

## A Micro-Bubble Plate For Patterning Biological and Non-Biological Materials

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### BRIEF DESCRIPTION

A method for creating a 3D micro-bubble plate for patterning biological and non-biological materials. Because each sample is at a known location, large numbers of samples may be studied and allow for significant statistical data sets, which will aid in diagnosing unknown agents or diseases inexpensively.

### FULL DESCRIPTION

This plating technique may be used to diagnose unknown pathogens. Cavities on the plate form gas bubbles, and wet regions are a site where cells will permanently attach. The cells that stick to the wet surface will grow, which will result in a patterned formation on a raised surface over the cavities for study and diagnosis.

Bubbles on the plate will prevent materials from adhering to the cavities. Gas bubbles are made from holes when the plate is submerged in liquid, and the gas bubbles form due to surface tension. The gas bubbles provide temporary scaffolding for tissue growth. The gas bubbles are then washed away, leaving behind cells that adhere to wet regions not coated with gas.

Cell fixation methods may also be used to cross-link the molecules in the living 3D tissue structures to produce hardened structures. Chemical additives may be added to further harden the plate.

### SUGGESTED USES

- Cellular assay
- Tissue engineering
- Micromechanical fabrication
- Creation of complex tissue structures

### ADVANTAGES

- Allows for plating cells, tissues, and chemical reactions at specific sites.
- Directs tissue growth in a layered 3D structures for inexpensive disease diagnosis.
- Allows one to building structures from living organisms that may be converted into non-living structures.
- Uses holes with wet and dry regions for highly selective tissue growth
- Solves the issue of expensive, leaking stencils, which reduce pattern resolution and are difficult to manufacture.
- Solves issues of techniques that use biodegradable polymer scaffolds which often erode and lack selectivity.

### CONTACT

Alvin Viray  
aviray@uci.edu  
tel: 949-824-3104.



### OTHER INFORMATION

### CATEGORIZED AS

- » **Research Tools**
- » Cell Lines
- » Other
- » Screening Assays

### RELATED CASES

2006-209-0

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	9,012,193	04/21/2015	2006-209
United States Of America	Issued Patent	8,383,378	02/26/2013	2006-209

STATE OF DEVELOPMENT

Patented

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5270 California Avenue / Irvine,CA  
92697-7700 / Tel: 949.824.2683



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