Revision 1

#5235 Store at -20C

Human Betacellulin (hBTC)

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MW (kDa):	UniProt ID:	Entrez-Gene Id:
14	#P35070	685

Background

Betacellulin (BTC), a member of the EGF family of ligands, is a widely expressed growth factor that was originally identified in conditioned medium of a mouse pancreatic beta cell line (1). BTC is synthesized as a 178 amino acid transmembrane precursor protein that is proteolytically cleaved into an 80 amino acid mature protein (1). Human BTC shares 74% amino acid sequence identity with mouse BTC (1). BTC can bind to and activate the ErbB family of receptor tyrosine kinases, EGFR/ErbB1, HER2/ErbB2, HER3/ErbB3, and HER4/ErbB4 (1,2). BTC can also bind to and activate EGFR/ErbB1 and HER4/ErbB4 homodimers (1). Ligand-receptor interactions result in the activation of the PI3K and Erk pathways (1). BTC induces the proliferation of pancreatic beta cell lines *in vitro* (2). Moreover, research studies have shown that BTC induces beta cell regeneration and increased insulin secretion in rodent models of diabetes (2-4).

Endotoxin

Less than 0.01 ng endotoxin/1 µg hBTC.

Purity

>98% as determined by SDS-PAGE of 6 µg reduced (+) and non-reduced (-) recombinant hBTC. All lots are greater than 98% pure.

Source / Purification

Recombinant human Betacellulin (hBTC) Asp31-Tyr111 (Accession #P35070) was produced in *E. coli* at Cell Signaling Technology.

Bioactivity

The bioactivity of recombinant hBTC was determined in a MCF 10A cell proliferation assay. The ED_{50} of each lot is between 0.6 and 1.0 ng/ml.

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Background References

1. Dunbar, A.J. and Goddard, C. (2000) *Int J Biochem Cell Biol* 32, 805-15.
2. Oh, Y.S. et al. (2011) *PLoS One* 6, e23894.
3. Yechoor, V. et al. (2009) *Endocrinology* 150, 4863-73.
4. Yamamoto, Y. et al. (2008) *Growth Factors* 26, 173-9.

Cross-Reactivity Key

H: human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **Mi:** mink **C:** chicken **Dm:** D. melanogaster
X: Xenopus **Z:** zebrafish **B:** bovine **Dg:** dog **Pg:** pig **Sc:** S. cerevisiae **Ce:** C. elegans **Hr:** horse
GP: Guinea Pig **Rab:** rabbit **All:** all species expected

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