

Human Fibronectin, *PathClear®

Catalog #: 3420-001-01

Size: 1 mg

Description: Fibronectin is an extracellular matrix protein that is found abundantly in blood, connective tissues, and remodeled matrices associated with the epithelial to mesenchymal transition of migratory cells—including tumor cells with stem cell-like properties.¹⁻³ Fibronectin performs essential functions in collagen fibrillogenesis, and as either a general cell adhesion molecule or as a modulator in binding between cell surfaces and the extracellular matrix.^{2,4} Fibronectin matrix assembly is essential for normal vertebrate development, and apparently contributes to the generation of tumor metastases by supporting the establishment and persistence of pre-metastatic niches.^{2,5,6} Fibronectin is secreted as a disulfide-linked dimer of 230-270 kDa, comprised of three types of repeating modules that mediate interactions with extracellular matrix components (including fibronectin itself), and cells via integrins and other fibronectin receptors.² Thus, fibronectin can be used for coating tissue culture surfaces or as a medium additive to promote cell adhesion and proliferation; it is 0.2 µm sterile filtered.

Specifications:

Source:	Human plasma.
Storage Buffer:	100 mM CAPS, 150 mM NaCl, 1 mM CaCl ₂ , pH 11.5
Storage:	Store at -80 °C
Purity:	>90% by SDS-PAGE
Concentration:	1 mg/ml

Materials Qualification:

Functional Assay:

- Tested for ability to promote attachment of HT-1080 cells.

*Sterility Testing:

- No bacterial or fungal growth detected after incubation at 37°C for 14 days following USP XXIV Chapter 71 sterility testing protocols.
- No mycoplasma contamination detected by PCR.
- Human fibronectin, PathClear® is tested negative by PCR for different human pathogenic viruses including EBV, HAdV, Hantaan, HCMV, Hepatitis A, Hepatitis B, Hepatitis C, HHV 6, HHV 8, HIV1, HIV2, HSV 1, HSV 2, HTLV 1, HTLV 2, LCMV, Seoul, Sin Nombre, VZV .
- Endotoxin concentration < 20 EU/ml by LAL assay.

Safety Statement: Cultrex® Human Fibronectin, PathClear® is purified from human source material and therefore should be treated as potentially infectious and handled at Biological Safety Level 2 to minimize exposure.

Coating Procedure:

The recommended working concentration is 0.2-2 µg/cm² (1-10 µg/ml) of growth surface depending on cell type. Only dilute as much Fibronectin as needed and use immediately. Note that Fibronectin is not stable for extended periods of time when diluted. Store concentrated material in aliquots to reduce the number of freeze-thaw cycles.

- A. Dilute the Fibronectin stock solution appropriately with sterile water. Mix and transfer to the wells of tissue culture plates. Spread the solution to completely cover the bottom of the wells.
- B. The following is a guide for the suggested volumes required per well:

Plate Type	Volume Fibronectin per Well
6 wells (or 35 mm dish)	2 ml
24 wells	600 µl
48 wells	200 µl
96 wells	100 µl

- C. Coat wells with Fibronectin solution and incubate at 37°C overnight.
- D. Aspirate solution, and rinse the wells once with sterile water.
- E. Block wells with 2% BSA, PBS for one hour at 37°C.
- F. Add cells to wells (optimize concentration for each cell line and experimental condition).
- G. Culture and analyze cells as needed (optimize for each cell line and experimental condition).

