

## Product 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 healing. They not only support cells and cell layers, but 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.

**Vivogel Matrix** is a solubilized basement membrane extracted from the Engelbreth-Holm-Swarm (EHS) mouse tumor that comprises extracellular matrix proteins including laminin (glycoprotein), collagen IV, nidogen (glycoprotein), perlecan (heparan sulfate proteoglycan), and many other essential growth factors. **Vivogel Matrix** has empowered applications such as stem cell culture, angiogenesis assays, and tissue engineering.

**Vivogel for Organoid Culture** is an optimized product specifically developed to support organoid growth and differentiation. Each lot of **Vivogel for Organoid Culture** is qualified to form stable 3D domes commonly used in organoid culture protocols.

## Product Specifications:

Concentration: 8 - 12 mg/mL.

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

Buffer: DMEM (phenol red-free, PRF), with 10 µg/mL gentamicin.

Stability: Product is stable for two years from date of manufacture. See lot specific Certificate of Analysis for expiration date.

Storage: -80 °C for long-term storage. Do not use **Vivogel for Organoid Culture** that has been stored at 4 °C for more than 24 h. Please aliquot upon receipt of the product. Avoid multiple freeze-thaw cycles.

## Precaution:

When handling biohazardous materials such as human cells, safe laboratory procedures should be followed, and protective clothing should be worn.

## Limitations:

- FOR LABORATORY RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES.
- The safety and efficacy of this product in diagnostic or other clinical uses has not been established.
- Results may vary due to variations among tissue/cells derived from different donors or sources.

## Material Qualifications:

### A. STERILITY TESTING

- Tested negative by PCR test for 31 organisms and viruses, including: mycoplasma, 17 bacterial and
- virus strains typically included in mouse antibody production (MAP) testing, and 13 additional murine infectious agents including LDEV.
- Tested following USP sterility guidelines.
- Endotoxin concentration ≤ 8 EU/mL by LAL assay.

### B. FUNCTIONAL ASSAYS

- Organoid culture – **Vivogel for Organoid Culture** supports culture of human gastric or mouse small intestine organoids.
- Tube formation assay - **Vivogel for Organoid Culture** promotes formation of capillary-like structures by human (HBMVEC; HUVEC) or mouse (SVEC4-10) endothelial cells.

### C. GELLING ASSAY

- **Vivogel for Organoid Culture** gels in less than 20 minutes at 37 °C and maintains the gelled form in culture medium for a minimum of 14 days at 37 °C.

