Cultrex® Basement Membrane Extract without Phenol Red

Catalog #: 3432-005-01  Size: 5 mL  Concentration: 12 - 18 mg/mL
3432-010-01  2 x 5 mL
3432-050-01  10 x 5 mL

Description: Basement membranes are continuous sheets of specialized extracellular matrix that form an interface between endothelial, epithelial, muscle, or neuronal cells and their adjacent stroma. Basement membranes are degraded and regenerated during development and wound repair. They not only support cells and cell layers, but they also play an essential role in tissue organization that affects cell adhesion, migration, proliferation, and differentiation. Basement membranes provide major barriers to invasion by metastatic tumor cells. Cultrex Basement Membrane Extract is a soluble form of basement membrane purified from Engelbreth-Holm-Swarm (EHS) tumor. The extract gels at 37° C to form a reconstituted basement membrane. The major components of the Basement Membrane Extract include laminin, collagen IV, entactin, and heparin sulfate proteoglycan. The Basement Membrane Extract can be used for promotion and maintenance of a differentiated phenotype in a variety of cell cultures including primary epithelial cells, endothelial cells, and smooth muscle cells. It has been employed in angiogenesis assays, tumor cell invasion assays, and as a vehicle to augment the tumorigenicity of injected tumor cells in nude mice.

Source: Murine Engelbreth-Holm-Swarm (EHS) tumor

Storage Buffer: Dulbecco's Modified Eagle's medium containing 10 µg/mL gentamycin sulfate and no phenol red.

Storage Conditions: Product is stable for at least 3 months from the date of receipt when stored at ≤ -20° C or at ≤ -80° C in a manual defrost freezer. For optimal stability, store at ≤ -80° C. Keep frozen; avoid repeated freeze-thaw cycles.

Specifications:
Gelling: Basement Membrane Extract gels in less than 30 minutes at 37° C and maintains the gelled form in culture medium for a minimum of 14 days at 37° C.

Functional Assays:
• Tube Assay: Basement Membrane Extract promotes differentiation of a mouse endothelial cell line derived from axillary lymph node (SVEC4-10) into capillary-like structures.
• Ring Assay: Basement Membrane Extract promotes differentiation of mouse aorta tissue to form capillary-like structures.
Sterility Testing:
- No bacterial or fungal growth detected after incubation at 37°C for 14 days following USP XXIV Chapter 71 sterility test.
- No mycoplasma contamination detected by PCR.
- Endotoxin concentrations ≤ 20 EU/mL by LAL assay.

Coating Procedures: Thaw Cultrex® Basement Membrane Extract (BME) at 2 - 8°C overnight. Refrigerator temperatures may vary; therefore, thaw extract on ice in a refrigerator. Cultrex Basement Membrane Extract has the advantage of slower gelling time over other commercial basement membrane extract. BME gels in 5 - 10 minutes above 15°C; therefore it is unnecessary to keep it on ice if used within 5 minutes and the environment temperature does not exceed 25°C. It is also unnecessary to prechill pipette tips, tubes, plates, or other objects that may come in contact with the extract.

There are many applications for Cultrex Basement Membrane Extract, which require different thicknesses and concentrations. In general, Basement Membrane Extract, at a protein concentration > 9 mg/mL, is used for differentiation studies of primary cells. Extract diluted below 9 mg/mL does not form a gel, and will only support the propagation of primary cells, but not their differentiation. For applications such as endothelial cell differentiation into capillary-like structures (Tube Assay) a thin gel is needed. For applications such as the differentiation of a rat aorta tissue into capillary-like structures (Ring Assay), or cell invasion assays, a thick gel is needed. Some applications, such as propagation of primary cells, only need a protein layer and not a protein matrix; therefore, the layer method should be used.

Thin Gel Method:
1. Thaw BME as stated above.
2. Mix by slowly pipetting the solution up and down; be careful not to introduce air bubbles.
3. Pipette 50 µL per cm² onto the growth surface.
4. Place coated object at 37°C for 30 minutes.
5. Coated objects are ready for use.

Thick Gel Method:
1. Thaw BME as stated above.
2. Mix by slowly pipetting the solution up and down; be careful not to introduce air bubbles.
3. Pipette 150 - 200 µL per cm² onto the growth surface.
4. Place coated object at 37°C for 30 minutes.
5. Coated objects are ready for use.

Thin Layer Method (non-gelling):
1. Thaw BME as stated above.
2. Mix by slowly pipetting the solution up and down; be careful not to introduce air bubbles.
3. Dilute the extract to desired concentration in cold serum-free medium. Empirical determination of the optimal coating concentration for your application may be required. A protein concentration of 0.1 mg/mL is a recommended starting concentration for the propagation of primary cells.
4. Add a sufficient amount of solution to cover the entire area onto the growth surface.
5. Place coated object at 37°C for 60 minutes or until dry.
6. Coated objects are ready for use.

References:

This product is made and marketed under patent license from the United States Public Health Service. Ref. U.S. Patent 4,829,000 issued May 9, 1989 and U.S. Patent 5,158,874 issued October 27, 1992, all entitled Reconstituted Membrane Complex with Biological Activity.
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There are many applications for Cultrex Basement Membrane Extract, which require different thicknesses and concentrations. In general, Basement Membrane Extract, at a protein concentration ≥ 9 mg/mL, is used for differentiation studies of primary cells. Extract diluted below 9 mg/mL does not form a gel, and will only support the propagation of primary cells, but not their differentiation. For applications such as endothelial cell differentiation into capillary-like structures (Tube Assay) a thin gel is needed. For applications such as the differentiation of a rat aorta tissue into capillary-like structures (Ring Assay), or cell invasion assays, a thick gel is needed. Some applications, such as propagation of primary cells, only need a protein layer and not a protein matrix; therefore, the layer method should be used.

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R&D Systems, Inc.
614 McKinley Place N.E., Minneapolis, MN 55413 USA
Tel: 1-800-343-7475 • 612-379-2956 • Fax: 612-379-6580
e-mail: info@RnDSystems.com • www.RnDSystems.com