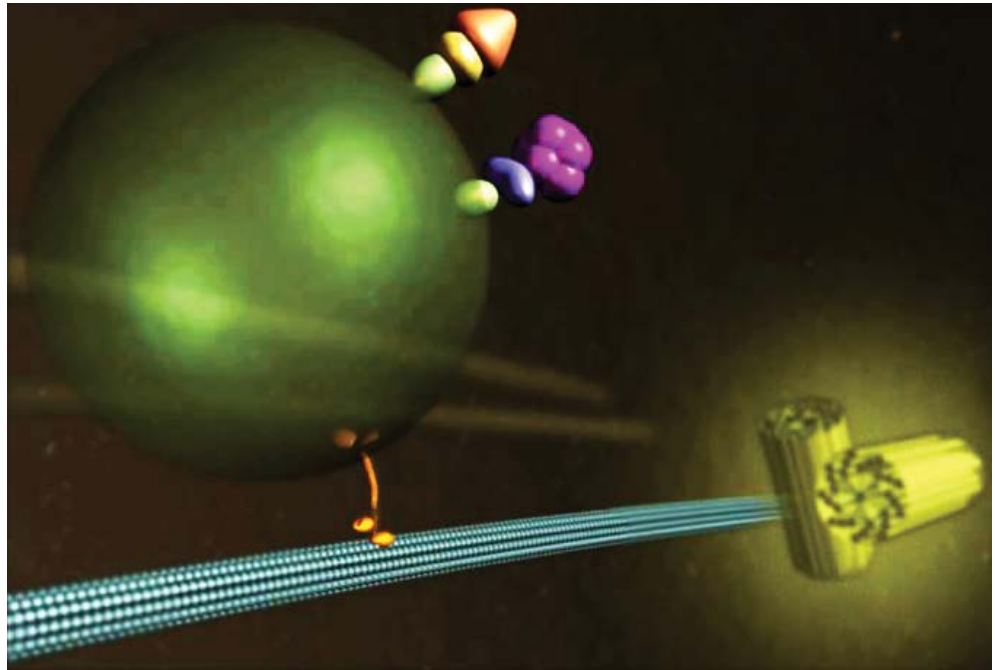




## Membrane trafficking breaks ground for the construction of the primary cilium



The primary cilium is assembled from the mother centriole during the G1/G0 phase of the cell cycle. These organelles are important for multiple signal transduction pathways, including Hedgehog signaling. As such, defects in cilia formation and function are linked to a large number of human genetic diseases, and cancer. Remarkably, many cell types partially construct their cilia inside the cell before fusion with the cell surface. Regulators of membrane trafficking and reorganization have been shown to function in this intracellular pathway. However, how these trafficking proteins mediate cilium assembly is not well understood, nor is it known what controls ciliogenesis initiation processes. This presentation examines new insights into the roles membranes play in ciliary assembly, including the discovery of mitogen-dependent Akt kinase signaling pathway regulation of preciliary vesicle transport to the mother centriole. Through the application of advanced fluorescence and electron microscopy approaches, including 3D focused ion beam-scanning electron microscopy (FIB-SEM), the molecular details of intracellular ciliary assembly are beginning to be resolved.

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Host: Dr. Lawrence Pelletier

**Date:** Friday April 13<sup>th</sup>, 2018

**Time:** 2:30 PM

**Place:** MSB Room 4279

1 King's College Circle