Recombinant Human Syndecan-1/CD138

Catalog Number: 2780-SD

DESCRIPTION

Source	Mouse myeloma cell line, NS0-derived human Syndecan-1/CD138 protein Gln18-Glu251, with a C-terminal 6-His tag Accession # NP_002988
N-terminal Sequence Analysis	No results obtained: Gln18 predicted
Predicted Molecular Mass	24.9 kDa

SPECIFICATIONS

SDS-PAGE	60-90 kDa, reducing conditions
Activity	Measured by the ability of the immobilized protein to enhance the adhesion of Saos-2 human osteosarcoma cells to human Fibronectin. Measured by the ability of the immobilized protein to enhance the adhesion of Saos-2 human osteosarcoma cells to human Fibronectin (0.5 µg/mL, Catalog # 4305-FNB). The ED_{50} for this effect is 2.5-10 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 500 µg/mL in 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-1, designated CD138, is a dimeric type I transmembrane (TM) protein that belongs to the syndecan family of Type 1 transmembrane proteins (1, 2). The four syndecan family members are major carriers of heparan sulfate (HS) and chondroitin sulfate glycosaminoglycans (GAGs) that have different expression patterns and extracellular sequences. Syndecan-1 forms weak non-covalent homodimers, or heterodimers with Syndecan-2 or -3, through interactions of the transmembrane domain (3). It is synthesized as a 310 amino acid (aa) precursor with a 17 aa signal sequence, a 234 aa extracellular domain (ECD) that includes three closely-spaced consensus Ser-Gly HS attachment sites near the N-terminus, a 25 aa TM segment, and a 34 aa cytoplasmic region that includes a PDZ binding motif with a tyrosine phosphorylation site. The ECD is variably modified by GAGs, producing molecular weights of 120 - 200 kDa for native Syndecan-1. Soluble forms are shed via proteolytic cleavage. Human Syndecan-1 ECD shares 65 - 71% aa identity with the ECD of rat, mouse, canine, equine and bovine Syndecan-1. Syndecan-1 shows highest expression on epithelial cells such as keratinocytes, and terminally differentiated B cells such as plasma cells (4, 5). It aids wound healing in skin, cornea, and heart following myocardial infarction by promoting re-epithelialization, migration, and collagen deposition (4 - 8). It binds chemokines, creating chemotactic gradients when shed, but also binds and modulates integrins to control the influx of leukocytes (5, 7, 9). The net effect is to allow, but limit, inflammation. In myeloma and other cancers, shedding of Syndecan-1 can facilitate growth, angiogenesis and metastasis (10 - 12). Growth factors, such as FGFs and HGF, bind GAG chains and use Syndecan-1 as a coreceptor (12, 13). The GAG chains may also be used by a variety of viruses and bacteria for cell adhesion and uptake (4).

References:

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