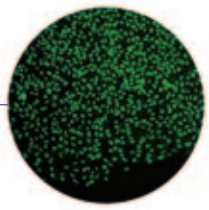
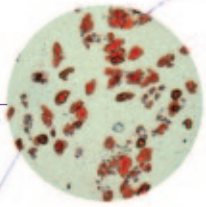
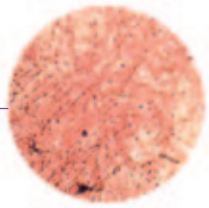
STEM CELL PRODUCTS



Basement Membrane
Matrix Products



Rat Mesenchymal
Stem Cell Growth and
Differentiation Products



Stem Cell Qualified
Extracellular
Matrix Proteins

TREVIGEN®

Stem cell research requires the finest grade research reagents available. Trevigen's PathClear® designation indicates that the product has passed the most rigorous set of quality control criteria used by industry today, including MAP and PCR testing for mycoplasma, and 30 murine pathogens (including LDEV), or 19 human pathogenic viruses. Trevigen tests each production lot of material ensuring that the product you use in your research is the finest grade available today.

Basement Membrane Extract (BME) Products

- Cultrex® Stem Cell Qualified BME, growth factor reduced, PathClear®
- Cultrex® Human Stem Cell Qualified BME, PathClear®

Rat Mesencymal Stem Cell Growth and Differentiation Products

- Cultrex® Rat Mesenchymal Cells
- Cultrex® Rat Mesenchymal Stem Cell Starter Kit
- Cultrex® Rat Mesenchymal Replenisher Kit
- Cultrex® Mesenchymal Stem Cell Osteogenic Differentiation Kit
- Cultrex® Mesenchymal Stem Cell Adipogenic Differentaition Kit

Stem Cell Qualified Extracellular Matrix (ECM) Proteins

- Cultrex® Stem Cell Qualified Laminin I, PathClear®
- Cultrex® Stem Cell Qualified Human Fibronectin, PathClear®
- Cultrex® Stem Cell Qualified Human Vitronectin, PathClear®
- Cultrex® Stem Cell Qualified Protein Set

Stem Cell qualified Basement Membrane Extract (BME) Products

Cultrex® stem cell qualified BME has been shown to provide an effective feeder cell-free surface for the attachment and maintenance of human embryonic stem cells in a pluripotent state, thereby enabling its use for growth promotion or for study of stem cell differentiation.

Our Quality Control program differentiates us from other suppliers of BME. It includes both functional and sterility testing. Both are performed on all products as a final quality control step before shipping. Our sterility testing is the most rigorous of all in the industry.

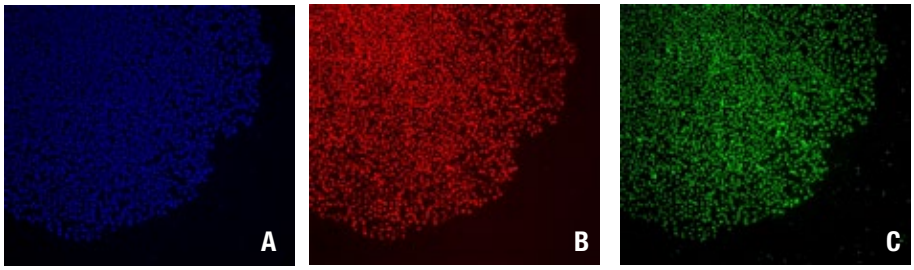
TREVIGEN®

Cultrex® Human Basement Membrane Extract (BME) is a soluble form of basement membrane purified from human placenta. BME can be used for propagation and maintenance of an undifferentiated phenotype, for stem cell or for primary epithelial cells, endothelial cells, and smooth muscle cells. It has been employed in cell attachment assays, neurite outgrowth assays, and tumor cell invasion assays.

Cultrex® Stem Cell Qualified Basement Membrane Extract (BME), PathClear® is a soluble form of basement membrane purified from the mouse Engelbreth-Holm-Swarm (EHS) tumor. The extract gels at 37˚C to form a reconstituted basement membrane. It is comprised mainly of laminin, collagen IV, entactin, and heparin sulfate proteoglycan. Trevigen's BME typically ranges in protein concentration from 14 to 16 µg/ml.

Ordering Information

Catalog No.	Description	Size
3434-001-02	Cultrex® Stem Cell Qualified, BME Growth Factor Reduced, PathClear®	1 ml
3434-005-02	Cultrex® Stem Cell Qualified, BME Growth Factor Reduced, PathClear®	5 ml
3415-001-03	Cultrex® Stem Cell Qualified, Human BME, PathClear®	1 mg



H9 human embryonic stem cells after four passages on Cultrex® Stem Cell Qualified BME bind DAPI (A) and maintain expression of the non-differentiated stem cell markers Oct-4 (B) and Nanog (C). Images courtesy of the Yanik lab, MIT. (www.rle.mit.edu/bbng)

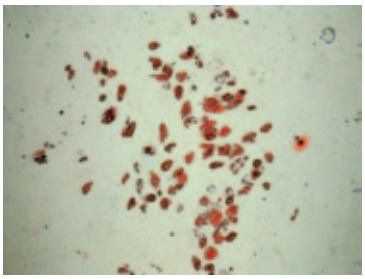
Functional Assay

* Promotes the attachment of H9 human embryonic stem cells.
* Effectively maintains human embryonic stem cells in a pluripotent state as evidenced by intracellular stains for the stem cell markers Oct-4 and Nanog.

