cells in focus ibidi®

cientisol
soluciones científicas

The Product and Experiment Guide

Providing Solutions for Your Research

www.ibidi.com

Find the Ideal Imaging Chamber for Your Application

IMMUNO-FLUORESCENCE

p. 10

3 Well | 8 Well | 12 Well Chamber, removable

Removable silicone chambers for cell culture and immuno-fluorescence, suitable for upright and inverted microscopy and long-term storage

µ-Slide VI$^{0.5}$ Glass Bottom | µ-Slide VI$^{0.4}$

Slides with 6 parallel channels providing ideal optical conditions for immunofluorescence, available with different channel heights and coatings; with glass or ibidi Polymer Coverslip bottom

WOUND HEALING MIGRATION

p. 6

Culture-Insert 2 Well | 3 Well | 4 Well

Silicone inserts with a defined cell-free gap for wound healing, migration, 2D invasion assays, and co-cultivation of cells; available as individual inserts in a µ-Dish or as 25 pieces in a transport dish for self-insertion

Culture-Insert 2 Well 24

The complete solution for high throughput wound healing and migration experiments

FLOW ASSAYS

p. 9

µ-Slide I Luer

Flow channel slides, available with different heights and coatings

µ-Slide VI$^{0.5}$ Glass Bottom | µ-Slide VI$^{0.1}$ | µ-Slide VI$^{0.4}$

Slides with 6 channels for parallel flow assays with minimal amount of cells, medium, and supplements, available with different channel heights and coatings; with glass or ibidi Polymer Coverslip bottom

µ-Slide III^{3D} Perfusion

A slide for optimal nutrient supply during long-term cultivation of cells or organoids in 3D matrices

CHEMOTAXIS

p. 7

µ-Slide Chemotaxis

Specialized geometry for assays with fast or slow migrating cells in 2D culture or 3D gel matrices

HIGH THROUGHPUT

µ-Plate 24 Well | 96 Well

Plates with a flat, clear bottom for brilliant images in high throughput cell microscopy applications

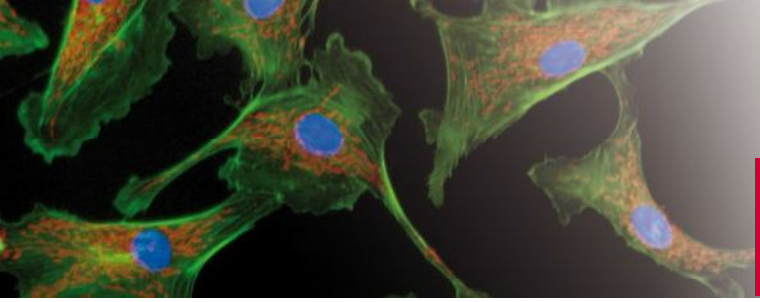
ANGIOGENESIS

p. 8

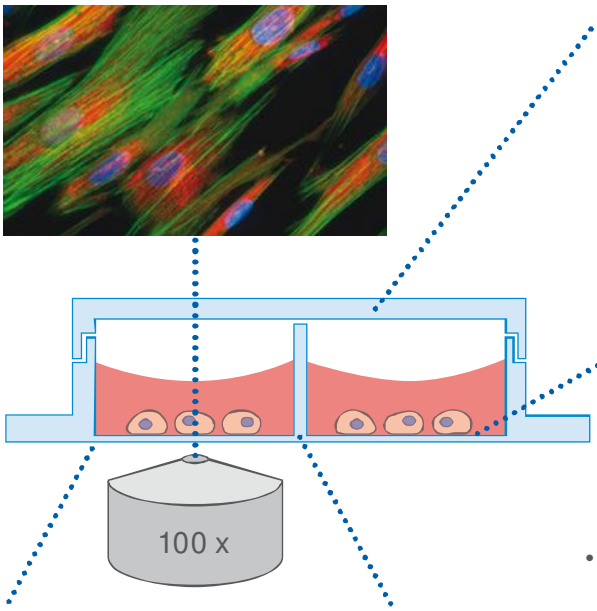
µ-Slide Angiogenesis | µ-Plate Angiogenesis 96 Well

A slide optimized for tube formation assays, 3D cell culture and immunofluorescence staining, also available in a 96 well format for high throughput applications

Order your **free sample** and test ibidi's microscopy chambers with your experiments.



