

Cell-Vive™ GMP Recombinant Human Betacellulin (carrier-free)

Catalog# / Size 551224 / 50 µg

Other Names BTC

Description Human betacellulin was initially cloned from a cDNA library from human breast adenocarcinoma cell line MCF-7. It belongs to the EGF family of proteins that includes EGF, TGF-α, heparin-binding EGF like-growth factor (HB-EGF), epigen, epiregulin, betacellulin, neuroregulin, and tomoregulin. All EGF family members are synthesized as type I membrane protein precursors, which can undergo proteolytic cleavage at the plasma membrane to release a mature soluble ectodomain. ADAM10 seems to be the main releasing enzyme for betacellulin and EGF. Human betacellulin precursor protein exhibits 79% similarity with the mouse precursor at the amino acid level. The expression of betacellulin mRNA is high in pancreas, liver, kidney, and small intestine. Betacellulin induces the proliferation of endocrine precursor cells in pancreas, a fetal pancreatic epithelial cell line, and a rat insulinoma cell line. In addition, betacellulin induces proliferation and regeneration of pancreatic beta cells in diabetic mice, a process that is linked to the transcription of homeobox-1 and insulin receptor substrate (IRS)-2. These genes are involved in beta cell proliferation. Betacellulin binds not only to the EGFR, it binds and activates all possible heterodimeric combinations of the related ErbB receptors including the highly oncogenic ErbB2/3 dimer and homodimers of ErbB4. Betacellulin is expressed in lung cancer cells, hepatocellular carcinoma, and head-and-neck squamous carcinoma cells among others, and it is associated with tumor growth progression, angiogenesis, and invasiveness.

Quality Statement BioLegend Cell-Vive™ GMP Recombinant proteins are manufactured and tested in accordance with USP Chapter 1043, Ancillary Materials for Cell, Gene and Tissue-Engineered Products and Ph. Eur. Chapter 5.2.12 in a dedicated GMP facility compliant with ISO 13485:2016. Specifications and processes include:

- Low endotoxin level (≤ 0.1 EU/µg)
- Purity (≥ 95% or higher)
- Bioburden testing
- Mycoplasma testing
- Batch-to-batch consistency
- Vendor qualification
- Raw material traceability and documentation
- Documented procedures and employee training
- Equipment maintenance and monitoring records
- Lot-specific certificates of analysis
- Quality audits per ISO 13485:2016
- QA review of released products

Product Details

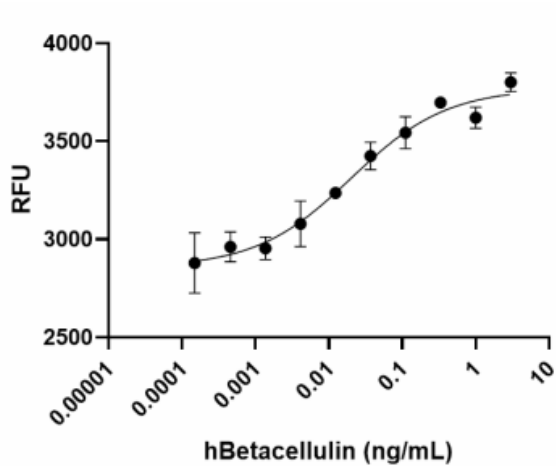
Source	Human Betacellulin, amino acids (Asp32-Tyr111) (Accession# NM_001720.1), was expressed in <i>E. coli</i> .
Molecular Mass	The 80 amino acid recombinant protein has a predicted molecular mass of approximately 8.9 kD. The DTT-reduced and non-reduced protein migrate at approximately 13 -15 kD by SDS-PAGE. The predicted N-terminal amino acid is Asp.
N-terminal Sequence Analysis	Asp-Gly-Asn-Ser-Thr-Arg-Ser-Pro-Glu-Thr
Purity	≥ 95%, as determined by Coomassie stained SDS-PAGE
Formulation	Protein was lyophilized from 0.1 µm filtered solution containing PBS, pH 7.2
Endotoxin Level	Less than or equal to 0.1 EU per µg of protein as determined by LAL method
Residual Host Cell Protein Content	≤ 0.500 ng/µg by ELISA

