My research program uses *C. elegans* as a model system to study fundamental questions in cilia cell biology and to model human polycystic kidney disease and other genetic diseases of cilia – ciliopathies. Many of these ciliary genes and pathways act in the *C. elegans* nervous system, therefore the Barr lab is also interested in neurogenetics. Most recently, we have become fascinated with extracellular vesicles (EVs) – sub-micron sized particles that cells shed and release to influence the behavior of other cells, tissues, or even organisms. EVs may be beneficial or toxic, depending on their content. Very little is known about EV cargo sorting, formation, or function, largely because their tiny size (100nm) escapes detection by light microscopy. We have developed the only *in vivo* system to study EV biogenesis and bioactivity in a living animal, and are poised to make important fundamental discoveries that may have profound impact on human health and disease.