Learn the Principles of the ibidi Imaging Chambers



Pick the Optimal Size and Geometry for Your Application

- Chamber slides
- Dishes
- Channel slides
- Specialized geometry

Choose From a Broad Range of Coatings for Excellent Cell Growth

- ibiTreat (tissue culture treated surface)
- Hydrophobic, uncoated
- Collagen IV
- Poly-L-Lysine

Immersion Oil Compatible

Proven Mechanical and Chemical Stability

ibidi Polymer Coverslip #1.5 or glass bottom #1.5H for high resolution microscopy

Use the ibidi Imaging Chambers in Every Lab

µ-Slide 2 Well | 4 Well | 8 Well

Chambered coverslips that combine optimal conditions for cell culture, immunofluorescence and high-resolution microscopy; available with an ibidi Polymer Coverslip or a glass bottom

µ-Dish Family

Petri dishes for cell culture and high end microscopy; available with an ibidi Polymer Coverslip or a glass bottom

Get inspired by successful ibidi customers and explore our huge **reference database**.

Collagen Type I, rat tail

A ready-to-use rat tail collagen solution for the preparation of 3D collagen gels; storage at –20°C for well-defined quality and reproducibility

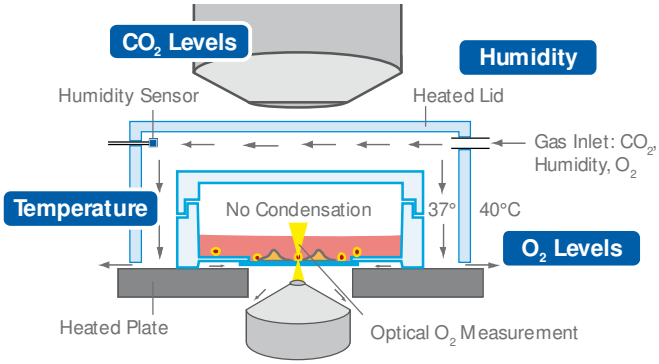
Create & Maintain Physiologic Conditions

ibidi Heating & Gas Incubation System

Establish *in vivo*-Like Conditions on Every Inverted Microscope

- Ideal for live cell microscopy
- Easy installation and use
- Compatible with all inverted microscopes that have a multiwell plate holder or a frame

Contact ibidi for a **free demo** of the ibidi Heating and Gas Incubation System.



Combine the ibidi Heating System and the ibidi Gas Incubation System to Get a Fully Functional Stage Top Incubator

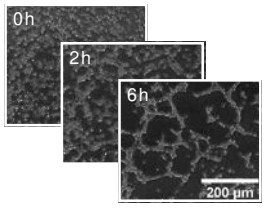
ibidi Heating System

- Accurate and precise heating
- Usable with slides, dishes, and plates
- Excellent phase contrast without condensation

ibidi Gas Incubation System

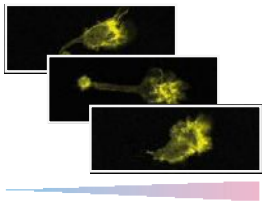
- Precise and reliable control of CO_2, O_2, and humidity
- Simulate hypoxic conditions and oxidative stress
- Fully compatible with the ibidi Heating Systems

Experimental Examples



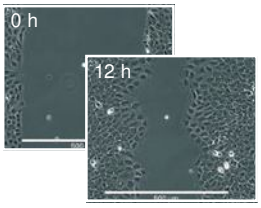
Tube Formation / Angiogenesis Assays

HUVEC cells on Matrigel™ in a µ-Slide Angiogenesis.



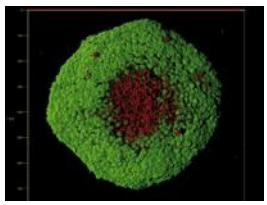
2D and 3D Chemotaxis Assays

Migration of a dendritic cell in a chemotactic gradient.



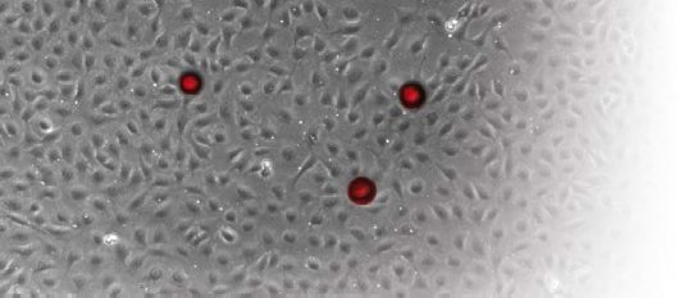
Wound Healing and Migration Assays

Closure of a cell-free gap in an ibidi Culture-Insert.



Oxygen Depletion

Spheroid with living (green) and apoptotic cells (red) due to oxygen depletion.



