Product Information

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Vitronectin
from rat plasma
cell culture tested

Catalog Number **V0132**
Storage Temperature 2–8 °C

CAS RN 83380-82-9
Synonyms: VTN; S-protein; Serum spreading factor; Epiboin

Product Description
Vitronectin (VTN) is a glycoprotein present in plasma and tissues. Together with fibronectin, VTN is one of the major cell adhesion proteins of plasma. Although these proteins have similar functions and have an Arg-Gly-Asp cell recognition sequence, they are structurally and immunologically distinct.

Vitronectin participates in various biological processes. In addition to promoting the adhesion of various cells in culture, vitronection binds to glycosaminoglycans, is incorporated as an inhibitor to the membrane cytolytic attack complex of the complement system, interacts with thrombin and antithrombin III during coagulation, and may have a physiological role in the coagulation pathway.

The N-terminal residues of VTN are identical to somatomedin B, which is also present in plasma. This sequence is followed by an R-G-D sequence, which interacts with a specific cell-surface receptor. Then there is a sequence of repeats units. The central domain of the molecule is enriched with hydrophobic residues. Near the C-terminus is a 12 kDa, arginine rich region responsible for heparin binding activity, which is exposed after a conformational change. The conformational change occurs *in vivo* upon binding to the thrombin-antithrombin III complex and *in vitro* with urea treatment.[3,4]

Vitronection rapidly absorbs to glass and polystyrene plastic. This property together with its high affinity for other plasma proteins makes VTN difficult to purify. Rat vitronectin is purified essentially by the same method used for human VTN, based on the heparin binding activity in the presence of 8 M urea.

The properties of rat vitronectin have been compared to other mammalian proteins. A single polypeptide is observed at ~65 kDa by SDS-PAGE, similar to chicken or porcine vitronectin. The rat protein has a weak immunological cross-reactivity with human vitronectin and no cross-reactivity with the bovine vitronectin.

The spreading activity of CHO cells was compared using vitronectin and fibronectin. Vitronectin (from both rat and human) induces the extension of the cell cytoplasma in a similar manner, which is different from the morphological shape observed with fibronectin. Fibronectin induces full lateral expansion of the cell cytoplasma.

Precautions and Disclaimer
This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions
The product is soluble in water (50 µg/ml). Reconstitution with tissue culture grade water and sterilization by filtration is suggested.

The use of polypropylene vessels is recommended during handling, due to the strong affinity of vitronectin for glass and other hydrophilic surfaces.

Storage/Stability
Store the lyophilized product desiccated at 2–8 °C. Under these conditions it remains active for at least 2 years.

Vitronectin remains active in solution, but for long term storage it is recommended to store aliquots frozen at –20 °C or –70 °C. Avoid repeated freezing and thawing.

Proecedure

It is recommended to use rat vitronectin as a cell culture substratum at a concentration of 0.1 μg/cm^2 of surface area. Optimal concentrations vary with each cell line. Coat the culture surface for 1–2 hours at 37 °C. Remove any remaining solution and wash with a balanced salt solution.

References

1. Charo, I. et al., J. Biol. Chem., **262**, 9935 (1987).
2. Cheresh, D., and Spiro, R., Biol. Chem., **262**, 17703 (1987).
3. Preissner, K.T., and Seiffert, D., Thrombosis Research, **89**, 1-21 (1998).
4. Preissner, K.T., Annu. Rev. Cell. Biol., **7**, 275 (1991).

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