Vitronectin, Human, Recombinant

FOR, CELL CULTURE, CELL ADHESION
AND CELL BIOLOGY
Catalog Number **5121**

DESCRIPTION

Human Vitronectin is a 478 amino acid protein (1-19aa = signal domain) that belongs to a member of the pexin family. Vitronectin is an abundant glycoprotein found in serum and the extracellular matrix. It promotes cell adhesion and spreading, inhibits the membrane-damaging effect of the terminal cytolytic complement pathway, and binds to several serpin serine protease inhibitors. It is a secreted protein and exists in either a single chain form or a clipped, two chain form held together by a disulfide bond. Vitronectin has been speculated to be involved in hemostasis and tumor malignancy.

Recombinant human Vitronectin gene (20-398 aa Fragment) was constructed with codon optimization and expressed in non-fusion protein form in E.coli as inclusion bodies. The final product was refolded using an unique “temperature shift inclusion body refolding” technology and chromatographically purified.

Advanced BioMatrix’s human recombinant Vitronectin is provided at a concentration of 0.5 mg/ml with 0.1 mg of Vitronectin being dissolved in 0.2 ml of 50 mM Tris-HCl buffer, pH 8.0.

APPLICATIONS

Vitronectin is used as a thin coating. The optimal concentration for cell attachment and culture may differ for various cell types. Some experimentation may be required to determine the optimal conditions for individual cell culture systems. A typical coating concentration is 0.5 to1.0 µg/cm^2.

Vitronectin has been shown to be effective:
1. An excellent coating for a broad range of cell types.
2. As coating matrix protein for maintaining long-term ES or iPS cell culture when combining with E8 culture medium or Nutristem™ culture medium.
3. As an excellent coating matrix material of 11R-tagged recombinant TF intracellular delivery for protein derived iPS protocol with extremely low-level non-specific interaction.

Vitronectin is not for human use as supplied.

ACCESSION NUMBER: NP_000692

CHARACTERIZATION

Source: Recombinant using E. coli.

Purity: Vitronectin has a purity of >95% based on SDS-PAGE electrophoresis.

Concentration: The concentration of Vitronectin is 0.5 mg/ml with 0.1 mg of Vitronectin being dissolved in 0.2 ml of phosphate buffered saline.

Sterility: No growth

Functional Testing: Each lot has been tested with human ES cell (H1) culture using 5-10 µg in 1 ml Nutristem medium per well (6-well plate).

Storage: It is recommended that Vitronectin be stored below -20°C and repeat thawing and freezing be avoided. Product is stable at 2 to 10 °C for at least 30 days.

INSTRUCTIONS FOR USE:

Use these recommendations as guidelines to determine the optimal coating conditions for your culture system.

1. Thaw Vitronectin and dilute to desired concentration using serum-free medium or PBS. The final solution should be sufficiently dilute so that the volume added covers the surface evenly.
2. Add appropriate amount of diluted material to culture surface.
3. Incubate at 2-10°C overnight or room temperature for 1 hour.
4. Aspirate remaining material.
5. Plates are ready to use.

RECOMBINANT PROTEIN SEQUENCE:

MDQESCKGRCTEGFNVDKKCQCDELCSYYQSCCTDYTAECKPQVTRGDV
FTMPEDEYTVYDDGEEKNNATVHEQVGGPSLTSDLQAQSKGNPEQTPVL
KPEEEAPAPEVGASKPEGIDSRPETLHPGRPQPPAEEELCSGKPFDAFT
DLKNGSLFAFRGQYCYELDEKAVRPGYPKLIRDVWGIEGPIDAAFTRIN
CQGKTYLFKGSQYWRFEDGVLDPDYPRNISDGFDGIPDNVDAALALPAH
SYSGRERVYFFKGKQYWEYQFQHQPSQEECEGSSSAVFEHFAMMQRDSW
EDIFELLFWGRTSAGTRQPQFISRDWHGVPGQVDAAMAGRIYISGMAPR
PSLAKKQRFRHRNRKGYRSQRGHSRGRNQNSRRPSR

REFERENCES:

(1) Hyaman E.G., M.D. Pierschbacher, Y. Ohgren, and E. Ruoslahti (1983) Serum spreading factor (Vitronectin) is present at the cell surface and in tissues. Proc. Natl. Acad. Scie. U.S.A. 80 (13): 4003-4007

(2) Guokai Chen, et al. *Chemically defined conditions for human iPSC derivation and culture*. Nature Methods. 8, 424-429 (2011)

(3) Stefan R. Braam. Et al. *Recombinant Vitronectin is a Functionally Defined Substrate that Supports Human Embryonic Stem Cell Self-Renewal via aVb5 integrin*. STEM CELLS. Vol. 26. Issue 9. 2257-2265 (2008)