Monitor Intra- and Extracellular O_2

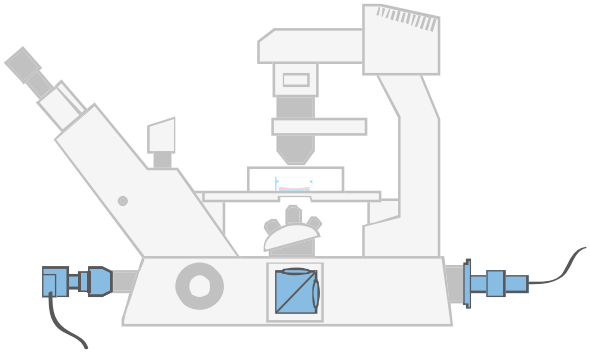
ibidi OPAL—Non-Invasive and Real-Time Oxygen Measurement

Ideal for Measuring Oxygen Concentrations in 2D or 3D Cell Culture

- Monitor the oxygen concentration of tissues or individual cells directly inside the petri dish or on the slide
- Save time with fast measurement made within seconds
- Easily connect to your inverted fluorescence microscope

In cooperation with:

ColibriPhotonics
optoelectronic sensor devices



OPAL Detector Unit *OPAL Filter Cube* *OPAL LED Light Source*

OPAL Software *ibidi OPAL Controller*

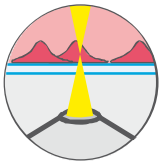
Extracellular O_2 Monitoring

Use the non-cell permeable CPOx Beads with O_2-sensitive fluorophore

Cell Cultures *Spheroids* *Tissue*

Intracellular O_2 Measurement

Use cell-permeable nanoparticle sensors that contain O_2-sensitive fluorophores

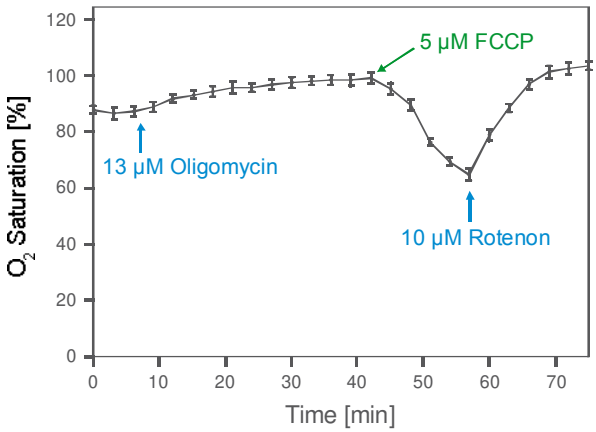


Cell Cultures *Spheroids* *Tissue*

Experimental Example

Extracellular O_2 Measurement in the Direct Neighborhood of an MCF-7 Spheroid

O_2 levels were measured over time using CPOx Beads. Inhibition of ATP synthase with Oligomycin increases O_2 levels (1). FCCP decreases the O_2 concentration due to higher cellular O_2 respiration (2). Rotenon inhibits the respiratory chain, which decreases O_2 consumption and results in increase of extracellular O_2 (3).



Wound Healing and Migration Assays

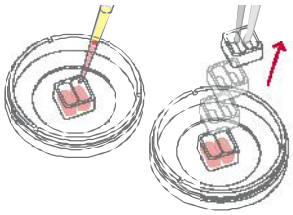
Keep Your Assays Easy and Reproducible

- Perform your experiment of choice: Wound healing, migration, 2D invasion assays, or co-cultivation of cells
- Benefit from extremely high reproducibility due to the defined size of the Culture-Inserts' cell-free gap
- Save time with a quick and easy experimental setup and automated image analysis

ibidi Offers the Complete Solution for Your Wound Healing or Migration Assay:

Sample Preparation

Setup your assay of choice in an easy and highly reproducible manner

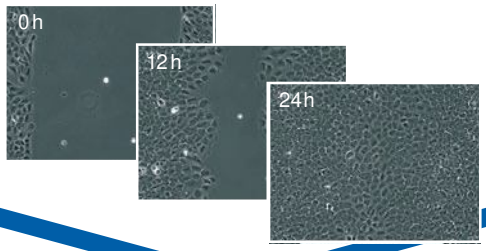


Culture-Insert
2 Well | 3 Well | 4 Well

Silicone insert with a defined cell-free gap

Live Cell Imaging

Measure wound closure and migration under physiological conditions in real time



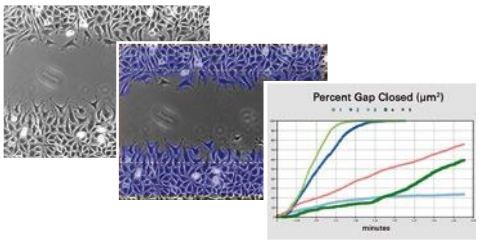
p. 4

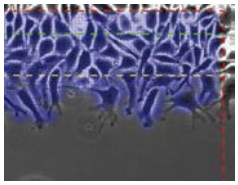
ibidi Heating and Gas Incubation System

The ibidi solution for creating and maintaining a physiological environment

Data Analysis

Speed up your experimental workflow with quick and reliable automated image analysis





Wound Healing ACAS Image Analysis Software

Create your **free account** and get 15 free analysis jobs per month.

