Nacalai USA
Innovations for Life Sciences.

Vitronectin-398™ (Xeno-free)

Cat. No. NU0006 500 µg

For Research Use Only

Human VTN (Vitronectin) is a 478 amino acid protein (1-19 = 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. Recent publication from James Thomson's group indicated that coated recombinant human vitronectin protein alone benefits iPS cell generation when combined with E8 culture medium.

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 our unique "temperature shift inclusion body refolding" technology and chromatographically purified. Coating this recombinant protein at 5-10 µg / well (6 well plate) in either NutirStem or E8 medium can be used for human iPS cell generation in vitro.

Gene Symbol
VTN

Accession Number
NP_000629

Species
Human

Composition
0.5 mg/ml, sterile-filtered, in 20 mM pH 8.0 Tris-HCl Buffer, with proprietary formulation buffer containing sucrose, EDTA, arginine and DTT.

Storage
In liquid. Keep at -80°C for long term storage. Product is stable at 4°C for at least 30 days.

Application
1. As coating matrix protein for maintaining long-term ES or iPS cell culture before combining with E8 culture medium.
2. 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.

Quality control
1. Purity: >95% by SDS-PAGE
2. Functional Test: Each lot was tested with human ES cell (H1) culture using 5-10 µg in 1 ml Nutristem medium per well (6-well plate).

Coating Protocol
Use 1 ml PBS per well, add 5-10 µg protein to each well and incubate at 4°C overnight. After coating, remove PBS solution, the plate is ready for ES cell cultivation.

Recombinant Protein Sequence
MDQESCKGRCTEGFNVDKKCQCDELCSYYQSCCTDYTAECKPQV
TRGDVFTMPEDEYTVYDDGEEKNNATVHEQVGGPSLTSDLQAQS
KGNPEQTPVLKPEEEAPAPEVGASKPEGIDSRPETLHPGRPQPPAE
EELCSGKPFDAFTDLKNGSLFAFRGQYCYELDEKAVRPGYPKLIRDV
WGIEGPIDAAFTRINCQGKTYLFKGSQYWRFEDGVLDPDYPRNIS
DGFDGIPDNVDAALALPAHSYSGRERVYFFKGKQYWEYQFQHQP
SQEECEGSSLSAVFEHFAMMQRDSWEDIFELLFWGRTSAGTRQP
QFISRDWHGVPGQVDAAMAGRIYISGMAPRPSLAKKQRFRHRN
RKGYRSQRGHSRGRNQNSRRPSR

References

Chen, Guokai, et al. "Chemically defined conditions for human iPSC derivation and culture." Nature methods 8.5 (2011): 424-429.

Braam, Stefan R., et al. "Recombinant vitronectin is a functionally defined substrate that supports human embryonic stem cell self-renewal via αVβ5 integrin." Stem cells 26.9 (2008): 2257-2265.

Technical Support

E-mail: info@nacalaiusa.com
Website: www.nacalaiusa.com

Rev. 01/2023

