CASE STUDY:

IMAGING

CORE TECHNOLOGIES
at UCD Conway Institute

Research Question

Can we understand more about cilium biology and the molecular basis of human ciliary disease by looking at cilium ultrastructure in C. *elegans* nematodes?

Our Approach

We have been using transmission electron microscopy (TEM) to assess the ultrastructure of sensory cilia in C. elegans roundworms. TEM of serial sections allows us to visualise all of the cilium subcompartments and structures. Using this technique, we have been able to link the functions of multiple genes, including ciliary disease gene homologues, to aspects of cilium structure formation and/or maintenance. We are also using this approach to address how proteins gain access to the ciliary organelle via the transition zone 'gate' at the ciliary base.

Resulting Publication

Kaplan et al., Endocytosis Genes Facilitate Protein and Membrane Transport in C. elegans Sensory Cilia, Current Biology (2012), doi:10.1016/j.cub.2012.01.060

'Without the Imaging Core facility, we could not have performed these projects. Not only has the facility provided all the necessary instrumentation and technical assistance required, but it also fully trained two of my team to conduct TEM to a very high level of quality. The ongoing support is always first rate and highly professional.'

Dr Oliver Blacque
UCD