Concentration	50 µg size is lyophilized
Storage & Handling	Unopened vial can be stored between 2°C and 8°C for up to 2 weeks, at -20°C or colder until the expiration date. Reconstitute lyophilized protein in sterile PBS. Before reconstitution, make sure sterile PBS and product are at room temperature. Quickly spin the vial or gently tap down on the vial to make sure the lyophilized product is at the bottom of the vial before opening. Use aseptic techniques to add the required volume of reconstitution buffer (sterile PBS) to the vial, to obtain the recommended stock concentration 250 µg/mL. Close the vial and leave at ambient temperature for 15-20 minutes. Then gently invert the vial several times or until all of the lyophilized product dissolves. Leave the vial at room temperature for another 15 minutes. If small particulates are still observed after 15 minutes, incubate at room temperature for an additional 30 minutes and leave the vial at 2°C - 8°C overnight. Next day, invert the vial several times or gently pipette the solution up and down before use. If needed, transfer the reconstituted stock solution to a sterile container for additional dilution to no less than 100 µg/mL. Small working aliquots in polypropylene tubes can be made after reconstitution and store the vials at -20°C or lower. Avoid freeze/ thaw cycles. Carrier protein such as 0.2 - 1% endotoxin-free BSA or HSA can be added when preparing the stock solution. Aliquots can be stored between 2°C and 8°C for up to two weeks or stored at -20°C or colder for up to 3 months.
Activity	Recombinant human betacellulin induces the proliferation of murine BALB/3T3 cell line in a dose dependent manner. The ED ₅₀ for this effect is 0.01 – 0.1 ng/mL.
Application	Bioassay
Application Notes	This product is reactive with human and mouse. Our lyophilized proteins are validated in-house to maintain activity after shipping at ambient temperature and are backed by our 100% satisfaction guarantee . If you have any concerns, contact us at tech@biolegend.com .
Disclaimer	BioLegend Cell-Vive™ GMP Recombinant proteins are for research use only. Suitable for <i>ex vivo</i> cell processing. Not for injection or diagnostic or therapeutic use. Not for resale. BioLegend will not be held responsible for patent infringement or other violations that may occur with the use of our products.

Antigen Details

Structure	Monomer
Distribution	Widely expressed in most tissues and various body fluids, including milk. Expressed in smooth muscle, endothelial cells, mesenchymal stem cells. Highly expressed in pancreas.
Function	Betacellulin induces proliferation of beta cells, pancreatic endocrine precursor cells, and neural stem cells. Betacellulin, amphiregulin, and epieregulin stimulate oocyte maturation and cumulus expansion and its expression is induced by LH.
Interaction	Pancreas endocrine precursor cells, beta cells, fetal pancreatic epithelial cell line, smooth muscle cells, and neuronal stem cells.
Ligand/Receptor	ErbB-1 and ErbB-4 homodimers and heterodimeric ErbB receptors.
Bioactivity	Human betacellulin induces proliferation of murine BALB/3T3 cells.
Antigen References	<ol style="list-style-type: none"> 1. Sasada R, <i>et al.</i> 1993. <i>Biochem Biophys Res Commun.</i> 190:1173-9. 2. Dunbar AJ & Goddard C. 2000. <i>Int J Biochem. Cell Biol.</i> 32:805-15. 3. Sahin U, <i>et al.</i> 2004. <i>J Cell Biol.</i> 164:769-79. 4. O-charoenrat P, <i>et al.</i> 2004. <i>Int J Cancer.</i> 111:174-83. 5. Hsieh M, <i>et al.</i> 2009. <i>Semin Reprod Med.</i> 27:52-61. 6. Stoeck A, <i>et al.</i> 2010. <i>Int J Mol Sci.</i> 123:2319. 7. Oh YS, <i>et al.</i> 2011. <i>PLoS One.</i> 6:e23894. 8. Gomez-Gavira MV, <i>et al.</i> 2012. <i>Proc Natl Acad Sci USA.</i> 109:1317-22. 9. Dahlhoff M, <i>et al.</i> 2014. <i>Semin. Cell Dev. Biol.</i> 28:42-8.
Gene ID	685

Product Data



Recombinant human betacellulin induces the proliferation of murine BALB/3T3 cell line in a dose dependent manner. The ED₅₀ for this effect is 0.01 – 0.1 ng/mL.

For Research Use Only. Suitable for *ex vivo* cell processing. Not for injection or diagnostic or therapeutic use.

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