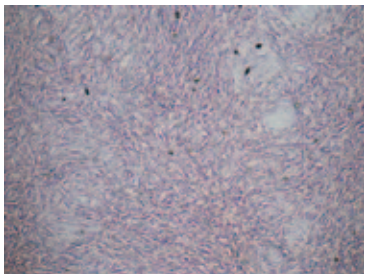
Sterility Testing

* No bacterial or fungal growth detected after incubation at 37 ˚C for 14 days following USP XXIV Chapter 71 sterility test.
* Negative by PCR test for either 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 31organisms and viruses, or 19 human pathogenic viruses.
* Endotoxin concentrations ≤ 8 EU/ml by LAL assay.

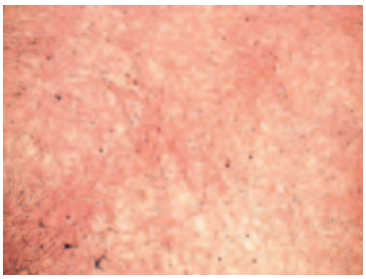
Rat Mesenchymal Stem Cell Growth and Differentiation Products



Adipogenic Differentiation Kit
Trevigen cultured RMSC induced into adipogenic differentiation using a Trevigen Adipogenic Differentiation Kit. 14 day cultures were stained with Oil Red O to visualize lipid droplets, a marker of adipogenic differentiation.

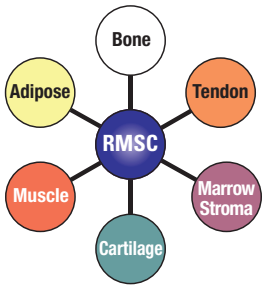


Osteogenic Differentiation Kit - Control
Trevigen RMSC cultured in Trevigen's qualified medium and serum for 14 days, and stained with Alizarin Red S to visualize calcium deposits, a marker of osteogenic differentiation.



Osteogenic Differentiation Kit
Trevigen cultured RMSC induced into osteogenic differentiation using a Trevigen Osteogenic Differentiation Kit. 14 day cultures were stained with Alizarin Red S to visualize calcium deposits, a marker of osteogenic differentiation.

Mesenchymal Stem Cells (MSC), also known as marrow stromal stem cells, are a self renewing population of multipotent cells present in bone marrow and many other adult tissues. MSC can be isolated from bone marrow by adherence to plastic, and can differentiate into multiple lineage-specific cells that form bone, fat, cartilage, muscle, neuronal cells, and tendon. Due to their multilineage potential, they can be useful tools for a wide range of therapeutic and basic research, including transplantation studies and studies examining the repair of cardiac tissue, bone, cartilage, and tendons, often by using 3-D matrices.



Trevigen's qualified RMSC Medium supplemented with qualified RMSC FBS has been evaluated to support undifferentiated growth of Trevigen's RMSC or induction of adipogenic (cat# 5010-024-K) or osteogenic (cat# 5011-024-K) phenotype when supplemented with reagents contained in Trevigen's differentiation kits.

Ordering Information

Catalog No.	Description	Size
5000-001-K	Cultrex® Rat Mesenchymal Stem Cell Starter Kit	1 Kit
5000-001-R	Cultrex® Rat Mesenchymal Replenisher Kit	500/50 ml
5000-001-01	Cultrex® Rat Mesenchymal Cells	1 Vial ($1x10^6$ cells)
5010-024-K	Cultrex® Mesenchymal Stem Cell Adipogenic Differentiation Kit (Reagents for differentiating Mesenchymal Stem Cells into Adipocytes)	24 Wells
5011-024-K	Cultrex® Mesenchymal Stem Cell Osteogenic Differentiation Kit (Reagents for differentiating Mesenchymal Stem Cells into Osteoblasts)	24 Wells

- Cultrex® Rat Mesenchymal Stem Cell Starter Kit - contains primary mesenchymal stem cells isolated and purified from rat bone marrow plus qualified medium and serum to support undifferentiated growth.
- Cultrex® Rat Mesenchymal Replenisher Kit – contains qualified medium and serum to support undifferentiated growth of Rat MSC.
- Cultrex® Rat Mesenchymal Cells – contains 1 vial ($1x10^6$ cells) of rat mesenchymal cells.

