

# Single Step Polymerization Of Covalently Bound Multilayer Matrices

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## BACKGROUND

Tissue engineering has recently focused on biomimetic matrices, usually polymer hydrogels, that include multiple layers with distinct structures and chemical components. Current methods of fabricating such matrices are complex or expensive to implement and often produce mechanical weaknesses between layers. Thus, an adaptable, facile, and economical multilayer polymer fabrication technique that produces continuous interfaces between layers is needed.

## TECHNOLOGY DESCRIPTION

University researchers have developed a density gradient multilayer polymerization (DGMP) method to fabricate multicompartment hydrogels. The technique is accessible, versatile, and facilitates control of discrete, as well as continuously graduated, mechanical and chemical interfaces within structurally uninterrupted hydrogel networks. DGMP can be combined with a multitude of current fabrication paradigms to increase the complexity of matrices for tissue engineering/scaffolds, controlled drug delivery, or biological investigation.

## INTELLECTUAL PROPERTY INFO

This invention has a patent pending and is available for licensing.

## RELATED MATERIALS

- ▶ [New Method Makes Culture Of Complex Tissue Possible In Any Lab](#) - 02/09/2012
- ▶ [Density Gradient Multilayer Polymerization for Creating Complex Tissue Advanced Materials](#), Volume 24, Issue 11, pages 1466–1470, March 15, 2012 - 02/09/2012

## PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	<a href="#">9,409,322</a>	08/09/2016	2012-056

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## OTHER INFORMATION

### KEYWORDS

hydrogels, tissue engineering, scaffolds, biomimetic matrices, polymerization

### CATEGORIZED AS

- ▶ **Materials & Chemicals**
  - ▶ Polymers
- ▶ **Medical**
  - ▶ Other
- ▶ **Research Tools**
  - ▶ Other

### RELATED CASES

2012-056-0