

# Inside a Research Group

## A Look at the PSU Research Group at AMNCH



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The Trinity Centre for Health Sciences is a multi-disciplinary department located at the Adelaide and Meath Hospital, incorporating the National Children's Hospital. The Professorial Surgical Unit (PSU), located within the Trinity Centre, has recently established a vibrant research group. The team, headed by Prof Kevin Conlon and led by Dr. Joseph Murphy, is focussing on oncology and angiogenesis, with a particular emphasis on pancreatic cancer. Every year more than 30,000 people develop pancreatic adenocarcinoma in the United States alone and almost all are expected to die from it. The 5-year survival rate is < 5% and, of the 10% of patients with resectable disease, only approximately 1 in 5 survive for 5 years. In spite of enormous scientific research and much gain in understanding of the basic cellular events in pancreatic ductal adenocarcinoma (PDAC), survival rates have not changed much in the last 20 years. Furthermore, the understanding of the different aspects of this devastating disease such as initiation, progression and metastasis remains incomplete.

Physiological angiogenesis occurs during embryogenesis and wound healing. However, abnormal angiogenesis occurs in certain chronic diseases, such as diabetes, rheumatoid arthritis and cancer. In recent years, the inhibition of angiogenesis, an essential prerequisite for tumour growth, invasion and the development of metastasis, has represented a rational target for anticancer therapy development. Selective inhibition of angiogenesis appears to decrease carcinogenesis, and its inhibitory effect on colon cancer has been documented. However, the effect of pancreatic cancer is still unknown. We are currently investigating the biological interplay between pancreatic cancer and angiogenesis using a combination of molecular biological techniques and genetic analysis using Affymetrix microarray technology. Of particular interest to us is deciphering the role of cyclooxygenase, its associated prostaglandins, and other biological mediators in mediating this process.

We have also established a Biobank for patients with pancreatitis (an inflammatory disorder of the pancreas that can be either acute or chronic). Samples from patients with this condition are currently being stored and will be genetically analysed using the Affymetrix genechip analyser located at the PSU. By comparing normal control samples with those from patients with pancreatitis, we can build a genetic profile of this disease. The outcome from the Biobank may have implications for the future diagnosis and treatment of patients with this condition.

To date, results have been particularly encouraging. The group has presented its results at a number of conferences, and in November 2006 the team won the overall prize for best oral presentation for a paper presented at the Irish Society of Gastroenterology. Several new initiatives are planned. These include collaborative projects with other research groups located at the AMNCH, the Rotunda Hospital and a Dublin based biotechnology company. The overall objective of the research unit is to make a constructive impact in the development of new diagnostics and treatments for cancer.