2015 NJ SYMPOSIUM ON BIOMATERIALS SCIENCE
"THE PROMISE AND CHALLENGE OF BIOACTIVE MATERIALS"

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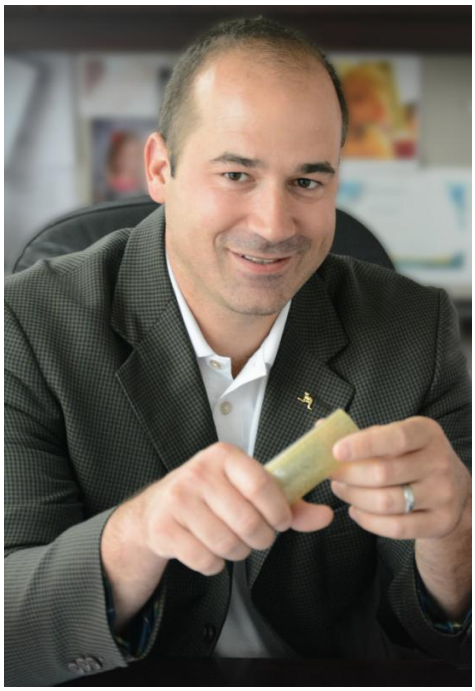

Matthew Becker, PhD,
The University of Akron, Departments of Polymer Science andBiomedical Engineering

Peptide Functionalized Hydrogels for Use in Regnerative Medicine

Polyethylene glycol (PEG) based hydrogels are a commonly used material in tissue engineering due to their hydrophilic nature, ease of end group modification, and limited immunogenicity and antigenicity. When used as synthetic scaffolds for human mesenchymal stem cells (hMSC), alterations of the hydrogel's mechanical properties can affect the genomic signaling as well as the differentiation and proliferation processes of the hMSCs. However, these alterations usually require chemical or structural modifications, which can challenge the interpretation of the cell studies.

By attending the ***NJ Symposium on Biomaterials Science*** on **November 9, 2015**, you will hear about Dr. Matthew Becker's efforts to produce mechanically distinguishable hydrogels via identical precursor chemistry. By kinetically controlling various cross-linking processes, Dr. Becker and his team are able to manipulate the crosslinking reaction kinetics thereby producing gels with tunable mechanical properties and thus control the differentiation pathways of hMSCs.

Matthew Becker is a Professor in the Departments of Polymer Science and Biomedical Engineering at The University of Akron. His research primarily centers on the synthesis of highly functional macromolecular materials for medical devices and regenerative medicine. He was recently named the Biomacromolecules / Macromolecules Young Investigator Award by the American Chemical Society. He is the Director of the Akron Functional Materials Center, a state-of-the-art facility that specializes in industry-focused novel polymer and biomaterial research and is the founder of two biomaterial startups, 3DBioresins and 3DBioconjugates, both of which are licensed and launched out of his laboratory.

Prior to his work at the University of Akron, Dr. Becker was a project lead and a National Research Council (NRC) postdoctoral fellow in the Polymers Division of the National Institute of Standards and Technology (NIST). At the NIST Combinatorial Center, he spearheaded many biomaterials-based enterprises and acted as liaison and facilitator between the Polymer Divisions of NIST and the FDA. Dr. Becker received his Ph.D. in Organic Chemistry from the Washington University in St. Louis where he was a NIH Chemistry-Biology Interface Training Fellow.

By attending the ***NJ Symposium on Biomaterials Science*** on **November 9, 2015**, you will learn how Dr. Becker, a leading expert in the field of biomaterial polymer science, uses the careful manipulation of PEG-based hydrogels to control the differentiation pathways of hMSCs, an area with significant biomedical interest.

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