



## Christopher Jewell, PhD

*Associate Professor & Associate Chair for Research*

**UNIVERSITY OF MARYLAND**

### **HARNESSING BIOMATERIALS TO STUDY AND CONTROL IMMUNE FUNCTION**

Christopher Jewell's research combines immunology and biomaterials to understand the interactions between synthetic materials and immune tissues, and to design more selective therapeutic vaccines for cancer and autoimmunity. This presentation will highlight the most recent efforts toward these goals using materials science tools, primary cell culture, animal models, and samples from human patients. One example will discuss new degradable polymer depots that could improve the selectivity of therapies for autoimmune diseases such as multiple sclerosis and diabetes. A second area will present the lab's efforts to self-assemble immune signals into modular nanostructures. This rational design approach allows programmable activation of the combination and relative levels of immune pathways triggered by vaccines and cancer immunotherapies. Controlling these pathways could improve treatment efficacy and the efficiency of vaccine development.

### **BIOSKETCH**

Christopher M. Jewell is Associate Professor and Associate Chair in the Fischell Department of Bioengineering at the University of Maryland. Dr. Jewell has authored over 80 manuscripts and patents, including papers in ACS Nano, Cell Reports, Nature Materials, PNAS, and Nature. Some of Dr. Jewell's honors include selection as a Damon Runyon-Rachleff Innovator, receipt of the NSF CAREER Award, appointment as an Associate Scientific Advisor for Science Translational Medicine, and receipt of the University's Graduate Faculty Mentor of the Year. Chris was also selected as the state of Maryland's Outstanding Young Engineer by the Maryland Academy of Science, the state's highest honor for an engineer under 36. Dr. Jewell graduated from Lehigh University in 2003 with high honors, earning dual degrees in Chemical Engineering and Molecular Biology. He received his PhD in 2008 from the University of Wisconsin – Madison, working with Professor David Lynn. Chris then joined the Boston Consulting Group in New York City, where he worked in R&D strategy for global pharmaceutical companies. Dr. Jewell carried out his postdoctoral training as a Ragon Fellow working with Dr. Darrell Irvine at MIT and as a Visiting Scientist at Harvard with Dr. Dan Barouch in the division of Vaccine Research.

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