Chemotaxis Assays

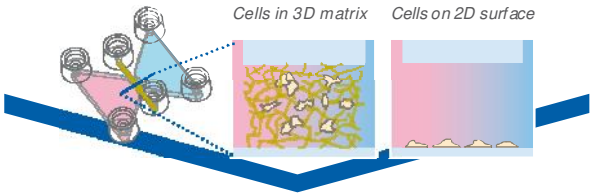
Precisely Analyze Directed Cell Migration Behavior in 2D or 3D

- Investigate the migration of slow migrating cells (e.g., cancer cells) and fast migrating cells (e.g., immune cells) in a 2D or 3D environment
- Keep a linear and stable chemotactic gradient for over 48 hours
- Reduce your costs by using minimal amounts of medium and supplements

ibidi Offers the Complete Solution for Your Chemotaxis Assay:

Sample Preparation

Create a precisely defined, stable chemotactic gradient in a reproducible environment

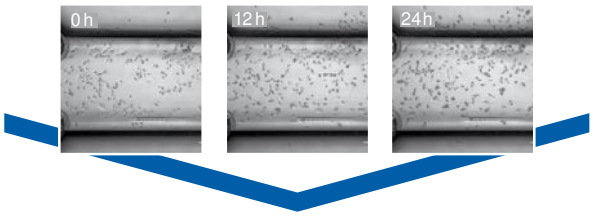


µ-Slide Chemotaxis

Specialized geometry and brilliant optical features

Live Cell Imaging

Measure chemotaxis under physiological conditions in real time



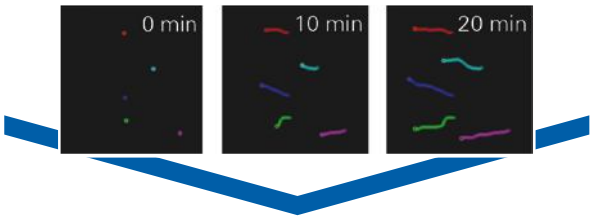
p. 4

ibidi Heating and Gas Incubation System

The ibidi solution for creating and maintaining a physiological environment

Cell Tracking

Quantify cell movements between frames of a temporal stack

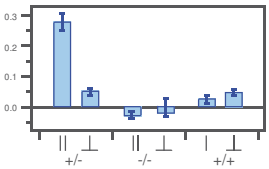


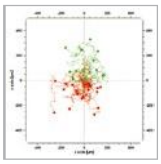
ImageJ Manual Tracking Plugin

Download the **free manual tracking** plugin here: ibidi.com/manual-tracking

Data Analysis

Visualize migrational paths and analyze various parameters



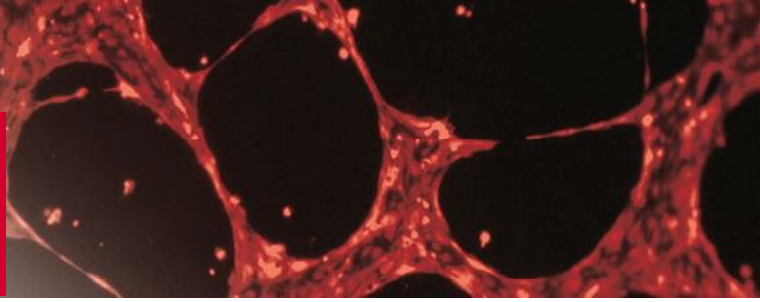


ibidi Chemotaxis and Migration Tool

Download the **free chemotaxis analysis** software here: ibidi.com/chemotaxis-tool

