Human Cellular Fibronectin (HCF)

Catalog #8488

Product Description

Fibronectin is a multi-domain glycoprotein composed of an array of multiple repeated modular structures. Cellular fibronectin, an adhesion glycoprotein of the extracellular matrix, exists as a dimer with a molecular mass of ~ 550 kDa. This structure is composed of two heterodimers, the A chain and the B chain containing the type III connecting segment region. Cellular fibronectin differs from plasma fibronectin by the presence of additional polypeptide segments and its capacity to specifically regulate morphology and growth of attached cells including stem cells [1, 2, 3, 4]. Multiple domains of fibronectin show binding affinities for collagen, fibrin, heparin, and specific cell membrane receptors such as integrins. Fibronectin matrix assembly is essential for normal development and contributes to the generation of tumor metastases.

ScienCell™ Human Cellular Fibronectin (HCF) is produced from human fibroblasts maintained in serum-free media and then purified biochemically. HCF is supplied sterile in CAPS saline buffer.

Product Specification

Quantity: 0.1 mg

Concentration: 0.5 mg/ml

Storage buffer: CAPS saline buffer, pH 11.

Quality control

Fibronectin quality is assessed with a NuPAGE 4-12% Bis-Tris Gel stained with Coomassie brilliant blue. Under reducing conditions, fibronectin appears as a doublet of 230 and 220 kDa. ELISA assays show that absorbance is directly proportional to the logarithm of fibronectin concentration. Cell adhesion assays indicate that a coating with as low as 0.1 µg/cm^2 of fibronectin significantly promotes endothelial cell adhesion compared with non-coated controls.

Storage/Handling

It is recommended to store the product as single use aliquots at -80˚C. Thawing should be done slowly at 2-8°C with no agitation. Material that fails to dissolve can be removed by centrifugation. Avoid repeated freeze/thaw cycles.

Application

Recommended for use as a cell culture substratum at 1-5 µg/cm^2. Optimal concentration depends on cell type.

Coating Instructions

1. Dilute fibronectin in a serum-free, Ca^{2+}, Mg^{2+}-free phosphate buffered saline (Cat. #0303). Coat the culture surface at 1-5 µg/cm^2 with a minimal volume.

2. Incubate at room temperature for 2 hours or 2-8˚C overnight.
3. Aspirate remaining fibronectin solution and rinse twice with HBSS or DI H_2O. The culture vessels are now ready to use.

Caution: If handled improperly, some components of this product may present a health hazard. Take appropriate precautions when handling this product, including the wearing of protective clothing and eyewear. Dispose of properly.

References

[1] Yamada KM and Akiyama SK (1984). In Methods for preparation of media, supplements and substrata for serum-free animal cell culture. pp. 215-30. Alan R. Liss, Inc., New York.

[2] Akiyama S et al. (1985). Fibronectin and fibronectin fragments in Extracellular Matrix: A Practical Approach, (New York), p. 183.

[3] Potts JR and Campbell ID (1994). “Fibronectin Structure and Assembly.” *Curr. Opin Cell Bio*, 6: 648-655.

[4] Singh P, Schwarzbauer JE (2012). “Fibronectin and stem cell differentiation - lessons from chondrogenesis.” *J Cell Sci*, 15: 3703-12.