



Benjamin Werth – Science Editor
Journal of Visualized Experiments (JoVE)

September 6, 2016

It is with pleasure that we submit the following manuscript “**Synthesis of Biocompatible Liquid Crystal Elastomer Foams as Cell Scaffolds for 3D Spatial Cell Cultures**” to be considered for publication in *Journal of Visualized Experiments*.

Liquid crystals (LCs) have been experiencing a renaissance within soft matter research, away from the established areas of liquid crystal displays, actuators and optical devices LCs are anticipated to one up an new area, LC bioscience, and to play a major role over the next decade. We believe that the unique properties of new LC materials will continue to attract tremendous interest in LC elastomers aside from actuation, lasing and sensing applications.

We are presenting here a complete a step-by step-protocol for the preparation of foam-like biocompatible, biodegradable liquid crystal elastomers (LCEs) based on our initial proof-of-concept materials, where special focus is placed on tunable porosity and its impact on cell response. This manuscript highlights the preparation method outlined on our ACS Macro Lett. 2016, 5, 4–9 manuscript following slight modifications from the synthesis and preparation published previously, also by us, in Macromolecular Bioscience (*Macromol. Biosci.* **2015**, 15, 200-214 ([featured on Materials Views, Link](#))). This methodology allows for better design of 3D scaffolds with a more regular fully interconnected porosity, providing a more dynamic and realistic 3D environment for cell growth that can potentially mimic native architectures and better spatially cell-cell interaction.

We believe that our methodology presented here is quite noteworthy and will resonate with the soft matter, materials science and biomaterials communities. This work is a true multi-disciplinary effort with experts from various disciplines highlighting the nature of materials chemistry at the interface to biology.

Gao, Clements and Hegmann designed the procedures described in the manuscript. Gao, Ustunel, Bergquist and Prévôt performed the synthetic experiments and analyzed the synthetic data. Cukelj and Mori conducted all cell experiments and confocal data analysis, supervised by Clements. Finally, Hegmann wrote the manuscript with contributions from all authors.

We trust that your team and the readership of JoVE will find this manuscript interesting and worthy of publication in your journal.

Sincerely yours,

A handwritten signature in blue ink, appearing to read "E. Hegmann".

Elda Hegmann

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