

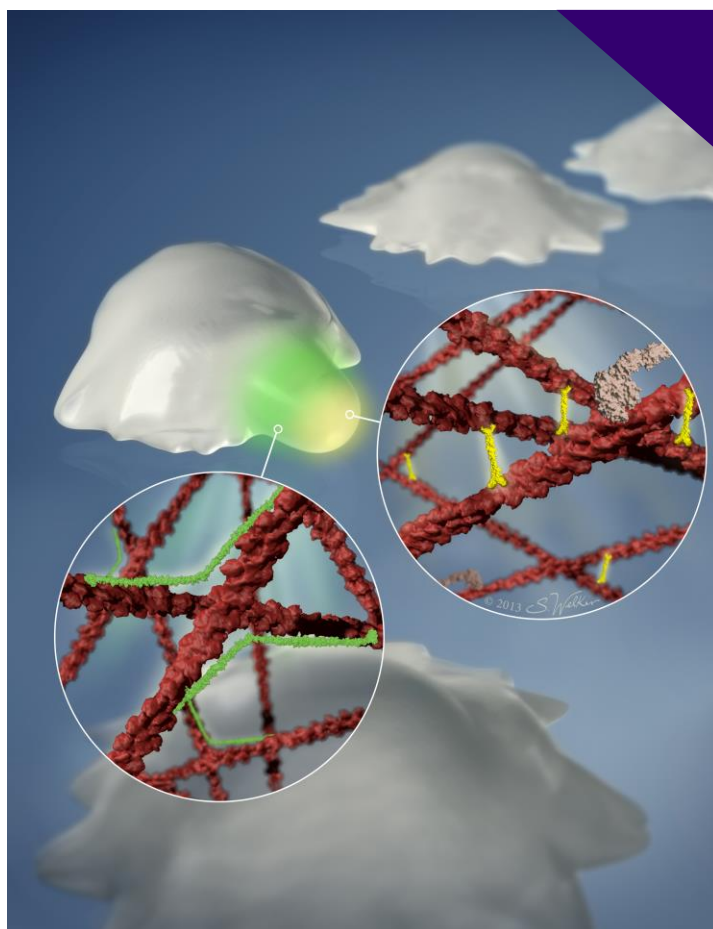
Biology Seminar

By: Douglas Robinson

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Cellular Form: The Basis of Healthy Function



Monday, May 15, 2017 | 12:00pm
HCK 132 Refreshments at 11:45am

Our program seeks to determine how cells and tissues integrate chemical and mechanical information to guide normal growth and homeostasis with the ultimate goal of being able to guide these processes with small molecules for therapeutic purposes. To do this, our core research is focused on fundamental biomedical discovery, using genetic, biochemical, and cell biophysical approaches and small molecule screening with the model organism *Dictyostelium discoideum*. Initially, we focused heavily on cytokinesis as a model cell morphogenic event. Cytokinesis naturally encapsulates numerous essential aspects of cell shape control, which are at the heart of many normal and disease processes. We also apply our knowledge, tools, and chemical matter to the study of a variety of human diseases, including pancreatic ductal adenocarcinoma, chronic obstructive pulmonary disease, and degenerative motor neuron disease.

We are also using our knowledge to engineer cells to perform specialized tasks, specifically to eliminate pathogenic bacteria, using principles of engineering control theory. Finally, we have initiated an effort to use *Dictyostelium* to create engineered living materials that are durable, easy to construct, and self-repairing. To accomplish our broad efforts, we collaborate closely with multiple engineers, scientists, and physician-scientists, creating a highly interdisciplinary ecosystem.