Angiogenesis Assays

Perform Tube Formation and Sprouting Assays in 2D or 3D

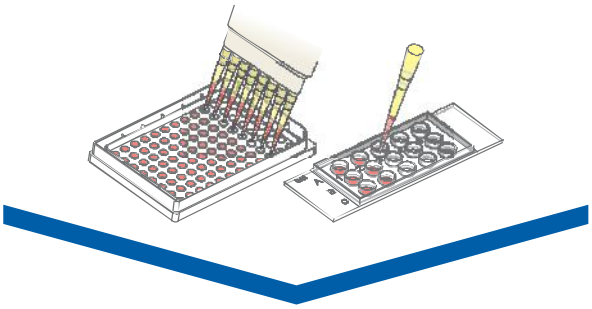


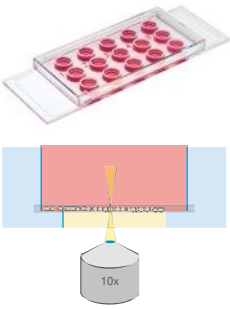
- Investigate the behavior of endothelial cells using tube formation assays, **sprouting assays, 3D cell culture, and immunofluorescence analysis**
- **Benefit from brilliant microscopic visualization without meniscus formation**— all cells in one optical plane
- Reduce your costs by minimizing the amounts of Matrigel, medium, and supplements needed

ibidi Offers the Complete Solution for Your Tube Formation Assay:

Sample Preparation

Seed your cells on minimal amounts of Matrigel and take advantage of the "well-in-a-well" feature



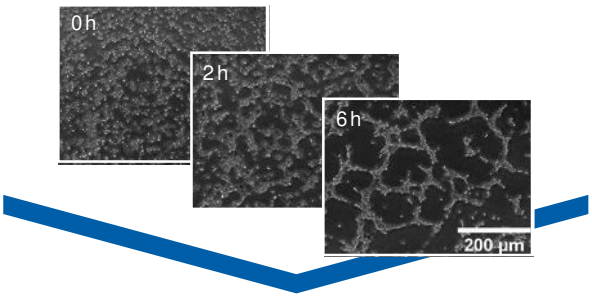


µ-Slide Angiogenesis

Due to the "well-in-a-well" technology, the amount of Matrigel is reduced to 10 µl per well and no meniscus is formed

Live Cell Imaging

Get brilliant microscopic images in real time under physiological conditions—without meniscus



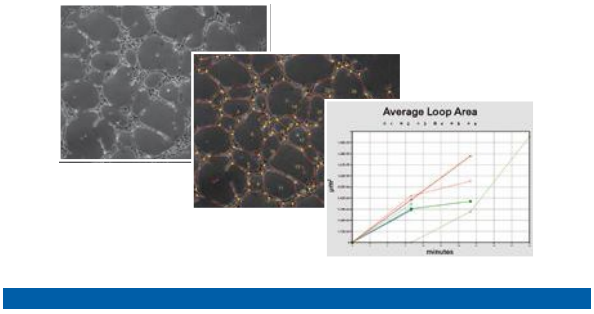
p. 4

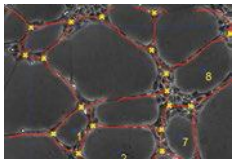
ibidi Heating and Gas Incubation System

The ibidi solution for creating and maintaining a physiological environment

Data Analysis

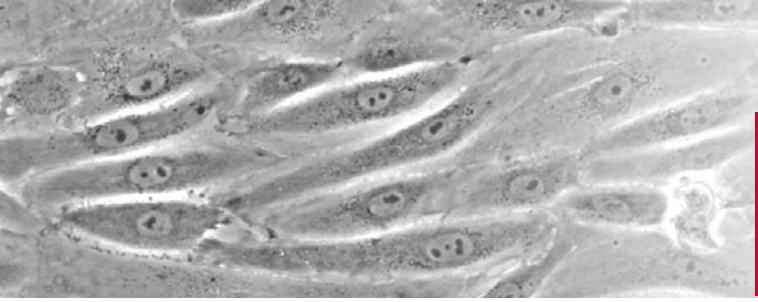
Speed up your experimental workflow with quick and reliable automated image analysis





Tube Formation ACAS Image Analysis Software

Create your **free account** and get 15 free analysis jobs per month.



Flow Assays

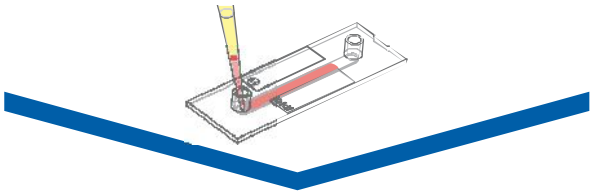
Simulate Physiologic Systems Under Various Conditions

- Mimic *in vivo*-like conditions for cells that are physiologically exposed to shear stress (e.g., endothelial cells and epithelial cells)
- Establish long-term cell culture under defined flow conditions—days to even weeks—and perform various downstream analyses
- Reduce your costs by using minimal amounts of medium and supplements

ibidi Offers the Complete Solution for Your Flow Assay:

Sample Preparation

Setup your flow assay of choice and choose from our broad portfolio of channel slides

