

VitroGel® Angiogenesis Assay HC 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 tunable VitroGel Angiogenesis Assay HC kit contains:

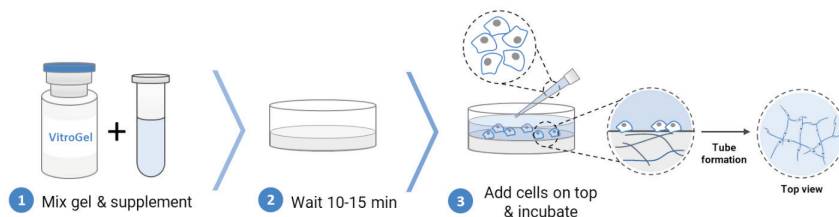
- VitroGel AAK-HC, tunable, xeno-free high concentration hydrogel.
- AAK Dilution Solution, for adjusting the hydrogel concentration
- AAK Supplement 1, a hydrogel growth supplement without vascular endothelial growth factors (VEGFs) for cell attachment and growth.
- AAK Supplement 2, a hydrogel tube formaton supplement with VEGFs as a positive control for tube formation.

The high concentration VitroGel AAK-HC hydrogel is room temperature stable and can be adjusted by simply mixing the hydrogel solution and dilution solution at different ratios (recommend 1:1 to 1:5 v/v) to achieve different mechanical strengths. The diluted hydrogel solution can be directly mixed with supplement at 2:1 (v/v) ratio for hydrogel formation. Researchers can adjust the molecular cues of the hydrogel by adding the growth factors/inhibitors directly to the supplements before mixing the VitroGel AAK-HC. Cells cultured in this system can be further harvested easily with the VitroGel Cell Recovery Solution.

SPECIFICATIONS	
Type 1 Kit Contents	- VitroGel AAK-HC (1 mL) - AAK Dilution Solution (10 mL) - AAK Supplement 1 (3 x 500 uL) - AAK Supplement (3 x 500 uL)
Type 2 Kit Contents	- VitroGel AAK-HC (1 mL) - AAK Dilution Solution (10 mL) - AAK Supplement 1 (6 x 500 uL)
Type 3 Kit Contents	- VitroGel AAK-HC (1 mL) - AAK Dilution Solution (10 mL) - AAK Supplement 2 (6 x 500 uL)
Hydrogel Kit Contents	- VitroGel AAK-HC (1 mL) - AAK Dilution Solution (10 mL)
Formulation	Tunable, xeno-free, polysaccharide based 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 <i>in vivo</i> 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-HC hydrogel: 2-8°C AAK Dilution Solution: 15-30°C AAK Supplement 1: -20°C AAK Supplement 2: -20°C
Number of Uses	30-180 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

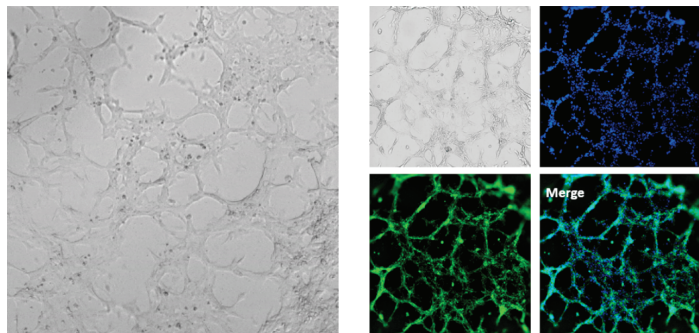
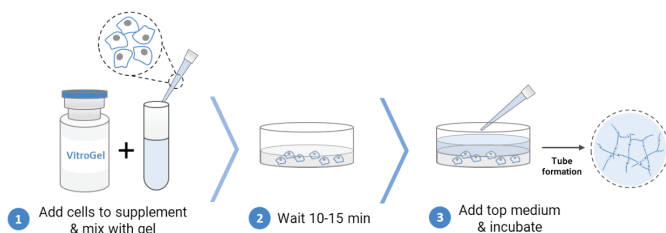


