**Studying Cellular Signaling Pathways**

**Katherine Walton, Ph.D., Research Fellow, University of Michigan Medical School**

Katherine Walton, Ph.D. is a Research Fellow in the Department of Cell and Developmental Biology. She studies cellular signaling pathways that direct development of the villi in the small intestine in Dr. Deborah Gumucio's lab.

"Specifically, I am interested in the cross-talk that occurs between the epithelium and mesenchyme in order to coordinate villus morphogenesis. One tool that has been extremely beneficial to the progress of our research is the 2-photon microscope with a specialized environmental chamber that allows us to perform time-lapse imaging of whole live tissues," Dr. Walton explained. "With time-lapse imaging, we are able to track the movement and interaction of cells as the villi develop."

The cost of purchasing and maintaining microscopes and imaging software packages is prohibitive for most labs and investigators on an individual basis, and that's where the services available at MIL come in.

"I often work through ideas of how to prepare samples for imaging with the MIL staff, get suggestions on reagents that might be useful, ask for their assistance in setting up the microscope to obtain the data we need, and utilize their expertise on how and what software to use to best present imaging data. The MIL is an invaluable resource that we are very fortunate to have!"