CULTREX® Product Data

For Research Use Only. Not For Use In Diagnostic Procedures

Cultrex® Stem Cell Qualified Laminin I, PathClear®

Catalog #: 3400-010-03 **Size: 1 mg**

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]. Laminin I 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]. 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 (Fig. 1), thereby enabling its use for growth promotion or study of stem cell differentiation[8].

Specifications:

Concentration:	1 mg/ml
Source:	Murine Engelbreth-Holm-Swarm (EHS) tumor.
Purity:	>90% by SDS-PAGE.
Storage Buffer:	Dulbecco's Modified Eagle's Medium (DMEM) with 10 µg/ml gentamicin sulfate.
Storage/Stability:	Product is stable for a minimum of 3 months from date of shipment when stored at –20◦C in a manual defrost freezer. **For optimal stability, store at –80◦C. Avoid freeze-thaw cycles.**

Material Qualification:

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.

Sterility Testing:

- **PathClear®** - Negative by PCR test for mycoplasma; 17 bacterial and virus strains typically included in mouse antibody production (MAP) testing, plus 13 additional murine infectious agents including LDEV, for a total of 31 organisms and viruses.
- No bacterial or fungal growth detected after incubation at 37◦C for 14 days following USP sterility testing guidelines.
- Endotoxin concentration < 20 EU/ml by LAL assay.

TREVIGEN®
8405 Helgerman Court, Gaithersburg, MD 20877 USA
Voice: 1-800-TREVIGEN (1-800-873-8443) • 301-216-2800
Fax: 301-560-4973 • e-mail: info@trevigen.com • www.trevigen.com

Coating procedure for Stem Cell Propagation:
The recommended working concentration is 10 µg/cm^2 of growth surface depending on cell type. Empirical determination of the optimal coating concentration for your application may be required.

1. Thaw 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 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:

Plate type	Volume Laminin I solution per Well
6 wells (or 35 mm dish)	1 – 1.5 ml
12 wells	500 - 600 µl
24 wells	250 – 300 µl
48 wells	150 µl
96 wells	50 µl

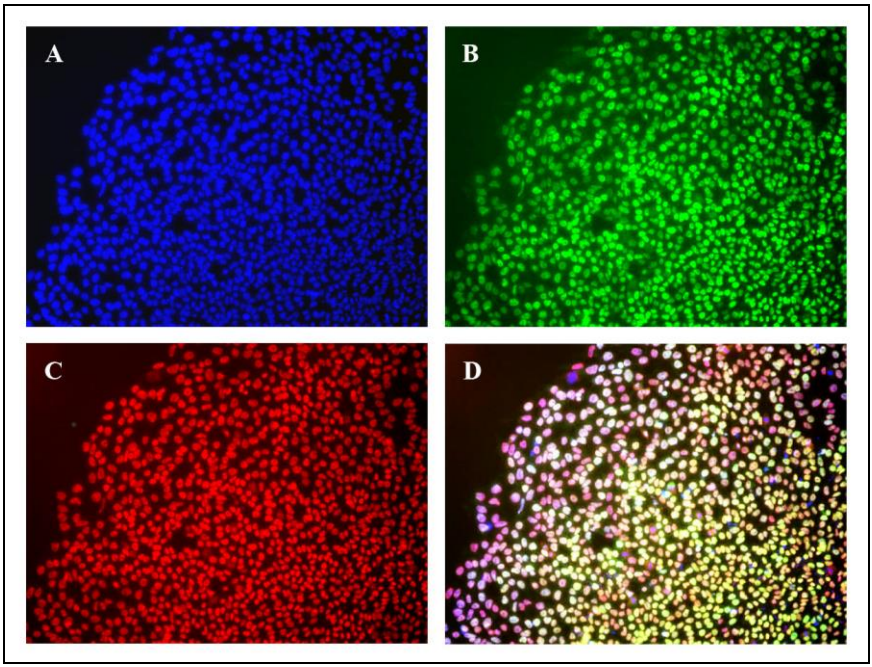

Fig.1. H9 human embryonic stem cells after three passages on Cultrex® Stem Cell Qualified Laminin I, PathClear® maintain expression of the non-differentiated stem cell markers Oct-4 (B) and Sox2 (C). Nuclear staining by DAPI shown on panel (A) and merged image shown on panel (D).
Images courtesy of the Yanik lab, MIT http://www.rle.mit.edu/bbng

References:

1. Malinda K.M., Kleinman H.K. The laminins. 1996. Int. J. Biochem. Cell Biol. 28(9):957-9.
2. Miner J.H. and Yurchenco P.D. Laminin functions in tissue morphogenesis. 2004. Annu Rev Cell Dev Biol. 20:255-84.
3. Aumailley M. and Smyth N. The role of laminins in basement membrane function. 1998.J Anat. 193:1-21.
4. Sasaki M. et al. Laminin, a multidomain protein. The A chain has a unique globular domain and homology with the basement membrane proteoglycan and the laminin B chains. 1988. J Biol Chem. 263:16536-16544.
5. Colognato-Pyke H. et al. Mapping of Network-forming, Heparin-binding, and 11 Integrin-recognition Sites within the -Chain Short Arm of Laminin-1. 1995. J Biol Chem. 270(16): 9398-406.
6. Patarroyo M., Tryggvason K. and Virtanen I. Laminin isoforms in tumor invasion, angiogenesis and metastasis. 2002. Seminar Cancer Biol. 12(3): 197-207.
7. Benton G., Crooke E. and George J. Laminin-1 induces E-cadherin expression in 3-dimensional cultured breast cancer cells by inhibiting DNA methyltransferase 1 and reversing promoter methylation status. 2009. FASEB J. 23:3884-95.
8. Xu C. et. al. Feeder-free growth of undifferentiated human embryonic stem cells. 2001. Nat. Biotechnol. 19:971–974.

Related Products:

Catalog#	Description	Size
3400-010-01	Cultrex® Mouse Laminin I	1 mg
3400-010-02	Cultrex® Mouse Laminin I, PathClear®	1 mg
3401-010-02	Cultrex® Antibiotic-Free Mouse Laminin I, PathClear®	1 mg
3446-005-01	Cultrex® 3-D Culture Matrix™ Laminin I	5 ml
3434-005-02	Cultrex® Stem Cell Qualified RGF BME, PathClear®	5 ml
3420-001-03	Cultrex® Stem Cell Qualified Human Fibronectin, PathClear®	1 mg
3421-001-03	Cultrex® Stem Cell Qualified Human Vitronectin, PathClear®	200 µg
3432-005-01	Cultrex® Basement Membrane Extract, PathClear®	5 ml
3433-005-01	Cultrex® Reduced Growth Factor BME, PathClear®	5 ml
3532-005-02	Cultrex® Basement Membrane Extract, Type 2, PathClear®	5 ml
3533-005-02	Cultrex® Reduced Growth Factor BME, Type 2, PathClear®	5 ml
3632-005-02	Cultrex® Basement Membrane Extract, Type 3, PathClear®	5 ml
3445-005-01	Cultrex® 3-D Culture Matrix™ BME, PathClear®	5 ml
3447-020-01	Cultrex® 3-D Culture Matrix™ Collagen I	100 mg

Stem Cell Qualified Laminin I, PathClear®
Cat#: 3400-010-03
Storage: - 20ºC
(Manual Defrost Freezer)
1-800-873-8443