



Royal Irish Academy Grants Report

Title:	Dr
First Name:	Sandra
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Discipline:	Sciences
Year of Award:	2018
Project Title	In vivo modelling of pancreatic cancer to mimic clinical behaviour

1. Research background:

Pancreatic Cancer, a disease of great unmet need, has seen minimal improvement in patient outcome over the last 40 years. Surgical resection offers the only chance of cure, however, only 15 -20% of patients are potentially resectable due to either local or systemic disease progression at diagnosis.

In DCU, we have a long standing collaboration with St Vincent's University Hospital and have established a panel of patient derived xenografts (PDX) of pancreatic cancer. This is where a piece of patient tumour is implanted under the skin of an immunodeficient mouse. These PDX tumours faithfully recapitulate the patient original tumour, and are used for therapeutic studies and the analysis of genes and proteins involved in tumour growth and progression. However, these in vivo tumours rarely metastasise, and therefore are not a complete model for tumour development as it occurs in patients

Our aim was to learn complex techniques that would enable us to develop and establish models for investigating metastasis in pancreatic cancer.

2. Please outline the findings of your research and/or milestones achieved (did you achieve the primary objectives - if not, what did you learn from the process)?

During this research trip I became skilled and trained in multiple in vivo oncology procedures including terminal blood draw by cardiac puncture, therapeutic administration by venous injection, tumour surgical resection under anaesthesia and tumour induction by injection in the pancreas.

Moving forward from this, to develop these skills further in the Irish academic setting, ethical and regulatory approval both intra-institutionally from the Research Ethics Committee and the Health Product Regulatory Authority is required. Having discussed these options with both the in vivo research team in the NICB, DCU and the Animal Care and Welfare Officer in DCU, a strategy has been agreed and developed in line with Irish and EU animal welfare legislation.

The proposed training strategy involves using surplus animals within the animal unit to train other licensed animal research personnel in these techniques.

No other academic research institute in Ireland has experience in the induction of pancreatic cancer orthotopic in vivo tumour models. This long term strategy seeks to develop a pooled knowledge base in DCU in relation to pancreatic cancer.