Dr Michael Christie (Anatomical Pathology) 2008 RCPA Foundation Technical Assistance Grant

Project title: Altered Wnt signalling in areas of tumour budding in colorectal adenocarcinomas.

"During my PhD studies I was awarded an RCPA technical assistance grant for a research project investigating how colorectal cancer cells invade adjacent tissue. This required me to master a number of techniques, most importantly laser capture microdissection, which involves using a microscope guided laser to capture small groups of cancer cells. The grant allowed me to purchase the rather expensive materials and reagents requires for this technique. Although the original project ultimately proved to be not feasible because latter steps of RNA amplification and analysis failed for these particular cells, the expertise I obtained from this work was important in later research. In a project investigating new markers of intestinal stem cells, the cells from which colorectal cancers arises, I used laser capture microdissection to isolate epithelial cells from different regions of intestinal crypts, and successfully amplified RNA from these samples and analysed gene expression for markers of intestinal stem cells. These experiments were an important part of a primary research paper published in the prestigious journal Cancer Research. This publication has been a major platform for my PhD thesis. As the first person to have performed this technique at the Parkville precinct, home to several of Australia's most active research institutions, I was called on to train other researchers in laser capture microdissection, and I am aware around six ongoing research projects having stemmed from this training. Laser capture micro dissection also has applications in diagnostic molecular pathology of cancer samples, which is now my main area of practice, and I intend to develop and validate protocols for use in this field. Thus the RCPA grant has ultimately facilitated my career development through obtaining a PhD, contributed to several research projects, and may lead to the development of new methods in diagnostic molecular pathology."