Cultrex® Stem Cell Qualified Human Fibronectin, PathClear®

Catalog #: 3420-001-03  Size: 1 mg

Description: Fibronectin provides a functionally defined and effective feeder-free surface for the attachment and maintenance of embryonic stem cells in a pluripotent state (fig. 1). It is an extracellular matrix protein that is found abundantly in blood, connective tissues, and remodels matrices also associated with the epithelial to mesenchymal transition of migratory cells—including tumor cells with stem cell-like properties. Fibronectin performs essential functions in collagen fibrillogenesis, and as a general cell adhesion molecule or as a modulator in binding between cell surfaces and the extracellular matrix. 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. 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.

Specifications:
- Source: Human plasma.
- Storage Buffer: 100 mM CAPS, 150 mM NaCl, 1 mM CaCl₂, pH 11.5
- Storage: Store at -80°C.
- Purity: Purity >90% by SDS-PAGE.
- Concentration: 1 mg/ml

Materials Qualification:
- Functional Assay:
  - Promotes the attachment of H9 human embryonic stem cells.
  - Effectively maintains human embryonic stem cells in a pluripotent state as evidenced by intracellular staining for the stem cell markers Oct-4 and Nanog.

- 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.
  - Stem Cell Qualified 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, HSVG 1, HSV2, HTLV 1, HTLV 2, LCMV, Seoul, Sin Nombre, VZV.
  - Endotoxin concentration < 20 EU/ml by LAL assay.

Safety Statement: Cultrex® Stem Cell Qualified 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 for Stem Cell Propagation:
The recommended working concentration is 5 μg/cm² of growth surface depending on cell type.
1. Thaw Human Fibronectin on ice for several hours.
2. In a laminar flow hood, dilute to 50 μg/ml with cold serum-free cell culture medium.
3. Mix and transfer to the wells of tissue culture plates. Spread the solution to completely cover the bottom of the wells.
4. Incubate coated object at room temperature for an hour.
5. Aspirate coating solution and immediately plate cells. Do not allow coated surface to dry out.

The following table is a guide for the suggested volumes required per well:

<table>
<thead>
<tr>
<th>Plate type/ Volume Fibronectin per Well</th>
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<tbody>
<tr>
<td>6 wells (or 35 mm dish) 1 ml</td>
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<tr>
<td>24 wells 0.5 ml</td>
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<tr>
<td>48 wells 100 μl</td>
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<tr>
<td>96 wells 50 μl</td>
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</tbody>
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Fig.1. H9 human embryonic stem cells after three passages on Cultrex® Stem Cell Qualified Human Fibronectin, PathClear® maintain expression of the non-differentiated stem cell markers Sox 2 (B) and Oct-4 (C). Nuclear staining by DAPI shown on panel (A) and merged image shown on panel (D). Images courtesy of the Yanik lab, MIT [http://www.rle.mit.edu/bbng](http://www.rle.mit.edu/bbng)
References:

Related Products:

<table>
<thead>
<tr>
<th>Catalog#</th>
<th>Description</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>3400-010-03</td>
<td>Cultrex® Stem Cell Qualified Laminin I, PathClear®</td>
<td>1 mg</td>
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<tr>
<td>3421-001-03</td>
<td>Cultrex® Stem Cell Qualified Human Vitronectin, PathClear®</td>
<td>200 μg</td>
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<tr>
<td>3415-001-03</td>
<td>Cultrex® Stem Cell Qualified Human BME, PathClear®</td>
<td>1 ml</td>
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<tr>
<td>3434-005-02</td>
<td>Cultrex® Stem Cell Qualified BME, Growth Factor Reduced PathClear®</td>
<td>5 ml</td>
</tr>
</tbody>
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Storage: -80 °C