## Coating Procedures:

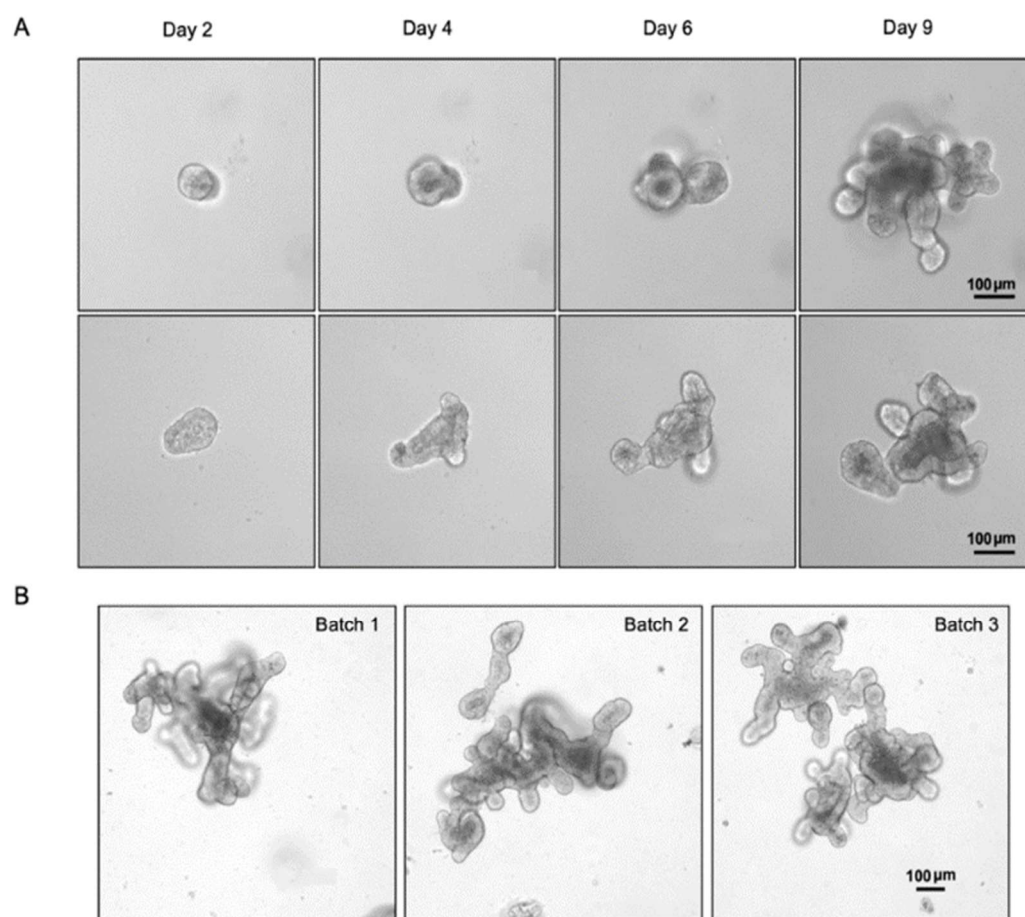
Thaw **Vivogel for Organoid Culture** overnight at 2 - 8 °C. Refrigerator temperatures may vary; therefore, it is recommended to keep **Vivogel for Organoid Culture** on ice in a refrigerator during the thawing process. Thawed **Vivogel Matrix** solidifies quickly at temperatures above 10 °C; when working with **Vivogel for Organoid Culture**, keep it on ice to prevent untimely gelling.

A thick gel form of **Vivogel for Organoid Culture** consistently benefits applications such as endothelial cell formation of capillary-like structures (Tube Formation Assay), the differentiation of rat aorta tissue into capillary-like structures (Aortic Ring Assay), epithelial organoid formation, or tumor organoid formation.

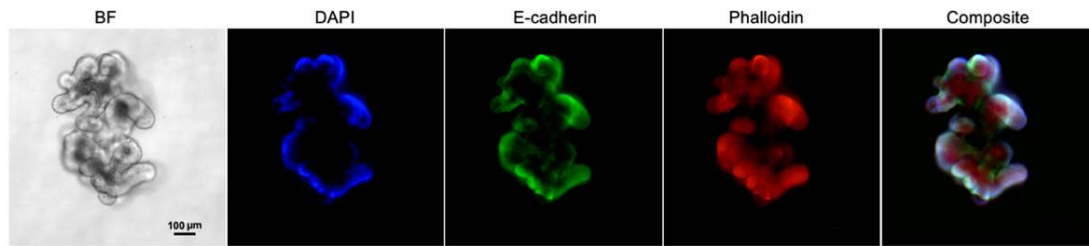
### A. THICK GEL METHOD

1. Thaw **Vivogel for Organoid Culture** as stated above.
2. Homogenize **Vivogel for Organoid Culture** by slowly pipetting solution up and down; be careful not to introduce air bubbles.
3. Keep culture plates on ice. Apply 200 µL per cm<sup>2</sup> onto the growth surface.
4. Place coated object at 37 °C for 30 minutes.
5. Coated objects are ready for use.

## Data Example:



**Figure 1.** Mouse intestinal organoids cultured in **Vivogel for Organoid Culture**. (A) Representative images of primary culture of intestinal crypts freshly isolated from mouse small intestines in **Vivogel for Organoid Culture**. (B) Representative images of organoids cultured in three batches of **Vivogel for Organoid Culture** (Batch 1: passage 6; Batch 2: passage 10; Batch 3: passage 9).



**Figure 2.** Representative immunofluorescent images of whole mount mouse intestinal organoids cultured in **Vivogel for Organoid Culture**. Organoids are stained with DAPI, E-cadherin and Phalloidin.