TheWell BIOSCIENCE
Growing Cells in New Dimensions

Product Data Sheet

Revision v1.0

Catalog Numbers:
VHM06-K1
VHM06-K2
VHM06-K3
VHM06S

VitroGel® Angiogenesis Assay Kit

Usage restrictions: For Research Use Only. Not For Use In Diagnostic Procedures.

Product Description

VitroGel Angiogenesis Assay Kit is a revolutionary tool for researchers to study the effect of both hydrogel properties and culture medium on angiogenesis process. The kit can be used to study the angiogenesis tube formation and invasion on both 2D hydrogel coating method and 3D cell culture method. The VitroGel system is also good for animal injection for in vivo study.

The ready-to-use VitroGel Angiogenesis Assay Kit contains:
- VitroGel AAK, a xeno-free ready-to-use hydrogel.
- AAK Supplement 1, a hydrogel growth supplement without vascular endothelial growth factors (VEGFs) for cell attachment and growth.
- AAK Supplement 2, a hydrogel tube formation supplement with VEGFs as a positive control for tube formation.

The VitroGel AAK hydrogel is room temperature stable and can be directly mixed with each supplement at 2:1 (v/v) ratio for hydrogel formation. Researchers can adjust the hydrogel's molecular cues by adding the growth factors/inhibitors directly to the supplements before mixing with the VitroGel AAK hydrogel. Cells cultured in this system can be harvested easily with the VitroGel Cell Recovery Solution.

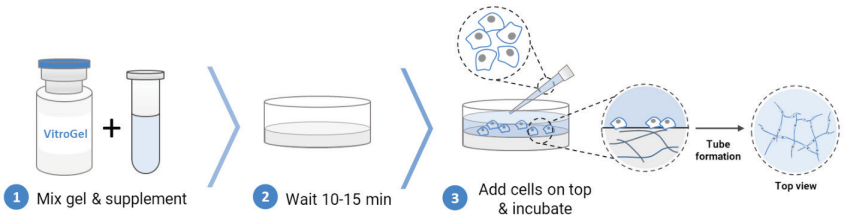
SPECIFICATIONS	
Type 1 Kit Contents	VitroGel AAK (2 mL) AAK Supplement 1 (1 x 500 µL) AAK Supplement 2 (1 x 500 µL)
Type 2 Kit Contents	VitroGel AAK (2 mL) AAK Supplement 1 (2 x 500 µL)
Type 3 Kit Contents	VitroGel AAK (2 mL) AAK Supplement 2 (2 x 500 µL)
Formulation	Xeno-free, polysaccharide based functional hydrogel AAK Supplement 1: Without VEGFs AAK Supplement 2: With VEGFs
Use	Angiogenesis Assay, tube formation, invasion, animal injection
Biocompatibility	Biocompatible, safe for animal studies
Injection	Injectable hydrogel for in vivo studies and lab automation
Cell Harvesting	Use VitroGel® Cell Recovery Solution (Cat# MS03-100)
pH	Neutral
Shipping	Supplements require dry ice shipment.
Storage	VitroGel AAK hydrogel: 2-8°C AAK Supplement 1: -20°C AAK Supplement 2: -20°C
Number of Uses	60 tests per kit

Protocol

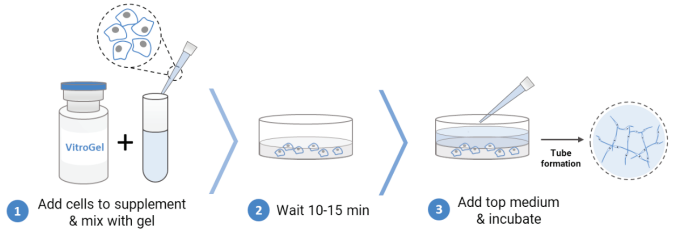
Visit www.thewellbio.com/faq-hydrogel for frequently asked questions on cell culture preparation and operation

Full protocol and video demonstrations can be found at > **www.thewellbio.com/protocols**

2D Hydrogel Coating Protocol Workflow



3D Cell Culture Protocol Workflow



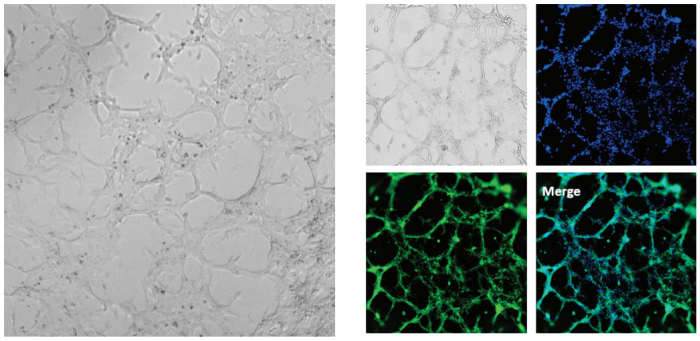


Figure 1. Tube formation of endothelial cells on top of VitroGel AAK hydrogel with tube formation supplement, AAK Supplement 2.
The time-lapse video above shows the tube formation during 18 hours after Human Umbilical Vein Endothelial Cells (HUVEC) seeding on top of VitroGel AAK hydrogel with AAK Supplement 2. The image above shows the tube morphology of HUVEC cells on top of VitroGel AAK hydrogel. The cells were fixed and stained with DAPI (blue) and ActinGreen™ (green)

