

DESCRIPTION

Source Mouse myeloma cell line, NS0-derived human Vitronectin protein
Asp20-Leu478
Accession # AAH05046.1

N-terminal Sequence Analysis Asp20

Predicted Molecular Mass 52.3 kDa

SPECIFICATIONS

SDS-PAGE 70-80 kDa, reducing conditions

Activity Measured by the ability of immobilized protein at 5 µg/mL to support the adhesion of B16-F1 mouse melanoma cells.

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

Purity >90%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.

Formulation Lyophilized from a 0.2 µm filtered solution in Tris 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

Vitronectin is a large glycoprotein found in blood and the extracellular matrix (ECM). The gene for Vitronectin encodes a 19 amino acid (aa) signal peptide and a 459 aa protein. The amino terminal 130 aa residues of Vitronectin contain multiple binding sites for a variety of structures. Included is a site for binding to plasminogen activator inhibitor-1 (PAI-1) and urokinase receptor, an (RGD) sequence that binds α_vβ₃, α_vβ₅, α_vβ₁, α_{IIb}β₃, α_vβ₆, and α_vβ₈ integrins, a stretch of acidic amino acids that includes two sulfated tyrosine residues that bind thrombin-anti-thrombin III complexes, and a collagen binding site. The major part of the Vitronectin molecule (aa 132-459) contains six hemopexin-like repeats. The carboxyl-terminal end of Vitronectin also has multiple sites and functions. It contains a stretch of basic amino acids that binds the acidic amino acids of the amino-terminal region, thereby stabilizing Vitronectin's three dimensional structure. The carboxyl-terminal end also contains a plasminogen binding site, a heparin binding site that binds complement factor C7, C8 or C9, a glycosaminoglycan binding site, and a second PAI-1 binding site (aa 348-370). Vitronectin also contains an endogenous cleavage site, plus cleavage sites for elastase, thrombin and plasmin. Vitronectin has also been shown to bind IGF-2 and TGF-β. The apparent molecular weight of human Vitronectin is 75 kDa, with ~30% of its molecular mass being attributed to glycosylation at 3 different sites. In blood and plasma, Vitronectin is found predominantly as a single chain monomer. It can also be found as a dimer after endogenous cleavage. The dimer is composed of a 65 kDa and 10 kDa component held together by a disulfide bond. Binding of thrombin-anti-thrombin II complex or complement leads to an unfolding of Vitronectin. Unfolding of Vitronectin generates disulfide-linked multimers that are found in platelet secretions and extracellular matrix. Vitronectin is produced at high levels by the liver and many tumors. As might be expected by its structure, Vitronectin is involved in a number of biological activities including cell adhesion, cell spreading and migration, cell proliferation, extracellular anchoring, fibrinolysis, hemostasis, and complement mediated immune defense.

References:

1. Schvartz, I. Seger, D. and S. Shaltiel (1999) Int. J. Biochem. Cell Biol. **31**:539.
2. <http://www.copewithcytokines.de/cope.cgi>