Recombinant Human WISP-1/CCN4
Catalog Number: 1627-WS

DESCRIPTION
Source
Mouse myeloma cell line, NS0-derived human WISP-1/CCN4 protein
Thr23-Asn367, with a 10-His tag
Accession # O95388

N-terminal Sequence Analysis

Thr23

Predicted Molecular Mass 39.3 kDa

SPECIFICATIONS

SDS-PAGE 62 kDa, reducing conditions

Activity Measured by its ability to inhibit the cell growth of DU145 human prostate carcinoma cells.
The ED₅₀ for this effect is 1.6 µg/mL.

Endotoxin Level <1.0 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 PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution Reconstitute at 250 µg/mL in sterile 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.

BACKGROUND

Human WISP-1 (Wnt-induced secreted protein-1; also CNN4) is a 40 kDa, secreted, heparin-binding glycoprotein that is a member of the CCN (or CytGF/Cyr61/Nov) cysteine-rich protein family (1-5). It is synthesized as a 367 aa precursor that contains a series of structural homology modules. Following a 22 amino acid (aa) signal sequence, there is a 68 aa IGFBP-like domain (aa 53-120), a 57 aa von Willebrand factor type C (VWC) module (aa 126-182), a 40 aa TSP type I domain (aa 220-259) and a 75 aa, C-terminal cysteine knot motif (aa 273-347). The VWC module is associated with protein-protein interaction, the TSP domain binds sulfated glycoconjugates, and the cysteine knot mediates dimerization and receptor binding (4). It is likely that WISP-1 normally circulates as an 80 kDa homodimer (2). At least five alternative splice forms are known for WISP-1. One is 30 kDa in size, 258 aa in length, and shows a substitution of a His for aa 95-182. This removes the VWC domain (2, 6). A second isoform is 155 aa in length and shows a frameshift at Arg 117 with a unique 38 aa C-terminal extension. A third is 195 aa in length and shows a 31 aa substitution for the first 203 aa of the full length precursor (6). This retains the VWC and cysteine knot domains. A fourth shows a 43 aa substitution for aa 117-367 for a total length of 163 aa. This effectively removes everything but the IGFBP-like domain (7). The last splice form contains a deletion of aa 25-269 for a total length of 122 aa. Thus, only the signal sequence and cysteine knot motifs are retained (8). This leaves only the IGFBP-like domain (9). Full-length mature human WISP-1 is 85% aa identical to both mouse and rat WISP-1. WISP-1 is expressed by osteoblasts and may contribute to fracture healing by promoting bone cell formation (10, 11).

References: