PRODUCT INFORMATION

PDGF-B (human, recombinant)

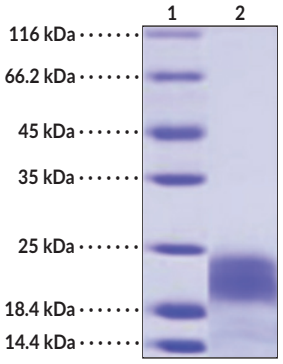
Item No. 44191

Overview and Properties

Synonyms:	Becaplermin, IBGC5, PDGF-2, PDGFB, Platelet-Derived Growth Factor B Chain, Platelet-Derived Growth Factor β Polypeptide, Proto-oncogene c-Sis, SIS, SSV
Source:	Active recombinant human N-terminal His-tagged PDGF-B expressed in yeast
Amino Acids:	82-190
Uniprot No.:	P01127
Molecular Weight:	14.3 kDa
Storage:	-80°C (as supplied)
Stability:	≥1 year
Purity:	≥90% estimated by SDS-PAGE
Supplied in:	Lyophilized from sterile 30% acetonitrile and 1/1,000 trifluoroacetic acid
Endotoxin Testing:	<1.0 EU/µg, determined by the LAL endotoxin assay
Concentration:	***batch specific*** mg/ml
Activity:	***batch specific*** U/ml
Specific Activity:	***batch specific*** U/mg
Bioactivity:	See figures for details

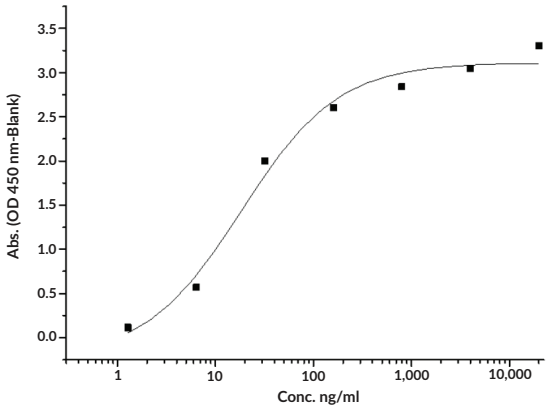
Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Images



Lane 1: MW Markers
Lane 2: PDGF-B

SDS-PAGE Analysis of PDGF-B. This protein has a calculated molecular weight of 14.3 kDa. By SDS-PAGE, under reducing conditions, the apparent molecular mass of the protein is 20 kDa due to glycosylation.



Immobilized recombinant human PDGFRβ at 2 µg/ml (100 µl/well) binds to PDGF-B with an EC_{50} value of 10-30 ng/ml.

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM

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Description

PDGF-B is a secreted growth factor and member of the PDGF family.[1] It is composed of a signal peptide, a pro-peptide sequence, a growth factor domain containing a cystine knot, and a C-terminal tail. PDGF-B is expressed at high levels in the heart, placenta, and fetal kidney and in the brain in the substantia nigra.[2] It exists as either a homodimer, PDGF-BB, which can activate PDGFRα or PDGFRβ, or a heterodimer with PDGF-A, PDGF-AB, which can only activate PDGFRα, and induces signaling through multiple pathways, including ERK/MAPK, PI3K/Akt/mTOR, PLC/PKC, and JAK/STAT.[1,3,4] PDGF-B is a potent mitogen for cells of mesenchymal origin and is necessary for vascular development and vascular smooth muscle cell proliferation in the CNS, lungs, heart, placenta, and skin.[4,5] A fusion between the genes encoding PDGF-B and collagen 1A1, *PDGFB* and *COL1A1*, leads to overproduction of PDGF-B and is associated with various benign and malignant tumors, including dermatofibrosarcoma protuberans.[4] Formulations containing PDGF-B have been used in the treatment of diabetic neuropathic foot ulcers. Cayman's PDGF-B (human, recombinant) protein can be used for binding assays. This protein consists of 124 amino acids and has a calculated molecular weight of 14.3 kDa.

References

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2. LaRochelle, W.J., Jeffers, M., McDonald, W.F., *et al.* PDGF-D, a new protease-activated growth factor. *Nat. Cell Biol.* **3(5)**, 517-521 (2001).
3. Heldin, C.-H. and Lennartsson, J. Structural and functional properties of platelet-derived growth factor and stem cell factor receptors. *Cold Spring Harb. Perspect. Biol.* **5(8)**, a009100 (2013).
4. Roskoski, R., Jr. The role of small molecule platelet-derived growth factor receptor (PDGFR) inhibitors in the treatment of neoplastic disorders. *Pharmacol. Res.* **129**, 65-83 (2018).
5. Gaengel, K., Genové, G., Armulik, A., *et al.* Endothelial-mural cell signaling in vascular development and angiogenesis. *Arterioscler. Thromb. Vasc. Biol.* **29(5)**, 630-638 (2009).

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