Recombinant Mouse SPARC

Catalog Number: 942-SP

DESCRIPTION

Source	Mouse myeloma cell line, NS0-derived Ala18-Ile302, with a C-terminal 10-His tag Accession # P07214
N-terminal Sequence Analysis	Ala18
Predicted Molecular Mass	34 kDa

SPECIFICATIONS

SDS-PAGE	42 kDa, reducing conditions
Activity	Measured by its ability to inhibit the cell growth of Mv1Lu mink lung epithelial cells. Schiemann, B.J. *et al.* (2003) Mol. Biol. Cell. **14**:3977. The ED_{50} for this effect is 0.6-2.4 µg/mL. **Optimal dilutions should be determined by each laboratory for each application.**
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE under reducing conditions and visualized by silver stain.
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 with polar packs. 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 302 amino acid (aa), 43 kDa protein contains a 17 aa signal sequence, an N-terminal acidic region that binds calcium, a follistatin domain containing Kazal-like sequences, and a C-terminal extracellular calcium (EC) binding domain with two EF-hand motifs (1 - 5). Crystal structure 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, yet expression mainly decreases the likelihood of metastasis and confers sensitivity to chemotherapy and radiation (4, 9, 10). 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 (11). Mature mouse SPARC shows 97%, 92%, 92%, 92% and 83% aa identity with rat, human, dog, cow and chick SPARC, respectively.

References:

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