Stem Cell Qualified Extracellular Matrix (ECM) Proteins

Cultrex® Stem Cell Qualified Protein Set contains 5 different extracellular matrix proteins:

- Human Basement Membrane Extract (BME) – 1 mg
- Human Fibronectin – 1 mg
- Human Vitronectin – 200 µg
- Mouse Reduced Growth Factor BME – 12-18 mg (1 mL)
- Mouse Laminin I – 1 mg

Ordering Information

Catalog No.	Description	Size	Source
3400-010-03	Cultrex® Stem Cell Qualified Laminin I, PathClear®	1 mg	Murine Engelbreth-Holm-Swarm (EHS) tumor
3420-001-03	Cultrex® Stem Cell Qualified Human Fibronectin, PathClear®	1 mg	Human Plasma
3421-001-03	Cultrex® Stem Cell Qualified Human Vitronectin, PathClear®	200 µg	Human Plasma
3434-SCQ-K	Cultrex® Stem Cell Qualified Protein Set	1 Set	

Laminin I provides a functionally defined and effective feeder cell-free surface for the attachment and maintenance of embryonic stem cells in a pluripotent state, thereby enabling its use for growth promotion or study of stem cell differentiation. This highly purified mouse Laminin I is composed of $\alpha 1 \beta 1 \gamma 1$ chains with a total Mr of 800,000.

Fibronectin provides a functionally defined and effective feeder cell-free surface for the attachment and maintenance of embryonic stem cells in a pluripotent state. It is an extracellular matrix protein that is found abundantly in blood, connective tissues, and remodeled 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 can act as either 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 premetastatic 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.

Vitronectin provides a functionally defined and effective feeder cell-free surface for the attachment and maintenance of embryonic stem cells in a pluripotent state. It is an extracellular, soluble, disulfide-linked dimer, composed of a 75 kDa and a 65 kDa peptide chain with a total molecular weight of 140 kDa. Vitronectin is a major plasma glycoprotein that promotes cellular adhesion and spreading, inhibits the membrane damaging effect of the terminal cytolytic complement pathway, and binds to several serpin serine protease inhibitors. Vitronectin, along with collagen IV, fibronectin, and laminin can support robust, long term proliferation of human embryonic stem cells in the undifferentiated state. Vitronectin can be used for coating tissue culture surfaces to promote cell adhesion, proliferation, and differentiation, or as an additive for serum-free media.

RELATED PRODUCTS

Cell Invasion

Trevigen's Cell Invasion Assays quantitate the degree to which invasive cells penetrate a physiological barrier.

Cell Adhesion

Trevigen's CultreCoat® Cell Adhesion Assays employ a simple, standardized, high-throughput format for assessing factors that influence cell-matrix interactions.

Cell Migration

Trevigen's Cell Migration Assays quantitate the degree to which cells migrate in response to outside factors; including chemoattractants, inhibition compounds, and stimulation compounds.

Endothelial Cell Invasion

Trevigen's Cultrex® Endothelial Cell Invasion Assay accelerates the screening process for compounds that influence vascular endothelial cell invasion through the basement membrane.

CELL INVASION ASSAYS

Description	Size	Catalog No.
CultreCoat® 24 Well BME Cell Invasion Assay	24 Tests	3480-024-K
Cutrex® 24 Well BME Cell Invasion Assay	24 Tests	3455-024-K
Cultrex® 24 Well Collagen I Cell Invasion Assay	24 Tests	3457-024-K
Cultrex® 24 Well Collagen IV Cell Invasion Assay	24 Tests	3458-024-K
Cultrex® 24 Well Laminin I Cell Invasion Assay	24 Tests	3456-024-K
Cultrex® 96 Well BME Cell Invasion Assay	96 Tests	3455-096-K
Cultrex® 96 Well Collagen I Cell Invasion Assay	96 Tests	3457-096-K
Cultrex® 96 Well Collagen IV Cell Invasion Assay	96 Tests	3458-096-K
Cultrex® 96 Well Laminin I Cell Invasion Assay	96 Tests	3456-096-K
CultreCoat® 24 Well BME Cell Invasion Optimization Assay Sampler	24 Tests	3484-024-K
CultreCoat® 96 Well BME Cell Invasion Optimization Assay Sampler	96 Tests	3484-096-K

CELL ADHESION ASSAYS

Description	Size	Catalog No.
CultreCoat® Adhesion Protein Array Kit	96 Wells	3496-096-K
CultreCoat® BME 96 Well Cell Adhesion Assay	96 Wells	3490-096-K
CultreCoat® Collagen I 96 Well Cell Adhesion Assay	96 Wells	3492-096-K
CultreCoat® Collagen IV 96 Well Cell Adhesion Assay	96 Wells	3493-096-K
CultreCoat® Laminin I 96 Well Cell Adhesion Assay	96 Wells	3491-096-K
CultreCoat® Vitronectin 96 Well Cell Adhesion Assay	96 Wells	3495-096-K
CultreCoat® Fibronectin 96 Well Cell Adhesion Assay	96 Wells	3494-096-K

CELL MIGRATION ASSAYS

Description	Size	Catalog No.
Cultrex® 24 Well Cell Migration Assay	24 Tests	3465-024-K
Cutrex® 96 Well Cell Migration Assay	96 Tests	3465-096-K

ENDOTHELIAL CELL INVASION ASSAY

Description	Size	Catalog No.
Cultrex® In Vitro Angiogenesis Assay Endothelial Cell Invasion Kit	96 Tests	3471-096-K