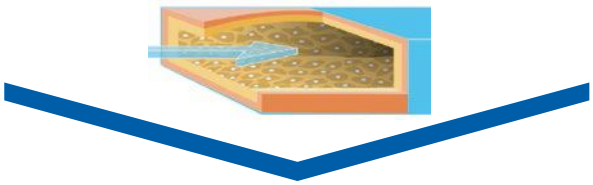


µ-Slide I Luer

Channel slides with a variety of heights and coatings for different shear stress ranges

Flow Conditioning

Apply unidirectional, oscillatory, or pulsatile flow

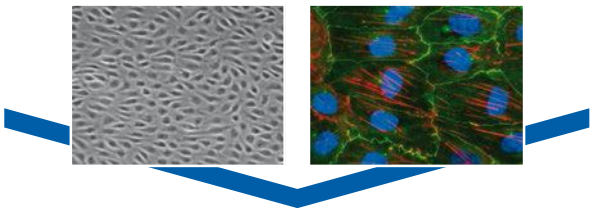


The ibidi Pump System

A perfusion system to cultivate cells under flow for the simulation of blood vessels

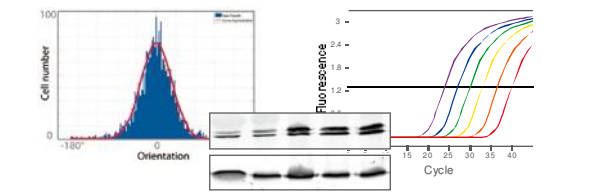
Staining and Microscopy

Image and stain cells directly in the channel slide

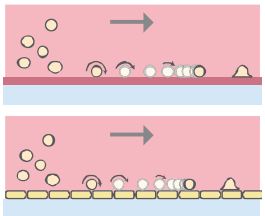


Downstream Analysis

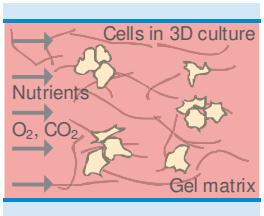
Easily analyze your cells with, e.g., Western Blot, qRT-PCR, or FACS



Experimental Examples



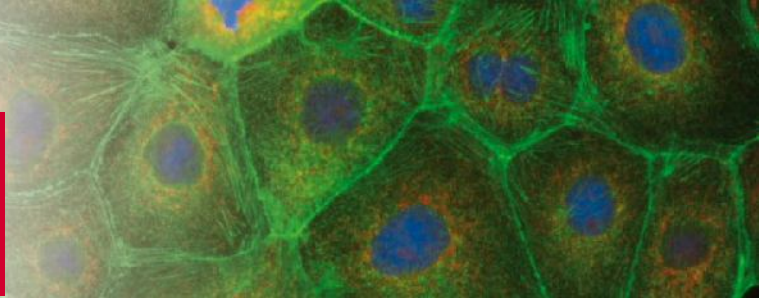
Rolling and adhesion assays



Interstitial flow in 3D tissue culture

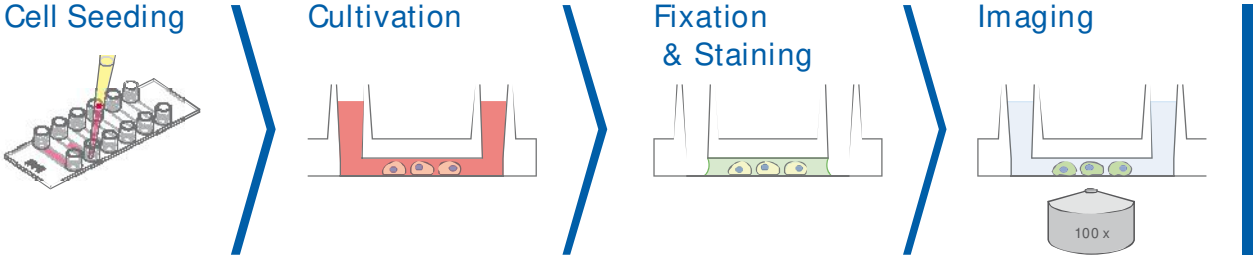
Immunofluorescence Assays

Get Brilliant Stainings With Reduced Time and Material



- Simplify your staining procedure—perform all steps in one single slide and reduce your experimental steps
- Reduce your costs—use only small numbers of cells and a low amount of medium and antibodies
- Get brilliant microscopic images due to the slides' optical specifications

