Cytokines

Human Recombinant GDF-11

Growth differentiation factor 11

Catalog #	78110	20 µg
	78110.1	100 µg

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TOLL FREE PHONE 1 800 667 0322 • PHONE +1 604 877 0713
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Product Description

Growth differentiation factor 11 (GDF-11) is a member of transforming growth factor beta (TGF-β) family. It binds to the TGF-β receptors ALK4, ALK5, and ALK7 and activates the SMAD signaling pathway (Ho et al.). GDF-11 regulates the development of the olfactory system, retina, and pancreas, as well as anterior/posterior patterning of the axial skeleton (Lee & Lee). GDF-11 is an endocrine factor expressed in skeletal muscle, brain, and dental pulp (Kondás et al.). Studies in mice showed that GDF-11 regulates muscle and cardiac aging, and stimulates neurogenesis by remodeling blood vessels (Katsimpardi et al.; Loffredo et al.; Sinha et al.).

Product Information

Alternative Names:	BMP-11, Bone morphogenic protein 11, Growth differentiation factor 11
Accession Number:	O95390
Amino Acid Sequence:	NLGLDCDEHS SESRCCRYPL TVDFEAFGWD WIIAPKRYKA NYCSGQCEYM FMQKYPHTHL VQQANPRGSA GPCCTPTKMS PINMLYFNDK QQIIYGKIPG MVVDRCGCS
Predicted Molecular Mass:	12.5 kDa monomer, 24.9 kDa dimer
Species:	Human
Cross Reactivity:	Mouse, Rat
Formulation:	Lyophilized from a sterile-filtered aqueous solution containing 0.1% trifluoroacetic acid.
Source:	E. coli

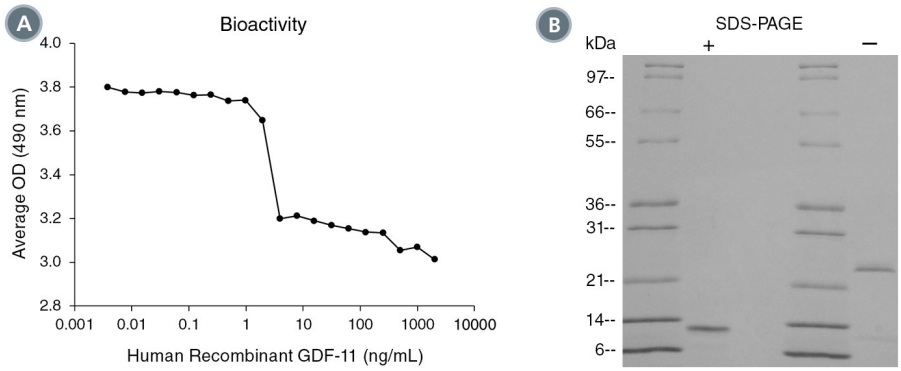
Specifications

Activity:	The specific activity is ≥ 1.0 x 10^4 units/mg (EC50 ≤ 100 ng/mL) as determined by alkaline phosphatase activity induced in ATDC-5 cells.
Purity:	≥ 95%
Endotoxin Level:	Measured by kinetic Limulus amebocyte lysate (LAL) analysis and is ≤ 1 EU/µg protein.

Preparation and Storage

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 10 mM hydrochloric acid 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 we recommend to not store at 2 - 8°C for more than 1 month or at -20°C to -80°C for more than 3 months. Avoid repeated freeze-thaw cycles.

Data



(A) The biological activity of Human Recombinant GDF-11 was tested by its ability to inhibit alkaline phosphatase production in ATDC-5 cells. Inhibition of alkaline phosphatase production was measured using a fluorometric assay method. The EC50 is defined as the effective concentration of the growth factor at which alkaline phosphatase activity is at 50% of maximum. The EC50 in the above example is 2.63 ng/mL.
(B) 1 µg of Human Recombinant GDF-11 was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining.

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

Ho DM et al. (2010) The role and regulation of GDF11 in Smad2 activation during tailbud formation in the Xenopus embryo. Mech Dev 127(9–12): 485–95.
Katsimpardi L et al. (2014) Vascular and neurogenic rejuvenation of the aging mouse brain by young systemic factors. Science 344(6184): 630–4.
Kondás K et al. (2008) Both WFIKKN1 and WFIKKN2 have high affinity for growth and differentiation factors 8 and 11. J Biol Chem 283(35): 23677–84.
Lee Y-S & Lee S-J. (2013) Regulation of GDF-11 and myostatin activity by GASP-1 and GASP-2. Proc Natl Acad Sci USA 110(39): E3713–22.
Loffredo FS et al. (2013) Growth differentiation factor 11 is a circulating factor that reverses age-related cardiac hypertrophy. Cell 153(4): 828–39.
Sinha M et al. (2014) Restoring systemic GDF11 levels reverses age-related dysfunction in mouse skeletal muscle. Science 344(6184): 649–52.