10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

CCN3, IGFBP9

Catalog # PVGS1333

Product Information

Primary Accession	P48745
Species	Human
Sequence	TQRCPPQCPG RCPATPPTCA PGVRAVLDGC SCCLVCARQR GESCSDLEPC DESSGLYCDR SADPSNQTGI CTAVEGDNCV FDGVIYRSGE KFQPSCKFQC TCRDGQIGCV PRCQLDVLLP EPNCPAPRKV EVPGECCEKW ICGPDEEDSL GGLTLAAYRP EATLGVEVSD SSVNCIEQTT EWTACSKSCG MGFSTRVTNR NRQCEMLKQT RLCMVRPCEQ EPEQPTDKKG KKCLRTKKSL KAIHLQFKNC TSLHTYKPRF CGVCSDGRCC TPHNTKTIQA EFQCSPGQIV KKPVMVIGTC TCHTNCPKNN EAFLQELELK TTRGKM
Purity	> 95% as analyzed by SDS-PAGE and HPLC.
Endotoxin Level	
Formulation	Lyophilized after extensive dialysis against PBS.
Reconstitution	Reconstituted in ddH_2O or PBS at 100 □g/ml.

Additional Information

Gene ID	4856
Other Names	CCN family member 3, Cellular communication network factor 3 {ECO:0000312|HGNC:HGNC:7885}, Insulin-like growth factor-binding protein 9, IBP-9, IGF-binding protein 9, IGFBP-9, Nephro blastoma-overexpressed gene protein homolog, Protein NOV homolog, NovH, CCN3 (HGNC:7885), IGFBP9, NOV, NOVH
Target Background	Nephroblastoma Overexpressed Gene Protein (NOV), also known as CCN3, IGFBP9 and NOVH, is one of the CCN family of secreted proteins. It is expressed in bone marrow, thymic cells and nephroblastoma. NOV signals through integrin receptors, NOTCH1 and fibulin 1c to regulate multiple cellular activities, such as cell adhesion, migration, proliferation and differentiation. The reported functions of NOV are diverse. It has been reported to play a role in angiogenesis and stem cell self-renewal. It has also been implicated in osteogenic differentiation, embryo development and cancer pathogenesis.

Protein Information

Name	CCN3 (HGNC:7885)
Synonyms	IGFBP9, NOV, NOVH

Function	Immediate-early protein playing a role in various cellular processes including proliferation, adhesion, migration, differentiation and survival (PubMed:12050162, PubMed:12695522, PubMed:15181016, PubMed:15611078, PubMed:21344378). Acts by binding to integrins or membrane receptors such as NOTCH1 (PubMed:12695522, PubMed:15611078, PubMed:21344378). Essential regulator of hematopoietic stem and progenitor cell function (PubMed:17463287). Inhibits myogenic differentiation through the activation of Notch-signaling pathway (PubMed:12050162). Inhibits vascular smooth muscle cells proliferation by increasing expression of cell-cycle regulators such as CDKN2B or CDKN1A independently of TGFB1 signaling (PubMed:20139355). Ligand of integrins ITGAV:ITGB3 and ITGA5:ITGB1, acts directly upon endothelial cells to stimulate pro-angiogenic activities and induces angiogenesis. In endothelial cells, supports cell adhesion, induces directed cell migration (chemotaxis) and promotes cell survival (PubMed:12695522). Also plays a role in cutaneous wound healing acting as integrin receptor ligand. Supports skin fibroblast adhesion through ITGA5:ITGB1 and ITGA6:ITGB1 and induces fibroblast chemotaxis through ITGAV:ITGB5. Seems to enhance bFGF-induced DNA synthesis in fibroblasts (PubMed:15611078). Involved in bone regeneration as a negative regulator (By similarity). Enhances the articular chondrocytic phenotype, whereas it repressed the one representing endochondral ossification (PubMed:21871891). Impairs pancreatic beta-cell function, inhibits beta-cell proliferation and insulin secretion (By similarity). Plays a role as negative regulator of endothelial pro-inflammatory activation reducing monocyte adhesion, its anti-inflammatory effects occur secondary to the inhibition of NF-kappaB signaling pathway (PubMed:21063504). Contributes to the control and coordination of inflammatory processes in atherosclerosis (By similarity). Attenuates inflammatory pain through regulation of IL1B- and TNF-induced MMP9, MMP2 and CCL2 expression. Inhibits MMP9 expression through ITGB1 engagement (PubMed:21871891). Brain osteoanabolic hormone (By similarity). Drives osteogenesis in osteochondral skeletal stem cells (PubMed:38987585). During lactation, maintains the maternal skeleton and viability of offspring (By similarity).
Cellular Location	Secreted {ECO:0000250|UniProtKB:Q64299}. Cytoplasm. Cell junction, gap junction. Note=Localizes at the gap junction in presence of GJA1. {ECO:0000250|UniProtKB:Q9QZQ5}
Tissue Location	Expressed in endothelial cells (at protein level) (PubMed:21063504). Expressed in bone marrow and thymic cells

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