References:

1. Vaheri A, Mosher DF. (1978) High molecular weight, cell surface-associated glycoprotein (fibronectin) lost in malignant transformation. *Biochim Biophys Acta* 516:1-25.
2. Mao Y, Schwarzbauer JE. (2005) Fibronectin fibrillogenesis, a cell-mediated matrix assembly process. *Matrix Biol* 24:389-99.
3. Polyak K, Weinberg RA. (2009) Transitions between epithelial and mesenchymal states: acquisition of malignant and stem cell traits. *Nat Rev Cancer* 9:265-73.
4. Kadler KE, Hill A, Canty-Laird EG. (2008) Collagen fibrillogenesis: fibronectin, integrins, and minor collagens as organizers and nucleators. *Curr Opin Cell Biol* 20:495-501.
5. Hunt GC, Schwarzbauer JE. (2009) Tightening the connections between cadherins and fibronectin matrix. *Developmental Cell* 16:327-8.
6. Psaila B, Lyden D. (2009) The metastatic niche: adapting the foreign soil. *Nat Rev Cancer* 9:285-93.

Related Products:

Catalog#	Description	Size
3455-024-K	Cultrex® 24 Well BME Cell Invasion Assay	24 inserts
3480-024-K	CultreCoat® 24 Well BME-Coated Cell Invasion Assay	24 inserts
3456-024-K	Cultrex® 24 Well Laminin I Cell Invasion Assay	24 inserts
3457-024-K	Cultrex® 24 Well Collagen I Cell Invasion Assay	24 inserts
3458-024-K	Cultrex® 24 Well Collagen IV Cell Invasion Assay	24 inserts
3455-096-K	Cultrex® 96 well BME Cell Invasion Assay	96 samples
3465-024-K	Cultrex® 24 well Migration Cell Assay	96 samples
3465-096-K	Cultrex® 96 well Migration Cell Assay	96 samples
3456-096-K	Cultrex® Laminin I Cell Invasion Assay	96 samples
3457-096-K	Cultrex® Collagen I Cell Invasion Assay	96 samples
3458-096-K	Cultrex® Collagen IV Cell Invasion Assay	96 samples
3490-096-K	CultreCoat® BME 96 Well Cell Adhesion Assay	96 samples
3496-096-K	CultreCoat® 96 Well Adhesion Protein Array	96 samples

Accessories:

Catalog#	Description	Size
3400-010-02	Cultrex [®] Mouse Laminin I, PathClear [®]	1 ml
3400-010-01	Cultrex [®] Mouse Laminin I	1 mg
3440-100-01	Cultrex [®] Rat Collagen I	100 mg
3410-010-01	Cultrex [®] Mouse Collagen IV	1 mg
3416-001-01	Cultrex [®] Bovine Fibronectin, NZHD*	1 mg
3421-001-01	Cultrex [®] Human Vitronectin, PathClear [®]	50 µg
3417-001-01	Cultrex [®] Bovine Vitronectin, NZHD	50 µg
3438-100-01	Cultrex [®] Poly-L-Lysine	100 ml
3439-100-01	Cultrex [®] Poly-D-Lysine	100 ml
3445-048-01	Cultrex [®] 3-D Culture Matrix [™] BME	15 ml
3446-005-01	Cultrex [®] 3-D Culture Matrix [™] Laminin I	5 ml
3447-020-01	Cultrex [®] 3-D Culture Matrix [™] Collagen I	100 mg
3430-005-01	Cultrex [®] BME with Phenol Red	5 ml
3432-005-01	Cultrex [®] BME without Phenol Red	5 ml
3431-005-01	Cultrex [®] BME with Phenol Red; Reduced Growth Factor	5 ml
3433-005-01	Cultrex [®] BME; no Phenol Red; Reduced Growth Factor	5 ml
3415-001-02	Cultrex [®] Human BME, PathClear [®]	1 ml
3430-005-02	Cultrex [®] BME with Phenol Red PathClear [®]	5 ml
3431-005-02	Cultrex [®] BME with Phenol Red, Reduced Growth Factor PathClear [®]	5 ml
3432-005-02	Cultrex [®] BME PathClear [®]	5 ml
3433-005-02	Cultrex [®] BME; no Phenol Red; Reduced Growth Factor PathClear [®]	5 ml
3437-100-K	Cultrex [®] Cell Staining Kit	100 ml
3450-048-05	CellSperse [™]	15 ml

*New Zealand Herd Derived