Figure 1. Tube formation of endothelial cells on top of VitroGel AAK hydrogel with tube formation supplement, AAK Supplement 2. The time-lapse video above shows the tube formation during 18 hours after Human Umbilical Vein Endothelial Cells (HUVEC) seeding on top of VitroGel AAK hydrogel with AAK Supplement 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)

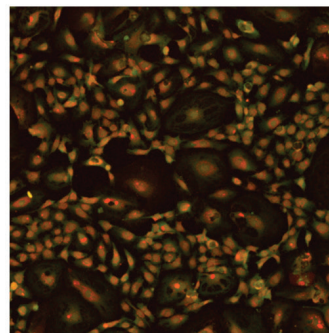


Figure 2. HUVEC cell growth on top of VitroGel AAK hydrogel with cell growth supplement, AAK Supplement 1. The image above shows HUVEC cells attached and growing on the surface of VitroGel AAK hydrogel with cell growth supplement, AAK Supplement 1. The cells were fixed and stained with DRAQ5™ (red) and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

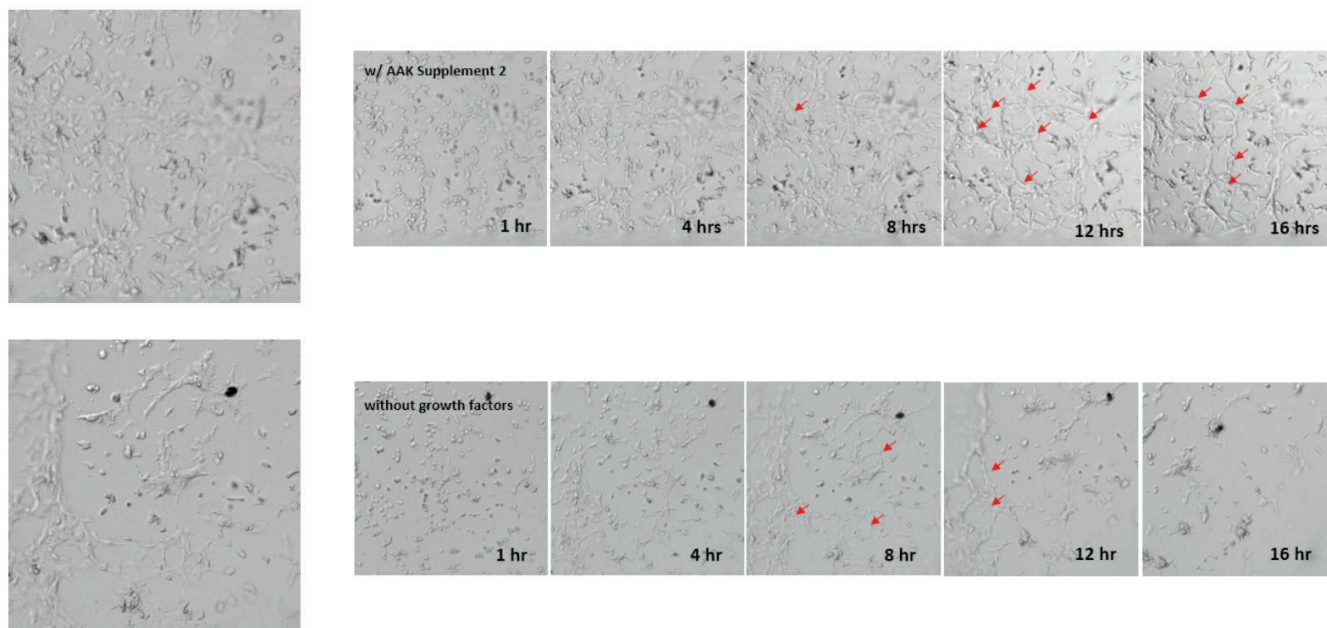


Figure 3. Comparison of the growth of endothelial cells on top of VitroGel AAK hydrogel with and without growth factor supplement. **Top Row)** The time-lapse video shows the tube formation during 18 hours after Human Umbilical Vein Endothelial Cells (HUVEC) seeding on top of VitroGel AAK hydrogel with 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.