

2015/2016 Summer Studentship Project Application Form

Send to: Research Office, University of Otago Christchurch, PO Box 4345, Christchurch, by 5pm on **3 July 2015**

Supervisor Information (First named supervisor will be the contact):

Supervisor's Name and Title(s): Prof. Margreet Vissers, Assoc Prof. Gabi Dachs, Dr Margaret Currie

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Institution: UOC or CDHB

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Research Category (Choose one category only – to be used for judging the students' presentations):

Clinical

Laboratory x

Community

Project Title (20 words MAXIMUM):

The emerging role of neutrophils in cancer progression.

Project Description:

Background:

Neutrophils are a major component of the innate immune system and play an important role in inflammation and infection control. However, their role in cancer is less clear, with evidence supporting both anti- and pro-tumourigenic roles. Moreover, a number of recent studies have shown that tumour-activated neutrophils may be involved in preparing the metastatic niche for tumour metastasis.

We have developed an obese mouse model with breast cancer, and have harvested tissues available for analysis. Preliminary data has shown that some of the obese mice have elevated serum TIMP-1, increased rates of primary tumour growth, and enlarged livers. This summer-studentship will study the number, type and location of neutrophils in both the primary tumour and in liver metastases. This data will then be analysed together with other serum and tumour variables in obese versus normal weight animals. The overall aim of our research is to assess tumour localized neutrophil populations as prognostic markers of metastatic disease, and to increase our understanding of how neutrophils drive tumour progression.

Aim:

Determine the number type and location of neutrophil populations in primary and metastatic tumours.

Methods:

The student will:

1. Use immunohistochemistry to detect neutrophil populations in primary and metastatic tumour samples, as well as other proteins involved in neutrophil plasticity and function.
2. Analyse this data together with other tumour and serum parameters.

The laboratory methods required for this project are established in our research groups, and the student will be trained to carry out the procedures.

Significance:

This study will add to our understanding of the emerging role of neutrophils in cancer progression. This 10 week project is designed to provide pilot data for major funding applications, and it is anticipated that this project will form the foundation for a PhD research project.

Student Prerequisites (eg. Medical Student) if applicable:

Science student with some laboratory experience