Recombinant Human Thrombospondin-2
Catalog Number: 1635-T2

DESCRIPTION

Source: Mouse myeloma cell line, NS0-derived
Gly19-Ile172, with a C-terminal 10-His tag
Accession #: P35442

N-terminal Sequence Analysis: Gly19
Predicted Molecular Mass: 129 kDa

SPECIFICATIONS

SDS-PAGE: 170-176 kDa, reducing conditions
Activity: Measured by the ability of the immobilized protein to support the adhesion of SVEC4-10 mouse vascular endothelial cells.
Recombinant Human Thrombospondin-2 (rhThrombospondin-2) is coated to 96 well plates at 10 µg/mL (100 µL/well) overnight then reduced with 20 mM DTT for 30 minutes. When 2 x 10^4 cells/well are added to rhThrombospondin-2 coated plates, >55% will adhere after one hour at 37 °C. Optimal dilutions should be determined by each laboratory for each application.

Endotoxin Level: <1.0 EU per 1 µg of the protein by the LAL method.
Purity: >90%, by SDS-PAGE under reducing conditions and visualized by silver stain.
Formulation: Lyophilized from a 0.2 µL filtered solution in MES and NaCl. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution: Reconstitute at 100 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

Thrombospondin-2 (TSP-2) is a 150 kDa calcium-binding protein that modulates cellular interactions with extracellular matrix. Thrombospondin-1 and -2 constitute subgroup A thrombospondin family members and form disulfide-linked homotrimers, whereas Thrombospondin-3, -4, and -5/COMP constitute subgroup B and form homopentamers (1-4). The human TSP-2 cDNA encodes a 1172 amino acid (aa) precursor that includes an 18 aa signal sequence followed by an N-terminal heparin-binding domain, an oligomerization motif, one vWF-C domain, three TSP type-1 repeats, three EGF-like repeats, seven TSP type-3 repeats, and a lectin-like TSP-C terminal domain (5). Human TSP-2 shares 88-90% aa sequence identity with bovine, mouse, and rat TSP-2. Within the TSP type-3 repeats and TSP-C terminal domain, human TSP-2 shares 80% aa sequence identity with human TSP-1 and approximately 60% aa sequence identity with human TSP-3, -4, and -5/COMP. TSP-2 regulates collagen matrix formation by altering fibroblast behavior during development and in areas of tissue remodeling in the adult (6, 7). Trimerization of TSP-2 is required for the calcium-dependent cell attachment and spreading functions, while the heparin-binding domain is responsible for the destabilization of focal adhesion sites (8-10). The heparin-binding domain also mediates binding to Integrins αβ1 and αβ1 on microvascular endothelial cells (EC) and Integrin αβ1 on large blood vessel EC (11, 12). A fragment of TSP-2 (heparin-binding domain, oligomerization motif, and vWF-C domain) promotes EC survival, proliferation, and chemotaxis (11). Inclusion of the three TSP type-1 domains results in a molecule that inhibits VEGF-induced EC migration and vascular tube formation (13, 14). In vivo, full-length TSP-2 blocks tumor angiogenesis and induces vascular EC apoptosis (13, 15). HPRG functions as an apparent decay receptor by preventing interaction of TSP-2 with CD36 on macrophages and microvasculature EC (14). TSP-2 also binds MMP-2 and facilitates MMP-2 clearance by the scavenger receptor LRP (16).

References:

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