders.)

PRODUCT SYNONYMS

Glial-Derived Neurotrophic Factor; Mouse Glial-Derived Neurotrophic Factor Recombinant; Gdnf active protein

PRODUCT SPECIFICATIONS

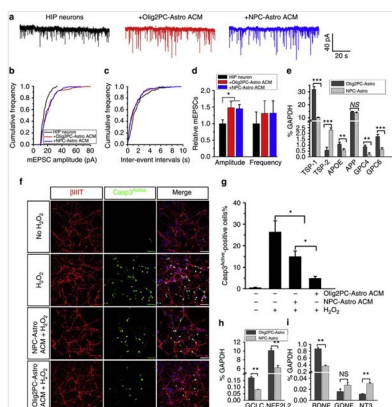
Host	E coli (Note: Host protein expression may be lot-specific and can be subject to change during production, including bulk orders.)
Purity/Purification	>95%, as determined by SDS-PAGE and HPLC
Form/Format	Recombinant mouse GDNF was lyophilized from a 0.2 um filtered PBS solution.
Sequence	MKLWDVVAVC LVLLHTASAF PLPAGKRLL E APAEDHSLGH RRVPFALTSD SNMPEDYPDQ FDDVMDFIQA TIKRLKRSPD KQAAALPRRE RNRQAAAASP ENSRGKGRRG QRGKNRGCVL TAIHLNVTDL GLGYETKEEL IFRYCSGSCE SAETMYDKIL KNLSRSRRLT SDKVGQACCR PVAFDDDL SF LDDNLVYHIL RKHSAKRGC I
Source	Optimized DNA sequence encoding Mouse Glial Derived Neurotrophic Factor mature chain was expressed in Escherichia Coli.
Endotoxin	Endotoxin content was assayed using a LAL gel clot method. Endotoxin level was found to be less than 0.1 ng/ug (1EU/ug).
Biological Activity	The ED(50) was determined by the proliferation of rat C6 cells is <.1 ng/ml, corresponding to a specific activity of > x units/mg.

