

Recombinant Human Vitronectin, Animal Component-Free

Cat. No. :	H061C
Alternative Names:	Vitronectin; VN; VTNC; S-Protein; Serum-Spreading Factor; V75; VTN
Species:	Human
Accession No.:	P04004
Expression System:	CHO
Protein Sequence:	Asp20-Leu478
Theoretical MW:	52.28 kDa
Theoretical pI:	5.47
Tag:	Tag-Free.
Formulation buffer:	PBS, 5% Mannitol and 0.01% Tween 80, pH7.4.
Appearance:	Lyophilized Powder.
Purity:	≥95% as determined by SDS-PAGE.
Bioactivity:	This was assessed by measuring the ability of the immobilized protein to support the adhesion of NIH3T3 mouse embryonic fibroblast cells. The ED ₅₀ for this effect is ≤10.0 µg/mL.
Endotoxin Level:	≤0.01 EU/µg, as determined by the LAL assay.
Application:	Cell Culture; Activity Assays.

Preparation & Storage

Reconstitution:	Reconstitute with sterile double-distilled water (ddH ₂ O). <div style="border: 1px solid orange; padding: 5px; margin-top: 5px;"> <p>⚠ Centrifuge the vial briefly before opening to ensure full recovery of the solution. Avoid vortexing and minimize vigorous pipetting to maintain protein stability.</p> <p>❄ Immediately aliquot the reconstituted protein solution and store under recommended conditions. Avoid repeated freeze-thaw cycles.</p> </div>
Shipping:	Shipped on dry ice. Short-term transit on cold packs (2-8°C) is acceptable.
Storage:	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. <ul style="list-style-type: none"> ● 12 months from date of receipt, -20 to -80°C as supplied. ● 2-7 days at 2 to 8°C under sterile conditions after reconstitution. ● 3-6 months at -20 to -80°C under sterile conditions after reconstitution.

Protein Description

Background: Vitronectin (VN), encoded by VTN (17q11.2), is a multifunctional 75-kDa plasma glycoprotein (55-kDa tissue-cleaved form) abundant in circulation (~350 µg/mL) and extracellular matrix. Structurally, it features an N-terminal somatomedin B domain (binding PAI-1, uPAR), an RGD motif for αvβ3/αvβ5/α11bβ3 integrin engagement, heparin-binding regions, and C-terminal hemopexin repeats. VN critically:

Regulates hemostasis/fibrinolysis: Stabilizes plasminogen activator inhibitor-1 (PAI-1), inhibiting tPA/uPA-mediated clot lysis.

- Modulates immunity: Blocks complement membrane attack complex (MAC) assembly, protecting host cells.
- Mediates cell dynamics: Supports adhesion, migration, survival, and angiogenesis via integrin signaling.
- Facilitates tissue repair: Scaffolds provisional matrix during wound healing.

Pathologically, VN is upregulated in tumor microenvironments (promoting invasion, metastasis, and therapy resistance), atherosclerotic plaques, fibrotic tissues, and age-related macular degeneration (AMD). Clinically, recombinant VN (e.g., Vitronectin XF™) is a gold-standard xeno-free substrate for human pluripotent stem cell culture. The VN-integrin axis is targeted therapeutically (e.g., cilengitide trials in glioblastoma; PAI-1/VN inhibitors in thrombosis/fibrosis). VN epitomizes a pleiotropic matricellular hub integrating coagulation, immunity, and tissue remodeling.

References:

1. Preissner KT. Structure and biological role of vitronectin. *Annu Rev Cell Biol.* 1991;7:155-180.
2. Hajjar KA, Jacovina AT, Chacko J. An endothelial cell receptor for plasminogen activator inhibitor 1. *J Biol Chem.* 1994;269(35):21964-21969.
3. Podack ER, Müller-Eberhard HJ. Isolation of a lytic membrane protein from human serum. *Nature.* 1981;294(5838):283-285.
4. Suzuki S, et al. Amino acid sequence of human vitronectin. *J Biol Chem.* 1985;260(27):14453-14458.
5. Wei C, et al. Vitronectin: a multifunctional protein in health and disease. *Matrix Biol.* 2020;91-92:1-18.
6. Rodin S, et al. Long-term self-renewal of human pluripotent stem cells on defined xeno-free substrates. *Nat Commun.* 2014;5:5255.

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