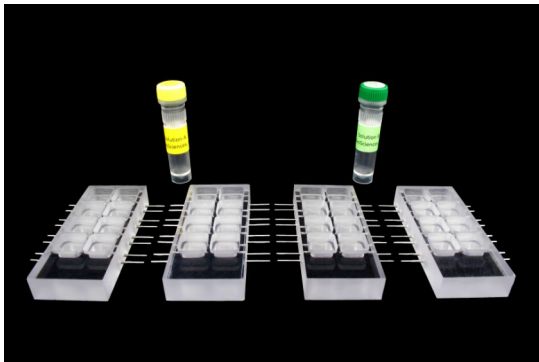


3D-Tissue Fabrication Kit

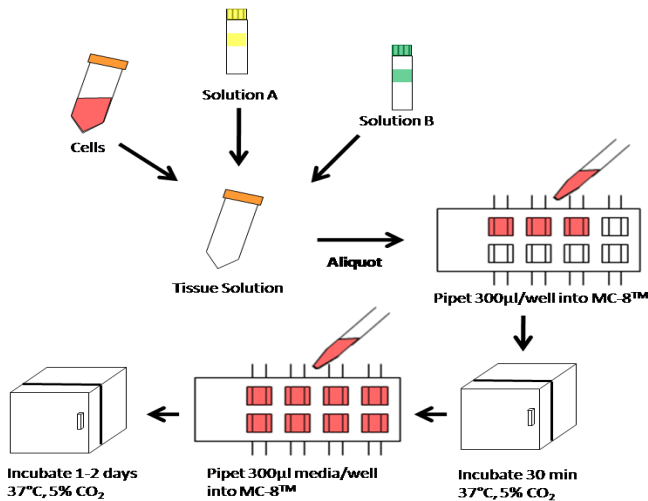
Introduction:

Traditional techniques used to study tissue physiology are labor intensive and not readily amendable to high-throughput experimentation. Ex vivo tissues, in particular, require surgical skills, produce a limited number of samples, and are not compatible with existing cell-based technologies used for investigating cellular physiologies.



3D-tissue fabrication

Our simplified process for fabricating 3D tissue constructs addresses these limitations and furthermore enables the use of cell-based fluorometric and colorimetric assays to quantify cellular and tissue physiology and mechanical properties (contractility and stiffness).



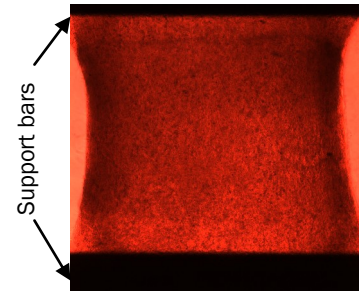
InvivoSciences, LLC©
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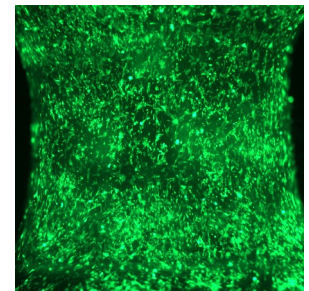
Formed 3D-tissue

Inverted microscopy
(4x objective):

Phase



Confocal microscopy:



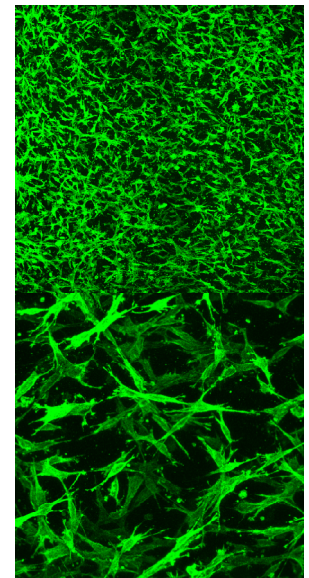
GFP expressing cells

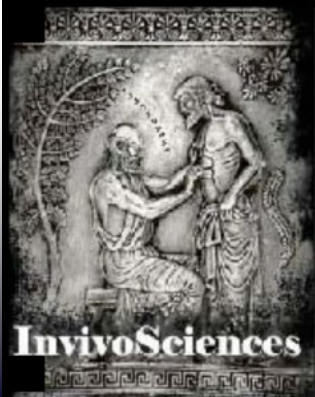
10x air objective

Cells labeled with anti-vimentin
antibody conjugated with Alexa-
488™

40x air objective

Cells labeled with anti-vimentin
antibody conjugated with Alexa-
488™



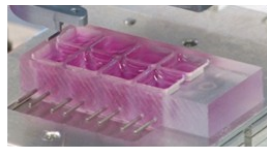


3D-Tissue Fabrication Kit

Technical Advantages:

- ◆ Rapidly assess the viability of cells grown in a more natural three-dimensional (3D) microenvironment
- ◆ Significantly improve signal detection sensitivity for cell- and tissue-based assays
- ◆ Correlate cell viability with multiple parameters of cell physiology
- ◆ Culture and re-measure viability of 3D tissue constructs for several days while performing different assays and experiments on live tissue.

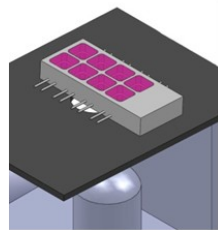
3D-tissue applications:



Palpator™

Our premier tissue-based assay instrument, the Palpator™, automatically quantifies the mechanical properties of the engineered tissues.

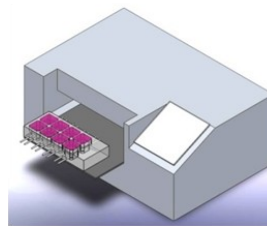
Assess cellular and tissue mechanical properties (contractility and stiffness) with our fully automated "click-to-run" assay system.



Microscopy

Phase and fluorescent microscopy can be used to monitor, in real time or fixed samples, any changes in cell morphology or localization of specific proteins of your interests.

Correlate cell morphology and cytoskeletal integrity to cellular and 3D tissue contractility and stiffness.



Automated Spectroscopy

Fluorometric or colorimetric assays can be used to assess the physiological characteristics of cells and tissues.

IVS inserts:

As an alternative to MC-8, IVS Inserts provide a cost effective 3D tissue fabrication tool with removable inserts (formed 3D tissue can be easily removed for subsequent applications).



Cells viability test:

A wide range of biomedical research laboratories use assays to determine and study the viability and growth of cells. Among many assays used for cell viability assessment, the Cell Counting Kit-8 (CCK-8)* can be used for high-throughput measurements. *CCK-8 is the original product of Dojindo Laboratories.

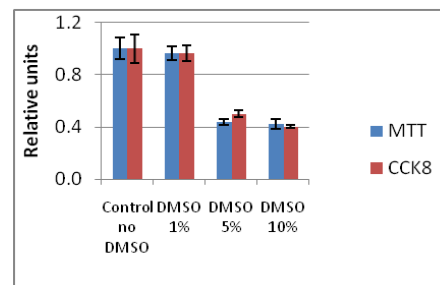


Figure 3, CCK-8 short term exposure did not change viability as measured by MTT assay. Human dermal fibroblast ETs had been left untreated (control) or treated with cytotoxic DMSO (1, 5, or 10%) for 2 hrs.

As shown in Figure 3, after the CCK-8 assay is completed, the same cells and tissues can be used for other applications such as microscopy, mechanical properties test using Palpator™, DNA and RNA extraction etc.

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