Method	Neural precursor culture and viral transductionTo differentiate NPs to neurons, NPs were plated on polyornithine and laminin coated plates in NP media and grown until they reached 70% confluence. FGF was removed and NP media supplemented with 20 ng/ml BDNF, 20 ng/ml GDNF and 0.5 mM dibutyryl cAMP (N6,2'-O-Dibutyryl-adenosine 3',5'-cyclic monophosphate sodium salt). Medium was exchanged every 2-3 days.Monolayer neuronal differentiationiPSC cultures were dissociated with Accutase to generate single-cell suspensions, then differentially plated on gelatin-coated plasticware for 1 h in medium'>hESC medium in the presence of ROCK inhibitor (Y27632, Ascent) to remove SNL feeders. The nonattached cells were resuspended in MEF-CM (&systems) with 10 ng ml-1 FGF2 and plated on growth-factor reduced Matrigel (B) at a density of 25,000 cells cm-2 and allowed to propagate in self-renewal conditions for 72 h or until 70-90% confluent, whereupon media was changed to KS medium containing 50 ng ml-1 Noggin, 10 uM -1 SHH C24II and 50 ng ml-1 Wnt1 for the second day onwards. kk1 blocking antibody (100 ng ml-1&) was also added for the second day only. After 5 days, medium'>medium'>KSR medium'>medium containing these ligands was cross-tapered with medium'>N2B27 medium'>medium (Cells) containing the same ligands over 7 days (75% medium'>medium'>KSR and 25% medium'>N2B27 first day, 50% of each third day, and 25% medium'>medium'>KSR with 75% medium'>N2B27 fifth day). Once established in N2B27 conditions, Wnt1, Noggin, SB431542 and -1 BDNF, 0.2 mM ascorbic acid and 100 ng ml-1 FGF8 were added. Three days later, cells were dissociated with Hank's buffered saline solution for 1 h at room temperature, and lifted mechanically, then replated en bloc on to poly-l-ornithine/laminin-coated plasticware. Neuronal maturation ensued with BDNF and ascorbic acid as before, supplemented with 10 ng ml-1 GDNF, 1 ng ml-1 TGFbeta3 and 0.5 mM dibutyryl-cAMP for the next 7 days. After a total of 23-31 days, the resulting neuronal cultures were analysed by immunocytochemistry, qPCR and western blot.Differentiation of smNPCsFor generation of more ventral CNS neurons, including mDANs, medium'>smNPC expansion medium was changed 2 days after splitting to N2B27 medium with 100 ng/mL FGF8, 1 uM PMA, and 200 uM AA. After 8 days in this medium, maturation medium-N2B27 with 10 ng/mL BDNF, 10 ng/mL GDNF, 1 ng/mL TGF-b3, 200 uM AA, and 500 uM dbcAMP-was used for the maturation of neurons. 0.5 uM PMA was added to this medium for 2 more days. One day after changing to maturation medium, the cultures were split at a 1:3 ratio as small clumps, or single cells after Accutase treatment, or earlier when cultures became over-confluent. Cultures were analyzed after 2 weeks in maturation conditions unless otherwise indicated.Neural differentiation of hiPSCsSchematic diagram in -1).NPCs in the form of rosettes developed for another 1 week (week 2). Next, rosettes were manually isolated from surrounding cells and expanded as neurospheres in a suspension culture for 1 week (week 3) in NPC medium, composed of DMEM/F12, 1 × N2, 1 × B27-RA and 20?ng?ml-1 FGF2. For neuronal differentiation, neurosphere at week 3 were plated again on growth factor reduced Matrigel-coated plates in medium'>neural medium'>induction medium for 1 week. At week 4, only the clusters from which neurons migrated out were picked (-1) pre-coated plates in medium'>neuronal medium'>differentiation medium consisting of DMEM/F12, 1 × N2, 1 × B27-RA, 20?ng?ml-1 BDNF, 20?ng?ml-1 GDNF, 1?mM dibutyryl-cyclic AMP, 200?nM ascorbic acid. Within another week of culture in the neuronal differentiation medium, the majority of the cells showed neuronal processes.Under this differentiation condition, ~85% of the total cells were betalll-tubulin+ neurons at 6-week time point (-1) in the chemically defined and xeno-free astroglia medium containing DMEM/F12, 1 × N2, 1 × B27, BMP4 (10?ng?ml-1) and FGF2 (20?ng?ml-1) for directed astroglia differentiation-1) in medium consisting of DMEM/F12, 1 × N2, 1 × B27-RA for spontaneous differentiation. Medium was changed every other day. Cells were passaged at least 6-8 times during directed astroglia differentiation. Neuronal differentiation of human embryonic stem cells by dual SMAD inhibition.2) Neuronal induction (days 10-20), by incubating cells with brain-derived neurotrophic factor, glia-derived neurotrophic factor, ascorbic acid, dibutyryl-cyclic-AMP (dbcAMP) and the NOTCH1-inhibitor DAPT; 3) Neuronal differentiation (days 20-37), by dissociating cells and re-plating them on poly-lysine/laminin-coated glass coverslips in the presence of BDNF, GDNF and neurotrophin 3 (NT3).Human embryonic and neural stem cell culture and differentiationFor neural differentiation, TrypLE Select dissociated single cells were plated onto CELLstart coated Lab-Tek Permanox chamber slides in XF-NSM. 24 h after attachment, the media was changed to differentiation media (DM) consisting of X-Vivo 15, 10 ng/mL BDNF, 10 ng/mL GDNF, 1× N2, 1× B27, 2 ng/mL Heparin (; St. Louis.), 63 ug/mL NAC, 0.1 ng/mL bFGF, and 10 ug/mL Ciprofloxacin. The media was changed every 3 days with half being removed and replaced with fresh DM. Differentiation was carried out for a total of 2-4 weeks before cells were permeabilized and immunostained.
Molecular Function	Growth-factor
Reconstitution	A quick spin of the vial followed by reconstitution in distilled water to a concentration not less than 0.1 mg/mL. This solution can then be diluted into other buffers.