All-in-One Chambers

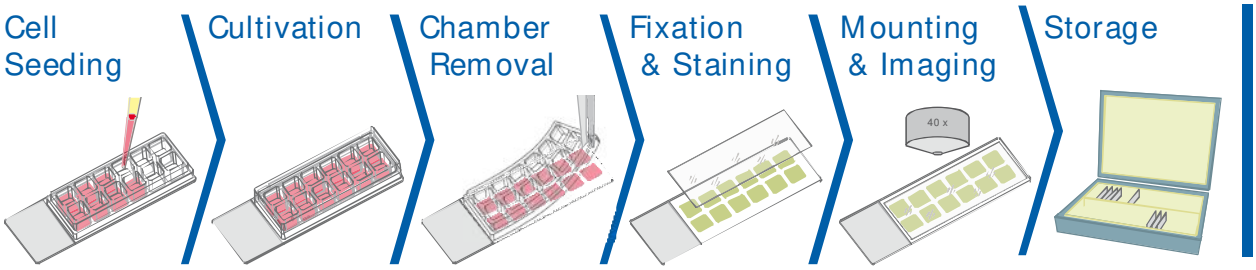


- µ-Slide VI $^{0.5}$ Glass Bottom
- µ-Slide VI $^{0.4}$
- µ-Slide VI $^{0.1}$

- µ-Slide 2 Well
- µ-Slide 4 Well
- µ-Slide 8 Well

- µ-Dish Family

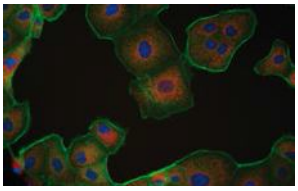
Removable Chamber Slides



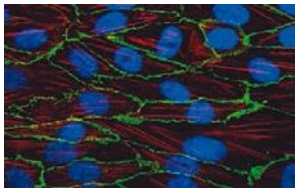
3 Well | 8 Well | 12 Well Chamber, removable

Removable silicone chambers for cell culture and immunofluorescence, suitable for upright and inverted microscopy

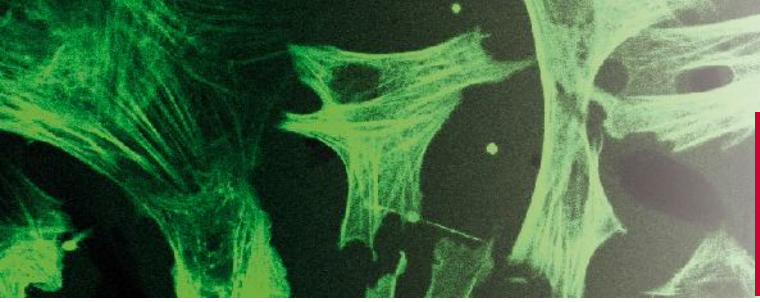
Experimental Examples



Cell line Madin-Darby canine kidney (MDCK) cultured in µ-Slide VI $^{0.4}$.



Human umbilical vein endothelial cells (HUVEC) cultured under flow conditions in µ-Slide I $^{0.4}$ Luer.



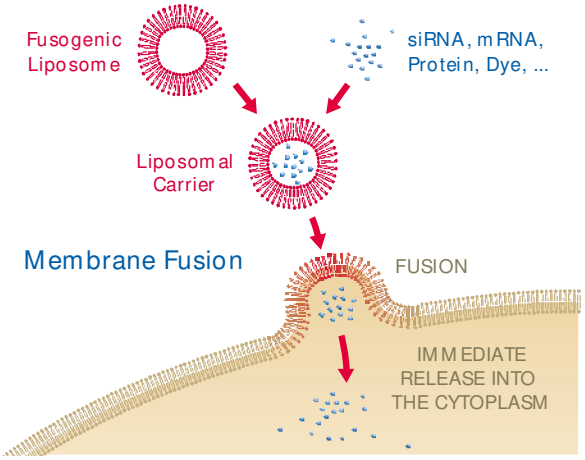
Reagents and Cells

We're not Only Labware: Explore Our Fuse-It and LifeAct Product Portfolio

Fuse-It—Next Generation Transfection

Efficiently Incorporate Molecules Into Living Cells With Maximized Biocompatibility

- Retain the highest viability, even in sensitive and difficult-to-transfect cells (e.g., primary neurons, keratinocytes, endothelial cells, or stem cells)
- Rapidly and directly transfer molecules into the cytoplasm without any interference by endocytosis or lysosomal degradation



Fuse-It-siRNA

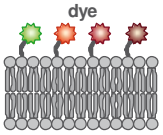
Silence your gene of interest even in sensitive cells

