Cytokines

Human Recombinant Betacellulin

Betacellulin

Catalog #	78105	10 µg
	78105.1	50 µg
	78105.2	1000 µg

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Product Description

Betacellulin is a member of the epidermal growth factor (EGF) family, and signals through EGF receptor and ERBB4. It activates ERK and AKT pathways, which induces neural stem cell proliferation and prevents spontaneous differentiation in culture. Betacellulin stimulates the expansion of neural stem cells, transit-amplifying cells, and neuroblasts derived from subventricular zone and dentate gyrus (Gómez-Gaviro et al.). It is a potent mitogen for retinal pigment epithelial cells and vascular smooth muscle cells. Betacellulin down-regulates E-cadherin expression in ovarian cancer cell lines via MEK/ERK1/2 and PI3K/AKT signaling pathways, thus increasing cell migration (Zhao et al.). It is a modulator of interferon (IFN) response and enhances anti-viral effects of IFN (Al-Yahya et al.). Betacellulin is expressed in pancreatic α cells, β cells, and duct cells. It induces the proliferation of pancreatic cancer cell lines, inhibits apoptosis, promotes the neogenesis of β cells, and converts non-β cells into insulin-producing cells (Kawaguchi et al.; Miyagawa al.; Saito et al.).

Product Information

Alternative Names:	BTC
Accession Number:	P35070
Amino Acid Sequence:	MDGNSTRSPE TNGLLCGDPE ENCAATTTQS KRKGHFSRCP KQYKHYCIKG RCRFVVAEQT PSCVCDEGYI GARCERVDLF Y
Predicted Molecular Mass:	9.1 kDa
Species:	Human
Cross Reactivity:	Mouse
Formulation:	Lyophilized after dialysis against phosphate-buffered saline.
Source:	E. coli

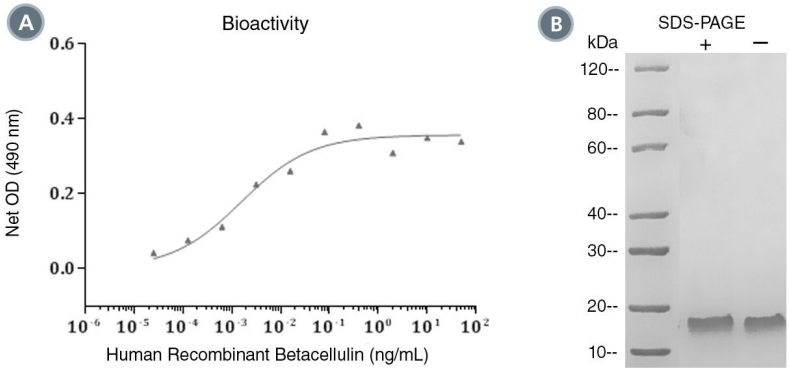
Specifications

Activity:	The specific activity is ≥ 1.0 x 10^8 units/mg (EC50 ≤ 0.01 ng/mL) as determined by a cell proliferation assay using BALB/c 3T3 cells.
Purity:	≥ 95%
Endotoxin Level:	Measured by kinetic Limulus amebocyte lysate (LAL) analysis and is ≤ 0.2 EU/µg protein.

Preparation and Storage

Storage:	Store at -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 week or at -20°C for more than 3 months. Avoid repeated freeze-thaw cycles.

Data



(A) The biological activity of Human Recombinant Betacellulin was tested by its ability to promote the proliferation of BALB/c 3T3 cells. Cell proliferation was measured using a fluorometric 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 less than 0.01 ng/mL.
(B) 2 µg of Human Recombinant Betacellulin was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining. Human Recombinant Betacellulin has a predicted molecular mass of 9.1 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

Al-Yahya S et al. (2015) Human cytokinome analysis for interferon response. J Virol 89(14): 7108–19.
Gómez-Gaviro MV et al. (2012) Betacellulin promotes cell proliferation in the neural stem cell niche and stimulates neurogenesis. Proc Natl Acad Sci USA 109(4): 1317–22.
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Miyagawa J-I et al. (1999) Immunohistochemical localization of betacellulin, a new member of the EGF family, in normal human pancreas and islet tumor cells. Endocr J 46(6): 755–64.
Saito T et al. (2004) Differential activation of epidermal growth factor (EGF) receptor downstream signaling pathways by betacellulin and EGF. Endocrinology 145(9): 4232–43.
Zhao J et al. (2016) Betacellulin induces slug-mediated down-regulation of E-cadherin and cell migration in ovarian cancer cells. Oncotarget 7(20): 28881–90.