




Product Sheet


# CellMatrix Basement Membrane Gel (ATCC® ACS-3035™)

Please read this FIRST



Storage Temp.  
**-80°C or colder**

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Biosafety Level  
**1**

## Description

### Product Description:

**IMPORTANT:** ATCC strongly recommends that users download and read the ATCC® [Stem Cell Culture Guide: Tips and Techniques for Culturing Stem Cells](#) before initiating their cultures.

CellMatrix Basement Membrane Gel is a soluble, growth factor reduced basement membrane extract that gels at room temperature to supply a feeder-free surface for the attachment of human embryonic stem cells (hESC) and induced pluripotent stem cells (hiPSC). The matrix effectively supports feeder-independent expansion of cells while maintaining cell pluripotency.

CellMatrix gel is also useful for preserving a differentiated phenotype in primary epithelial, endothelial and smooth muscle cell cultures. CellMatrix™ Gel can be utilized to model angiogenesis.

CellMatrix Gel is purified from the Engelbreth-Holm-Swarm (EHS) tumor. Major components include laminin, collagen IV, entactin and heparin sulfate proteoglycan.

**Volume:** 5 mL

### Directions for Use

Detailed protocols relating to this product are available online at ([http://www.atcc.org/Guides/Stem\\_Cell\\_Culture\\_Guide.aspx](http://www.atcc.org/Guides/Stem_Cell_Culture_Guide.aspx)).

### Aliquoting CellMatrix Gel for Storage at -80°C

Keep CellMatrix Gel and labware on ice at all times.

1. Thaw CellMatrix Gel on ice and swirl gently to mix.
2. Determine the appropriate volume per aliquot based on concentration and application. Please refer to the certificate of analysis for the lot-specific concentration.
3. Dispense appropriately-sized aliquots using pre-cooled tips into pre-cooled tubes on ice and refreeze immediately.

### Protocol for Coating Plates

See Table 1 for the protein concentration needed by application. Volumes can be directly scaled according to the size of the tissue culture vessels used.

Table 1:

Application	Protein Concentration	Usage
Stem Cells	Dilute to 150 µg/mL just prior to use.	2 mL per 6cm dish
Angiogenesis	Use at ≥ 10 mg/mL.	150 µL per cm <sup>2</sup>

Calculate the appropriate CellMatrix volume per plate based on concentration and usage.

Please refer to the certificate of analysis for the lot-specific concentration.

*Example: 2 mL of CellMatrix at 150 µg/mL is required to coat one 6 cm dish. To coat two 6 cm dishes, prepare as follows:*

Dilute CellMatrix in DMEM:F12 at a working concentration of 150 µg/mL:

Protein concentration of CellMatrix (on Certificate of Analysis): 14 mg/mL.

$(4 \text{ mL}) \times (0.15 \text{ mg/mL}) = 0.043\text{mL}$ .

14 mg/mL

Add 43 µL CellMatrix directly in 4 mL DMEM:F12.

**Important:** CellMatrix Gel will solidify in 15 to 30 minutes if the temperature is above 15°C. Keep CellMatrix Gel and labware (pipette tips, serological pipettes, conical tubes) on ice at all times to prevent the matrix from gelling prematurely. If air bubbles form when coating the dishes, use a chilled pipette tip to break up the bubbles.

### For stem cells:

1. Thaw CellMatrix Gel in the refrigerator (2°C to 8°C), in ice, overnight.
2. Dilute the thawed CellMatrix Gel to 150 µg/mL by directly adding CellMatrix in cold DMEM: F-12 Medium (ATCC® 30-2006) on ice and mix well. Immediately coat each 6 cm dish with 2 mL diluted CellMatrix Gel.
3. Swirl dish gently to ensure that the entire dish is evenly covered.
4. Leave the coated dishes at 37°C for one hour.
5. Aspirate the coating solution and **immediately** plate the cells. It is critical that the coating does not dry out.
6. If the dishes will not be used the same day they are prepared, do not aspirate the coating solution. Seal the coated dishes with parafilm and store at 2°C to 8°C for up to one week. Note that stored

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dishes should be warmed to room temperature in a biological safety cabinet for at least one hour before use.

#### For angiogenesis assay using primary cells:

1. Thaw CellMatrix Gel in the refrigerator (2°C to 8°C), in ice, overnight.
2. Mix well by carefully pipetting CellMatrix Gel up and down, being careful not to introduce air bubbles.
3. Pipette 150 µL/cm<sup>2</sup> onto the tissue culture vessel surface.
4. Swirl the vessel gently to ensure that the entire surface is evenly covered.
5. Leave the coated dishes at 37°C for 30 minutes.
6. The coated vessels are ready for use.

#### References

1. ATCC Angiogenesis Technical Bulletin.
2. Albini, A., et al. (1987) Cancer Res. 47:3239-3245.
3. Kubota, Y., et al. (1988) J. Cell Biol. 107:1589-1598.
4. Ponce, M., et al. (1999) Circ. Res. 84:688-694.
5. Eisenstein, M. (2006) Nature Methods 3:1035-1043.
6. Arnaoutova, I. et al. (2009) Angiogenesis 12:267-274.
7. Angel, M. and M. F. Yanik (2010) PLoS ONE. 5(7):e11756.

#### Quality Control Specifications

**Functional testing:** Each lot of CellMatrix Gel is shown to promote the attachment of hESCs/hiPSCs and to maintain hESCs/hiPSCs in a pluripotent state as determined by the expression of Oct-4 and Nanog pluripotent markers.

**Sterility testing:** No bacterial or fungal growth is detected. Negative for the presence of mycoplasma and 31 pathogens and viruses, including LDEV, as demonstrated by PCR. Endotoxin concentrations are less than 8 EU/mL by LAL assay.

**Concentration:** 12 to 18 mg/mL. Please refer to the certificate of analysis for the lot-specific concentration.

**Storage Buffer:** Product is stored in Dulbecco's Modified Eagle's Medium (DMEM) with 10 µg/mL gentamycin, without phenol red. A Certificate of Analysis is available upon request.

#### ATCC Warranty

The viability of ATCC® products is warranted for 30 days from the date of shipment, and is valid only if the product is stored and cultured according to the information included on this product information sheet. ATCC lists the media formulation that has been found to be effective for this strain. While other, unspecified media may also produce satisfactory results, a change in media or the absence of an additive from the ATCC recommended media may affect recovery, growth and/or function of this strain. If an alternative medium formulation is used, the ATCC warranty for viability is no longer valid.

#### Disclaimers

This product is intended for laboratory research purposes only. It is not intended for use in humans.

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Please see the enclosed Material Transfer Agreement (MTA) for further details regarding the use of this product. The MTA is also available on our Web site at [www.atcc.org](http://www.atcc.org)

Additional information on this culture is available on the ATCC web site at [www.atcc.org](http://www.atcc.org).

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