Recombinant Human SPARC
Catalog Number: 941-SP

DESCRIPTION

Source
Mouse myeloma cell line, NS0-derived
Ala18-Ile303, with a C-terminal 10-His tag
Accession # NP_003109

N-terminal Sequence Analysis
Ala18

Predicted Molecular Mass
34 kDa

SPECIFICATIONS

SDS-PAGE
40-50 kDa, reducing conditions

Activity
The ED50 for this effect is 0.75-3.0 µg/mL.

Endotoxin Level
<0.10 EU per 1 µg of the protein by the LAL method.

Purity
>95%, 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 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

SPARC, an acronym for “secreted protein, acidic and rich in cysteine”, is also known as osteonectin or BM-40 (1-5). It is the founding member of a family of secreted matricellular proteins with similar domain structure. The 286 amino acid (aa), 43 kDa protein contains an N-terminal acidic region that binds calcium, a follistatin domain that contains Kazal-like sequences, and a C-terminal extracellular calcium (EC) binding domain with two EF-hand motifs (1-5). Crystal structure modeling shows that residues implicated in cell binding, inhibition of cell spreading, and disassembly of focal adhesions cluster on one face of SPARC, while a collagen binding epitope and an N-glycosylation site are opposite this face (6). SPARC is produced by fibroblasts, capillary endothelial cells, platelets and macrophages, especially in areas of tissue morphogenesis and remodeling (3, 7). SPARC shows context-specific effects, but generally inhibits adhesion, spreading and proliferation, and promotes collagen matrix formation (3-5). For endothelial cells, SPARC disrupts focal adhesions and binds and sequesters PDGF and VEGF (3-5). SPARC is abundantly expressed in bone, where it promotes osteoblast differentiation and inhibits adipogenesis (5, 8). SPARC is potentially cleaved by metalloproteinases, producing an angiogenic peptide that includes the copper-binding sequence KGHK (7). Paradoxically, SPARC is highly expressed in many tumor types undergoing an endothelial to mesenchymal transistion; its expression, however, mainly decreases the likelihood of metastasis and confers sensitivity to chemotherapy and radiation (4, 9-11). Stabilin-1, which is expressed on alternately activated macrophages, is the first SPARC receptor to be identified. It binds the SPARC EC domain and mediates endocytosis for degradation (12). Mature human SPARC shows 92%, 92%, 97%, 99%, 96% and 85% aa identity with mouse, rat, canine, bovine, porcine and chick SPARC, respectively.

References: