Cultrex® Stem Cell Qualified Laminin I, PathClear®

Catalog Number: 3400-010-03 (1.0 mg)

PRODUCT DESCRIPTION

Laminins are extracellular matrix glycoproteins and major structural components of basement membranes (1,2,3). Laminin I molecule is composed of three polypeptide chains: α1, β1 and γ1 subunits, that are covalently linked together by disulfide bonds. The molecular weights for the subunits are 400 kDa, 210 kDa, and 200 kDa, respectively, resulting in 810 kDa for the assembled protein (4). Laminin I has binding sites for other Laminin I molecules, collagen IV, glycosylaminoglycans (GAGs), and integrin/non-integrin cell surface receptors (5). It forms large polymer networks that function in the assembly and organization of the basement membrane (6). Laminin I promotes adhesion, migration, growth, and differentiation of various types of cells (7).

INTENDED USE

Cultrex Stem Cell Qualified Laminin I, PathClear provides a functionally defined and effective feeder-free surface for the attachment and maintenance of embryonic stem cells in a pluripotent state (Figure 1), thereby enabling its use for growth promotion or study of stem cell differentiation (8).

PRODUCT SPECIFICATIONS

Concentration	1 mg/mL
Source	Murine Engelbreth-Holm-Swarm (EHS) tumor.
Storage Buffer	Dulbecco's Modified Eagle's Medium, containing 10 µg/mL gentamicin sulfate.
Stability	Product is stable for a minimum of 3 months from date of shipment. See lot specific Certificate of Analysis for expiration date.
Storage	Store at ≤ -70 °C. Product may be thawed and dispensed into working aliquots. **Avoid freeze-thaw cycles.**

PRECAUTION

When handling bio-hazardous materials such as human cells, safe laboratory procedures should be followed and protective clothing should be worn.

LIMITATIONS

- FOR LABORATORY RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES.
- The safety and efficacy of this product in diagnostic or other clinical uses has not been established.
- Results may vary due to variations among tissue/cells derived from different donors or sources.

MATERIAL QUALIFICATIONS

Sterility Testing:

- PathClear - Tested negative by PCR test for a total of 31 organisms and viruses, including: mycoplasma, 17 bacterial and virus strains typically included in mouse antibody production (MAP) testing, and 13 additional murine infectious agents including LDEV.
- Tested following USP <71> sterility guidelines.
- Endotoxin concentration < 20 EU/mL by LAL assay.

Functional Assays:

- Promotes the attachment of human induced pluripotent stem cells (iPSCs).
- Effectively maintains human iPSCs in a pluripotent state as evidenced by expression of the stem cell marker Nanog.

COATING PROCEDURE FOR STEM CELL PROPAGATION

The recommended working concentration is 10 µg/cm² of growth surface depending on cell type. Empirical determination of the optimal coating concentration for your application may be required.

1. Thaw Cultrex Stem Cell Qualified Laminin I on ice for several hours.
2. In a laminar flow hood, dilute to a final concentration 100 µg/mL with cold serum-free cell culture medium.
3. Mix and transfer diluted Cultrex Stem Cell Qualified Laminin I into desired tissue culture plates. Add a sufficient amount of solution to cover the entire growth surface area (Table 1). Spread the solution to completely cover the bottom of the wells.

Plate Type	Cultrex Stem Cell Qualified Mouse Laminin I (Volume/well)
6 wells (or 35 mm dish)	1-1.5 mL/well
12 wells	500-600 µL/well
24 wells	250-300 µL/well
48 wells	150 µL/well
96 wells	50 µL/well

Table 1: Suggested plating volumes for Cultrex Stem Cell Qualified Laminin I plate-coating.

4. Incubate the plate at 37 °C for one hour.
5. Aspirate coating solution and immediately plate cells. **Do not allow coated surface to dry out.**

DATA EXAMPLES

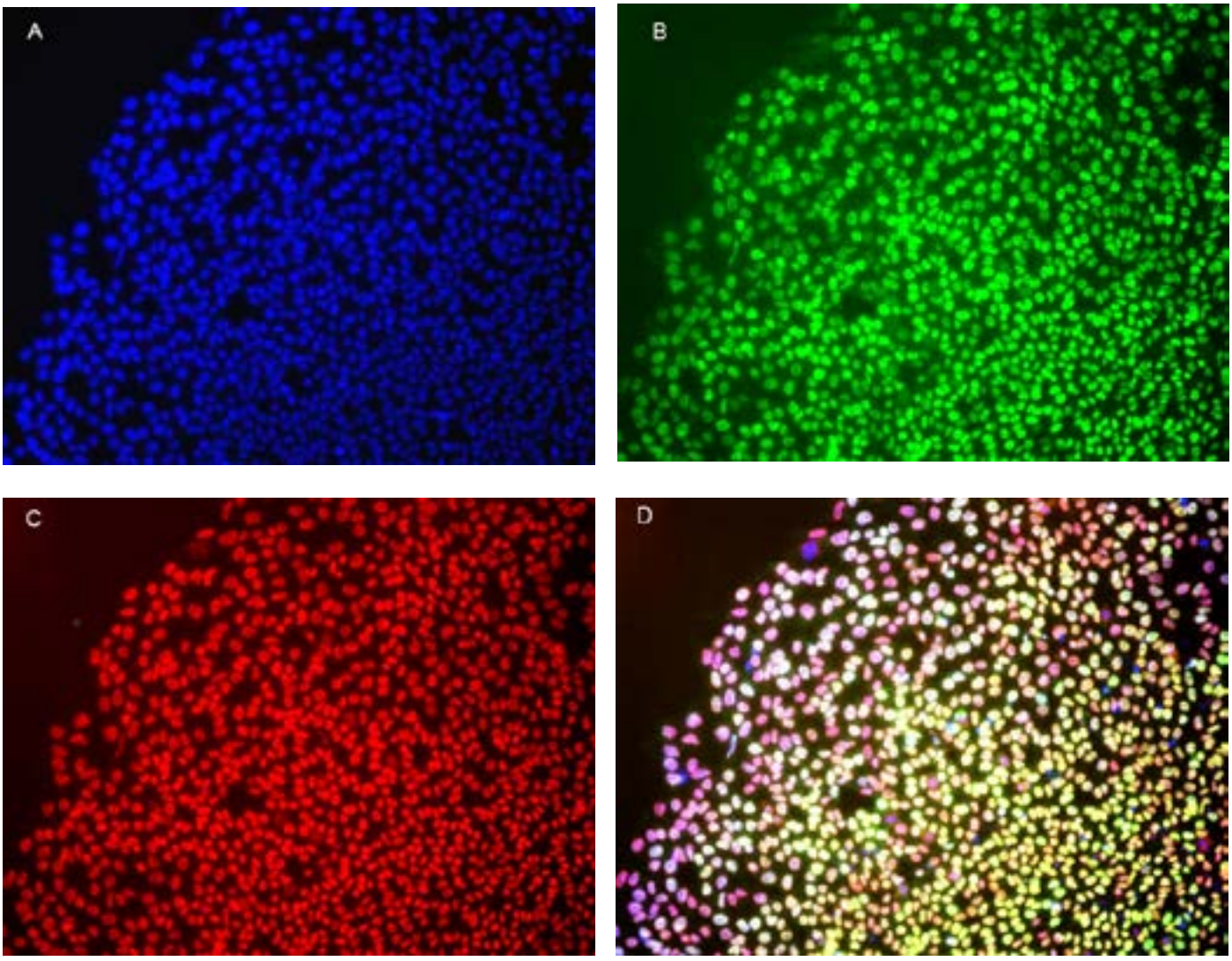

Figure 1. H9 Human Embryonic Stem Cells Cultured on Cultrex Stem Cell Qualified Laminin I. After three passages embryonic stem cells maintain expression of the non-differentiated stem cell markers Oct-3/4 **(B)** and SOX2 **(C)**. Nuclear staining by DAPI shown on panel **(A)** and merged image shown on panel **(D)**. *Images courtesy of the Yanik Lab, MIT.*

REFERENCES

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Global bio-techne.com info@bio-techne.com TEL +1 612 379 2956 **USA** TEL 800 343 7475 **Canada** TEL 855 668 8722
Europe | Middle East | Africa TEL +44 (0)1235 529449 **China** TEL +86 (21) 52380373