Recombinant Human Syndecan-4

Catalog Number: 2918-SD

DESCRIPTION

Source	Mouse myeloma cell line, NS0-derived Glu19-Glu145, with a C-terminal 6-His tag Accession # P31431
N-terminal Sequence Analysis	Glu19
Predicted Molecular Mass	14.7 kDa

SPECIFICATIONS

SDS-PAGE	25-40 kDa, reducing conditions
Activity	Measured by its binding ability in a functional ELISA. Immobilized rhSyndecan-4 at 500 ng/mL (100 µL/well) can bind rhFGF-basic with a linear range of 0.1-10 ng/mL.
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 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

Syndecan-4, previously known as amphiglycan or ryudocan, is a member of the syndecan family of Type 1 transmembrane proteins capable of carrying heparan sulfate (HS) and chondroitin sulfate glycosaminoglycans. The four vertebrate syndecans have two conserved cytoplasmic domains and divergent extracellular portions, except for HS attachment sites. Syndecan-4 is the most similar to Syndecan-2, but is more universally expressed and is found in virtually every cell type. Expression can be upregulated by TGF-β2 and in response to mechanical stress in smooth muscle, wound healing, arterial injury or acute myocardial infarction, probably in response to at least one inflammatory mediator (1, 2). Human Syndecan-4 is synthesized as a 198 amino acid (aa) core protein with an 18 aa signal sequence, a 127 aa extracellular domain containing three consensus Ser-Gly sequences for the attachment of HS side chains, a 25 aa transmembrane region and a 28 aa cytoplasmic tail (3). Human Syndecan-4 ECD shares approximately 79%, 78% and 81% aa identity with mouse, rat and porcine Syndecan-4 ECD, respectively. Addition of 20 - 80 disaccharides per side chain adds considerably to the size of the 20 kDa core protein. Non-covalent homodimerization of Syndecan-4 is dependent on the transmembrane domain (4). The HS chains can bind fibronectin, SDF-1, antithrombin, FGF-2, midkine and tissue factor pathway inhibitor and can present FGF-2 to its receptors (1, 2, 5). Proteolytic cleavage by plasmin, thrombin or a metalloproteinase may create a functional ectodomain (6 - 8). Genetic disruption of the Syndecan-4 gene causes a mild phenotype, presumably due to compensation by other syndecans, but mice have an increase in placental thrombi as well as defects in wound healing and response to endotoxin shock (9, 10).

References:

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