

**DESCRIPTION**

**Source** Bovine plasma-derived

**N-terminal Sequence** DQESCKGRCT

**Analysis**

**SPECIFICATIONS**

**SDS-PAGE** 58 kDa, 68 kDa and 80 kDa, reducing conditions

**Activity** Measured by the ability of the immobilized protein to support the adhesion of B16-F1 mouse melanoma cells. When  $5 \times 10^4$  cells/well are added to Vitronectin coated plates (5 µg/mL with 100 µL/well), approximately >55% will adhere after 30 minutes at 37 °C.  
**Optimal concentration depends on cell type as well as the application or research objectives.**

**Endotoxin Level** <0.10 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 and Urea. 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 larger glycoprotein found in blood and in the extracellular matrix (ECM). The amino terminal segment of vitronectin harbors a binding site (aa 1 - 44) for plasminogen activator inhibitor-1 (PAI-1) and urokinase receptor, an Agr-Gly-ASP (RGD) sequence (aa 45 - 47) that provides a binding site for  $\alpha_v\beta_3$ ,  $\alpha_v\beta_5$ ,  $\alpha_v\beta_1$ ,  $\alpha IIb\beta_3$ ,  $\alpha_v\beta_6$ , and  $\alpha_v\beta_8$  integrins, a stretch of acidic amino acids including two sulfated tyrosine residues (aa 56 and 59) that provide a binding site for thrombin-anti-thrombin III complexes, and a collagen binding site. The major part of the vitronectin molecule (aa 132 - 459) accommodate six hemopexin repeats. The carboxyl-terminal end of vitronectin containing a stretch of basic amino acids (aa 348 - 379) that binds the acidic stretch of acidic amino acids in the amino-terminal section and stabilized vitronectin's three dimensional structure. The carboxyl-terminal end of vitronectin also contains a plasminogen binding site (aa 332 - 348), a heparin binding site that can be bound by complement factor C7, C8 or C9 (aa 348 - 376), a glycosaminoglycan binding site (aa 348 - 361), and a second PAI-1 binding site (aa 348 - 370). Vitronectin also contains an endogenous cleavage site, two elastase cleavage sites, two thrombin cleavage sites, and a plasmin cleavage site. Vitronectin also has been shown to bind insulin growth factor II (IGF-II) and TGF- $\beta$ . The apparent molecular weight of bovine vitronectin is 70 kDa, with ~15% of its molecular mass being contributed to by glycosylation. 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 comprised of a 65 kDa and 10 kDa component held together by a disulfide bond. Binding of thrombin-anti-thrombin II complex or complement lead to an unfolding of vitronectin. Unfolding of vitronectin leads to the formation of disulfide-linked multimers that are found in platelet releasate and in the extracellular matrix. Vitronectin is produced at high levels by the liver and many tumors. Vitronectin is involved in a number of biological functions including cell adhesion, cell spreading and migration, cell proliferation, extracellular anchoring, fibrinolysis, hemostasis, and complement immune defense.

**References:**

1. Schwartz, I. *et al.* (1999) *Int. J. Biochem. Cell Biol.* **31**:539.
2. <http://www.copewithcytokines.de/cope.cgi>
3. Nakashima, N. *et al.* (1992) *Biochem. Biophys. Acta* **1120**:1.