# Corning® Matrigel® hESC-Qualified Matrix

**A soluble basement membrane extract that supports the feeder-independent expansion of human ES and iPS cells**

Catalog #07181 5 mL

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## Product Description

Corning® Matrigel® hESC-Qualified Matrix (Corning Catalog #354277) is a soluble basement membrane extract of the Engelbreth-Holm-Swarm (EHS) tumor. It gels at room temperature to form a genuine reconstituted basement membrane rich in extracellular matrix proteins (Kleinman et al. 1986). After dilution, the matrix is used to coat tissue culture-treated cultureware for supporting the feeder-independent expansion of human embryonic stem (ES) and induced pluripotent stem (iPS) cells.

Corning® Matrigel® hESC-Qualified Matrix is mainly composed of laminin, collagen IV, entactin, and heparan sulfate proteoglycan (Bissell et al.; Kleinman et al. 1982). Growth factors, collagenases, plasminogen activators, and other undefined components have also been identified in this matrix (McGuire & Seeds; Vukicevic et al.).

Corning® Matrigel® hESC-Qualified Matrix is an optimized surface for stem cell research and has been widely accepted as an alternative substrate to feeder cells for the culture of human ES and iPS cells (Drukker et al.; Hammerick et al.; Xu et al. 2001 & 2004, Ludwig et al. 2006a & 2006b). It has been qualified to be compatible with mTeSR™1 (Catalog #85850), eliminating the need for time-consuming screening, while providing the reproducibility and consistency essential for human pluripotent stem cell (hPSC) research.

When coupled with feeder-free hPSC maintenance media such as mTeSR™1, mTeSR™ Plus (Catalog #05825), TeSR™-E8™ (Catalog #05990), or TeSR™2 (Catalog #05860), Corning® Matrigel® hESC-Qualified Matrix has been used to successfully maintain human ES and iPS cell lines in the undifferentiated state. These cells retain characteristic hPSC morphology and expression of undifferentiated cell markers such as OCT-3/4, SSEA-3, and TRA-1-60. Corning® Matrigel® hESC-Qualified Matrix is certified to be free of lactose dehydrogenase elevating virus (LDEV/LDHV).

## Properties

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| **Storage:** | Store at -20°C. Do not store in a frost-free freezer. |
| **Shelf Life:** | Stable until expiry date (EXP) on box label. |
| **Formulation:** | Dulbecco's Modified Eagle's Medium with 50 µg/mL gentamycin. |
| **Physical Appearance:** | Color may vary from yellow to dark red; product performance will not be affected. |

## Handling / Directions for Use

Ensure that undiluted Corning® Matrigel® hESC-Qualified Matrix and all tubes and media it will be in contact with are ice cold. Matrigel® will start to gel above 10°C.

NOTE: Use tissue culture-treated cultureware (e.g. 6-well plates, Catalog #38016).

1. Thaw Corning® Matrigel® hESC-Qualified Matrix by submerging the vial in ice and placing it at 2 - 8°C overnight.
2. Swirl the vial to ensure that material is evenly dispersed. Spray top of vial with 70% ethanol and air dry. Keep product on ice and handle using sterile technique.
3. Aliquot Matrigel® into chilled tubes; switch pipette tips if Matrigel® clogs the tip. Store tubes on ice, or if not used immediately store at -20°C. Thaw aliquots on ice.

   NOTE: Gelled Matrigel® may be re-liquefied if placed at 2 - 8°C on ice for 24 - 48 hours.

   DILUTION FACTOR: The dilution is calculated for each lot based on the protein concentration. To use with mTeSR™1, prepare aliquots according to the dilution factor provided on the Matrigel® Quality Certificate, available at www.corning.com/lifesciences (enter Corning Catalog #354277 and lot number). The volume of the aliquots is typically 270 - 350 µL.
4. Add 25 mL of cold DMEM/F-12 with 15 mM HEPES (Catalog #36254) to a 50 mL conical tube (e.g. Catalog #38010) and place on ice.
5. Add one aliquot of thawed Matrigel® to the cold DMEM/F-12. Mix thoroughly.

   NOTE: This volume will be sufficient for coating 4 x 6-well plates (1 mL/well) or 3 x 100 mm dishes (8 mL/dish).
6. Immediately coat cultureware with diluted Matrigel®. Swirl the cultureware to spread the solution evenly across the surface.

7. Incubate at room temperature (15 - 25°C) for at least 1 hour before use. Do not let the Matrigel® solution evaporate.

   NOTE: If not used immediately, seal the cultureware with Parafilm® to prevent evaporation of the Matrigel® solution; store at 2 - 8°C for up to 1 week after coating. Allow stored coated cultureware to come to room temperature (15 - 25°C) for 30 minutes before proceeding to the next step.

8. Gently tilt the cultureware to one side and allow the excess Matrigel® solution to collect at the edge. Remove the excess Matrigel® solution using a serological pipette or by aspiration. Ensure that the coated surface is not scratched. Coated cultureware is now ready for use.

## References

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