Recombinant Human Vitronectin, Animal Component-Free

Cat. No. :	H062H
Alternative Names:	Vitronectin; VN; VTNC; S-Protein; Serum-Spreading Factor; V75; VTN
Species:	Human
Accession No.:	P04004
Expression System:	HEK293
Protein Sequence:	Asp20-Leu478, with a C-terminal 6xHis tag.
Theoretical MW:	53.1 kDa
Theoretical pI:	5.80
Tag:	C-terminal 6xHis tag.
Formulation buffer:	PBS, 5% Mannitol and 0.01% Tween 80, pH7.4.
Appearance:	Lyophilized Powder.
Purity:	≥95% as determined by SDS-PAGE.
Bioactivity:	Activity was assessed using the capacity of the immobilized protein to support NIH3T3 fibroblast adhesion as the criterion. The ED_{50} for this effect was determined to be 0.2 - 1 μg/mL.
Endotoxin Level:	≤10.0 EU/μg, as determined by the LAL assay.
Application:	Cell Culture; Activity Assays.

Preparation & Storage

Reconstitution: Reconstitute with sterile double-distilled water (ddH_2O).

⚠ Centrifuge the vial briefly before opening to ensure full recovery of the solution. Avoid vortexing and minimize vigorous pipetting to maintain protein stability.

❄ Immediately aliquot the reconstituted protein solution and store under recommended conditions. Avoid repeated freeze-thaw cycles.

Shipping: Shipped on dry ice. Short-term transit on cold packs (2-8℃) is acceptable.

Storage: **Use a manual defrost freezer and avoid repeated freeze-thaw cycles.**

- 12 months from date of receipt, -20 to -80℃ as supplied.
- 2-7 days at 2 to 8℃ under sterile conditions after reconstitution.
- 3-6 months at -20 to -80℃ under sterile conditions after reconstitution.

Protein Description

Background: Vitronectin (VN), also designated S-protein or serum spreading factor, is a multifunctional glycoprotein essential for hemostasis, complement regulation, cell adhesion, and tissue remodeling. Encoded by the VTN gene, human vitronectin (UniProt: P04004) is synthesized primarily by hepatocytes and secreted into plasma at concentrations of 200-500 μg/mL. Processed to a mature 326-amino acid polypeptide (~ 75 kDa monomer), it circulates as monomers, disulfide-linked dimers, or multimers and is stored in platelet α-granules. Structurally, it features an N-terminal somatomedin B domain (critical for PAI-1 and uPAR binding), a central hemopexin-like domain, and a C-terminal region containing a canonical RGD motif and heparin-binding sites. The RGD sequence mediates high-affinity interactions with αvβ3, αvβ5, and other αv-integrins.

Vitronectin orchestrates key physiological processes:

- Fibrinolysis regulation: stabilizes the active conformation of plasminogen activator inhibitor-1 (PAI-1), prolonging its half-life and suppressing plasmin generation.
- Complement inhibition: binds C5b-7 complexes to prevent membrane attack complex (MAC) assembly on host cell membranes.
- Cell adhesion/migration: supports endothelial cell, fibroblast, and tumor cell attachment, spreading, and motility via integrin engagement.
- Wound healing: deposited into provisional matrices to facilitate cell recruitment and tissue repair.

Pathologically, dysregulated vitronectin contributes to thrombotic disorders (via enhanced PAI-1 activity), cancer progression (promoting invasion, metastasis, and angiogenesis), age-related macular degeneration (complement dysregulation), and fibrotic diseases. Clinically, recombinant vitronectin serves as a defined, xeno-free substrate for human pluripotent stem cell culture and regenerative medicine applications. Circulating levels and isoforms are investigated as biomarkers in liver fibrosis and thrombosis. Therapeutic strategies targeting vitronectin-integrin or vitronectin-PAI-1 interfaces are under preclinical evaluation for oncology and antifibrotic indications.

References:

1. Podack ER, Müller-Eberhard HJ. Isolation of human S protein, an inhibitor of the membrane attack complex of complement. J Immunol. 1981;127(6):2282-2286.

2. Preissner KT. Structure and biological role of vitronectin. Annu Rev Cell Biol. 1991;7:31-55.
3. Zhou A, Huntington JA, Pannu NS, Carrell RW, Read RJ. How vitronectin binds PAI-1 to modulate fibrinolysis. Nature. 2003;425(6958):107-111.
4. Ruoslahti E, Pierschbacher MD. New perspectives in cell adhesion: RGD and integrins. Science. 1987;238(4826):491-497.
5. Xue M, Jackson CJ, Dear AE. Vitronectin: a multifunctional protein in health and disease. J Thromb Haemost. 2019;17(10):1603-1615.

Product Disclaimer

- This product is intended for research use only and is not for use in diagnostic, therapeutic, or clinical procedures.
- Due to the inherent nature of research reagents, any liability arising from product quality issues is limited solely to the replacement or refund of the product itself and excludes all indirect, incidental, or consequential damages.

获取前沿资讯、最新产品及活动

Tel: 86 + 132-0209-8186; 86 + 186-2016-1769 E-mail: info@anewbiosystems.com