



“Experimental Frameworks for Analysis of Heart Valve Mechanobiology”

Dr Jane Grande-Allen
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LECTURE: 9:00 AM -10:00 AM

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Abstract: Heart valve disease has devastating consequences for the health and survival of its victims. Valve disease is widely prevalent in our society, with valve replacement or repair in almost 100,000 people in the United States and 275,000 people worldwide each year. Despite these statistics, the basic biology of heart valves is sparsely studied and barely understood and there are no cures for valve disease other than expensive surgical repairs or replacements, nor any medications specific for valve disease. The focus of my research group is to comprehensively characterize and perturb the valvular tissue and cell phenotypes in normal and diseased heart valves, as the first major step in finding the causes of heart valve diseases, in identifying the early stages and patients at risk, in developing drugs for its treatment, and for ultimately reducing the incidence of the disease in the population. Our research has helped to define the nascent field of valve mechanobiology and furthermore developed tools such as bioreactors to make these research studies possible. More recently, we have begun to develop platforms to investigate the mechanobiology of valvular endothelial cells and the associated regulation of hemostatic behavior.

Biography: Dr. Jane Grande-Allen received a BA in Mathematics and Biology from Transylvania University in 1991 and a PhD in Bioengineering from the University of Washington in 1998. After performing postdoctoral research in Biomedical Engineering at the Cleveland Clinic, she joined Rice University in 2003, and was promoted to full professor in 2013. Dr. Grande-Allen was elected as a Fellow of the American Institute of Biological and Medical Engineering in 2011, and she serves on the Board of Directors of the Biomedical Engineering Society and the Society for Experimental Mechanics. Her research is described in more than 75 peer-reviewed publications.

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