Heart failure following a myocardial infarction (MI) continues to be the leading cause of death in the United States, and the rest of the western world. Each year, over one million Americans suffer from a MI, with approximately 37% of these patients dying from the MI within one year; of those who do survive, two-thirds do not make a complete recovery. Moreover, it is currently estimated that approximately 5.7 million Americans are suffering from heart failure. Yet, the only successful treatment for end-stage heart failure remains total heart transplantation, which is plagued by limited donor hearts. These staggering statistics necessitate the development of new therapies for MI and heart failure. Biomaterial and tissue engineering approaches to myocardial repair are providing exciting new possibilities. Injectable materials are particularly attractive since they have the potential to be delivered via a minimally invasive, catheter-based approach, thereby requiring less recovery time and reducing the chances of infection. This talk will cover new biomimetic materials designed specifically for cardiac repair.

Biosketch
Dr. Christman received her B.S. in Biomedical Engineering from Northwestern University in 2000. She received her Ph.D. from the University of California San Francisco and Berkeley Joint Bioengineering Graduate Group in 2003 under the direction of Dr. Randall J. Lee at UCSF, where she examined in situ approaches to myocardial tissue engineering. She completed her postdoctoral work under the direction of Dr. Heather D. Maynard at the University of California, Los Angeles in the fields of polymer chemistry and nanotechnology. During this time, she developed novel methods for site-specifically patterning proteins into 2D and 3D structures. Dr. Christman is currently an Assistant Professor in the Department of Bioengineering and a member of the Institute of Engineering and Medicine at the University of California, San Diego. Her lab is interested in multi-scale, interdisciplinary approaches for regenerative medicine and biomaterials, with a main focus on the treatment of myocardial infarction and heart failure. She is a recipient of the NIH Director’s New Innovator Award and the Walter H. Coulter Foundation Early Career Translational Research Award.