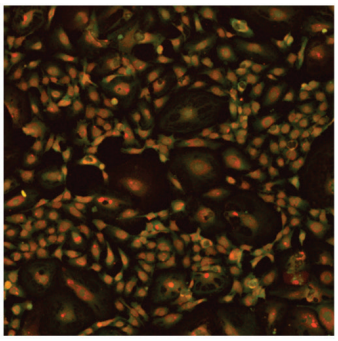


Figure 2. HUVEC cell growth on top of VitroGel AAK hydrogel with cell growth supplement, AAK Supplement 1.
The image above shows HUVEC cells attached and growing on the surface of VitroGel AAK hydrogel with cell growth supplement, AAK Supplement 1. The cells were fixed and stained with DRAQ5™ (red) and ActinGeen™ (green).

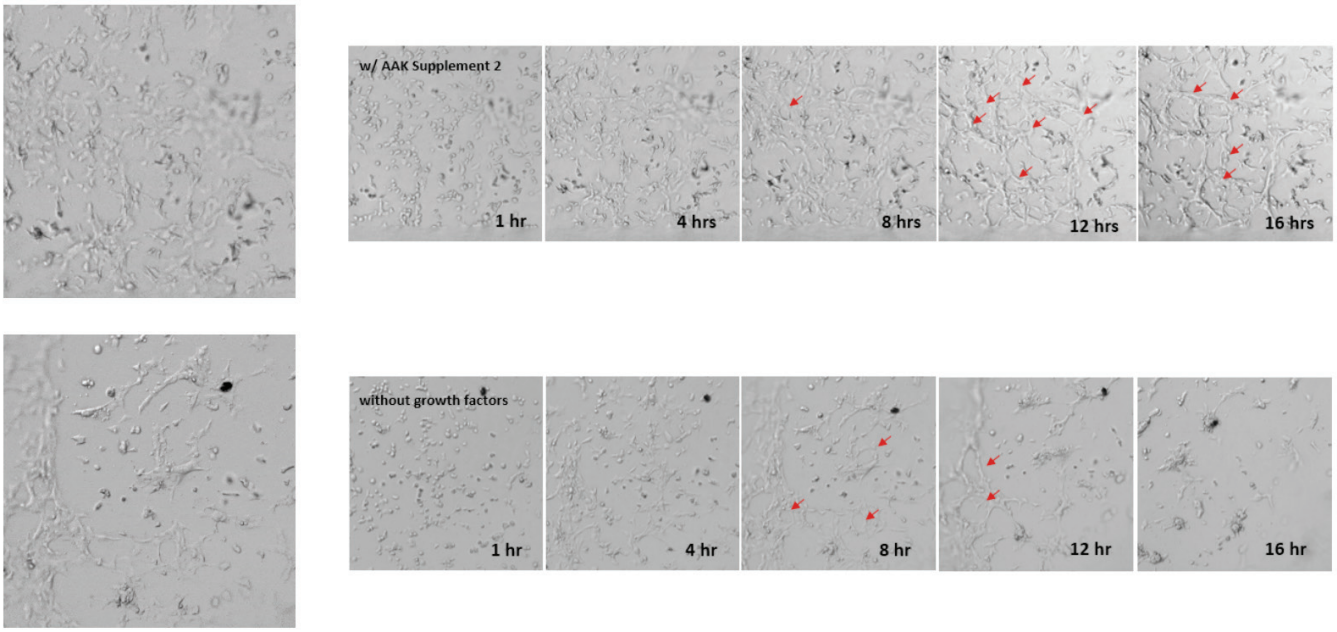


Figure 3. Comparison of the growth of endothelial cells on top of VitroGel AAK hydrogel with and without growth factor supplement.
Top Row) The time-lapse video shows the tube formation during 18 hours after Human Umbilical Vein Endothelial Cells (HUVEC) seeding on top of VitroGel AAK hydrogel with AAK Supplement 2 containing VEGFs. The image shows the cells attached on the surface of the hydrogel forming luminal structures after 8 hours, which further developed into a tube structures (red arrows). **Bottom Row)** HUVEC cells grow on the top of VitroGel AAK hydrogel without the cell growth factors. The time-lapse video shows the poor cell attachment and tube formation when there is a lack of growth factors in the hydrogel matrix. The images show the cells attached on the surface of the hydrogel forming less tube structures (red arrows) than cells with full growth factor supplement.

Related Products

- VitroGel Cel Recovery Solution (MS03-100)
- Other versions of VitroGel - www.thewellbio.com/hydrogels

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