Recombinant Human COMP/Thrombospondin-5 His-tag

Catalog Number: 3134-CPB

DESCRIPTION

Source	Mouse myeloma cell line, NS0-derived human COMP/Thrombospondin-5 protein Gln21-Ala757 (Ala256Arg), with a C-terminal 6-His tag Accession # P49747
N-terminal Sequence Analysis	Gln21
Structure / Form	Disulfide linked homopentamer
Predicted Molecular Mass	81.8 kDa

SPECIFICATIONS

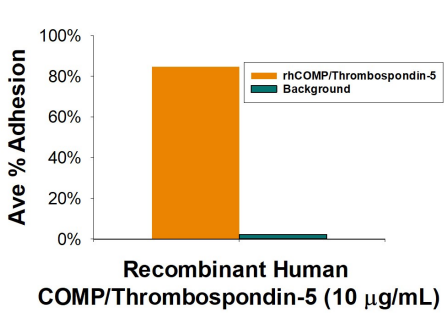
SDS-PAGE	106-118 kDa, reducing conditions
Activity	Measured by its ability to induce adhesion of ATDC5 mouse chondrogenic cells. Recombinant Human COMP/Thrombospondin-5 immobilized at 10 µg/mL (100 µL/well) will induce more than 40% of ATDC-5 cell adhesion.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>90%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Formulation	Lyophilized from a 0.2 µm filtered solution in MOPS and NaCl with Trehalose. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 500 µg/mL in PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** • 12 months from date of receipt, -20 to -70 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 3 months, -20 to -70 °C under sterile conditions after reconstitution.

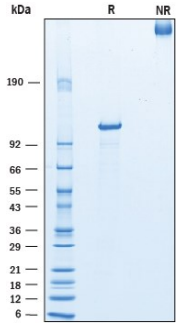
DATA

Bioactivity



Immobilized Recombinant Human COMP/Thrombospondin-5 (Catalog # 3134-CPB) at 10 µg/mL (100 µL/well) induces more than 40% cell adhesion.

SDS-PAGE



2 µg/lane of Recombinant Human COMP/Thrombospondin-5 was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 106-118 kDa and 500 - 550 kDa, respectively.

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Global bio-techne.com info@bio-techne.com techsupport@bio-techne.com TEL +1 612 379 2956
USA TEL 800 343 7475 Canada TEL 855 668 8722 China TEL +86 (21) 52380373
Europe | Middle East | Africa TEL +44 (0)1235 529449

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BACKGROUND

Cartilage Oligomeric Matrix Protein (COMP), also known as Thrombospondin-5, is a 110 kDa multidomain calcium binding protein that associates with other extracellular matrix molecules. Thrombospondin-1 and -2 constitute subgroup A and form homotrimers, whereas Thrombospondin-3, -4, and COMP constitute subgroup B and form homopentamers (1-4). The human COMP cDNA encodes a 757 amino acid (aa) precursor that includes a 20 aa signal sequence followed by a non-collagenous coiled-coil domain, four EGF-like repeats, seven TSP type-3 repeats, and a globular TSP C-terminal domain (5). Human COMP shares 86-93% aa sequence identity with rat, mouse, equine, bovine, and canine COMP. Within the TSP type-3 repeats and TSP C-terminal domain, human COMP shares 60%, 61%, 74%, and 80% aa sequence identity with human Thrombospondin-1, -2, -3, and -4, respectively. The coiled coil domain mediates the association of COMP into disulfide-linked homopentamers with a central hub and peripheral globular domains connected by flexible strands (6, 7). An axial pore is formed by the coiled coil assembly and binds vitamin D_3 which is involved in bone and cartilage metabolism (8). An RGD sequence in the third TSP type-3 repeat mediates chondrocyte attachment via Integrin α5β1, although when reduced and in the absence of calcium, attachment is mediated via Integrin αVβ3 (9). COMP is upregulated in rheumatoid arthritis and osteoarthritis, hepatocellular carcinomas, chronic pancreatitis, and pancreatic carcinomas (10-12). Elevated circulating COMP levels are used as a biomarker for early onset of some skeletal disorders (10). Several mutations are associated with skeletal dysplasias, and the most common, a point mutation in the third TSP type-3 repeat, results in diminished calcium binding ability (13, 14).

References:

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