Fuse-It-mRNA

Transfer mRNA fast and directly into the cytoplasm

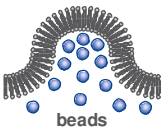
Fuse-It-P

Immediately transfer soluble proteins into living cells



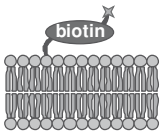
Fuse-It-Color

Label the plasma membrane with various dyes



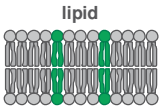
Fuse-It-Beads

Transfer beads and nano-particles into the cytoplasm



Fuse-It-B

Biotinylate the cell membrane for versatile use



Fuse-It-L

Incorporate lipids into the plasma membrane

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Brilliantly Visualize F-Actin With Unrestricted Functionality—No Interference With Cytoskeletal Dynamics *in vitro* and *in vivo*

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Generate stable cell lines for F-actin visualization

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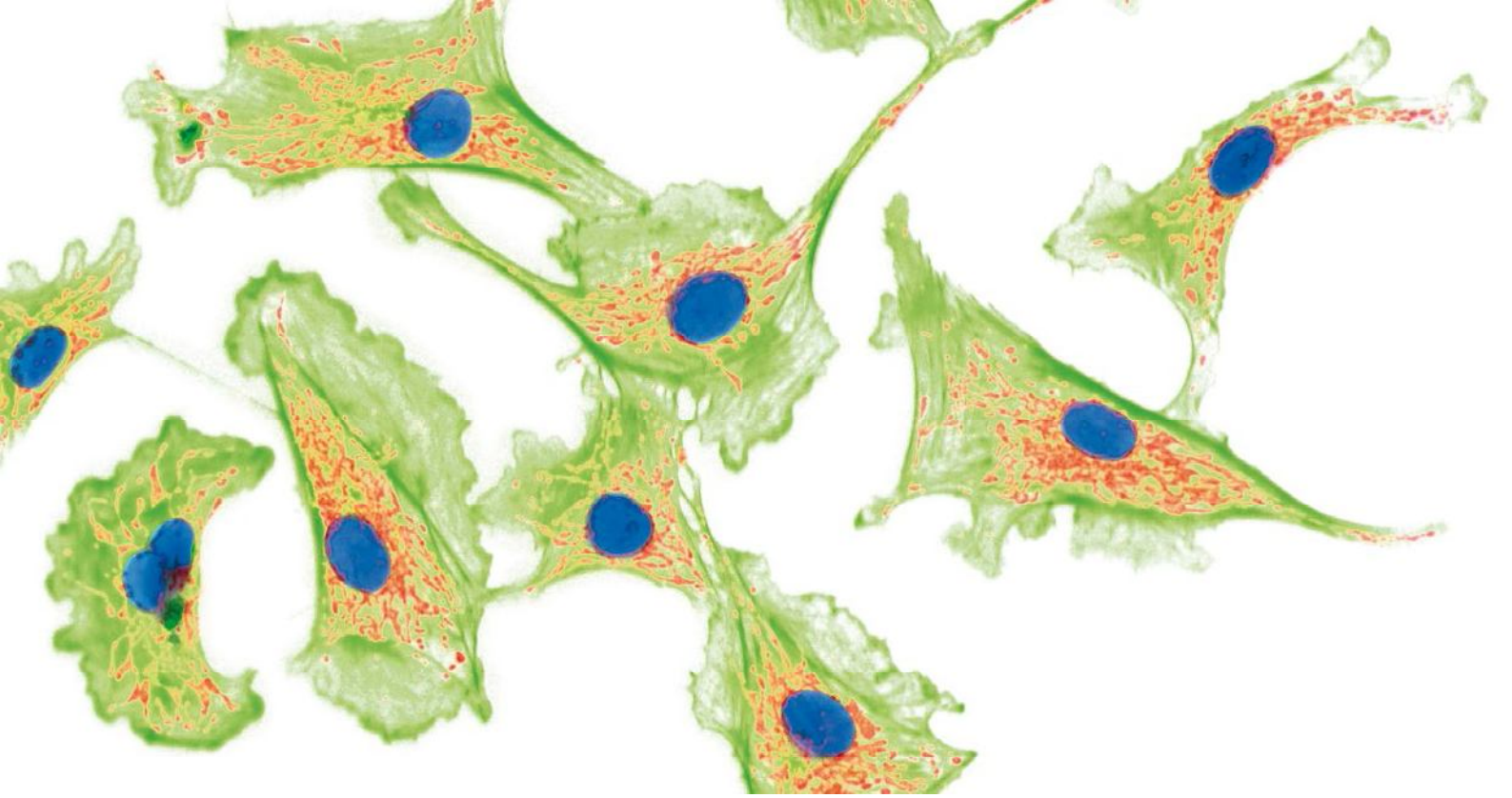

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