Preparation and Storage

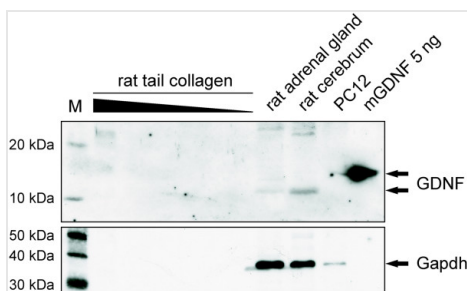
The lyophilized protein is stable for at least years from date of receipt at -20 degree C. Upon reconstitution, this cytokine can be stored in working aliquots at 2 degree -8 degree C for one month, or at -20 degree C for six months, with a carrier protein without detectable loss of activity. Avoid repeated freeze/thaw cycles.

IMAGES



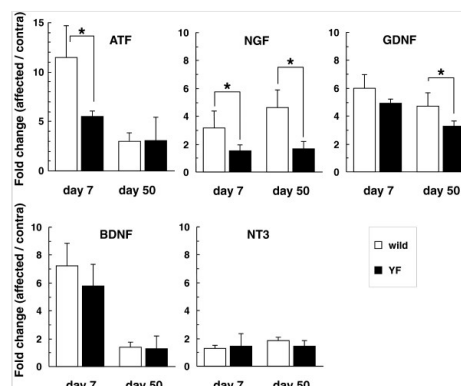
Application Data

Effects of ACM on Olig2PC-Astros and NPC-Astros on neurons. (h and i) RT-PCR analysis of the expression of the antioxidant defense-related genes, GCLC and NFE2L2 (n=3), and the neurotrophic growth factor genes, BDNF, GDNF and NT-3 (n=3).



Application Data

The SCG SC development assay is free of GDNF. Western Blot for GDNF with different dilutions of rat-tail collagen (20%, 10%, 5%, 2.5%, 1.25% and 0.6125% collagen) were analyzed using anti-GDNF antibody specific for human and rat GDNF.



Application Data

Alterations of gene expression of neurotrophins in the DRG after HSV-1 infection. Gene expression levels of ATF3 and neurotrophins (NGF, GDNF, BDNF, and NT3) were normalized to the GAPDH level, and are presented as the fold change in the ratio of the affected side to the contralateral one.

ADDITIONAL INFORMATION

Product Categories/Family for Gdnf active protein	Neurotrophic factors; Recombinant Mouse Cytokines
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NCBI AND UNIPROT INFORMATION

NCBI GI #	672349281
NCBI GeneID	14573
NCBI Accession #	NP_001288261.1
NCBI GenBank Nucleotide #	NM_001301332.1
UniProt Accession #	P48540; O09058; P70446; P97919; P97920; Q6LEL9
Molecular Weight	26,606 Da
NCBI Official Full Name	glial cell line-derived neurotrophic factor isoform 2
NCBI Official Synonym Full Names	glial cell line derived neurotrophic factor
NCBI Official Symbol	Gdnf

NCBI Official Synonym Symbols	AI385739
NCBI Protein Information	glial cell line-derived neurotrophic factor; ATF; astrocyte-derived trophic factor; mGDNF
UniProt Protein Name	Glial cell line-derived neurotrophic factor
UniProt Gene Name	Gdnf
UniProt Synonym Gene Names	mGDNF; ATF
UniProt Entry Name	GDNF_MOUSE

For Research Use Only. Not for use in diagnostic or therapeutic procedures. Small volumes of product may become entrapped in the seal of the vial during shipment and storage; if necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the cap.

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Online datasheet: <https://stage.aaabiotech.com/e-coli-active-protein/glial-derived-neurotrophic-factor/76397>