

2014/2015 Summer Studentship Project Application Form

Send to: Research Office, University of Otago Christchurch, PO Box 4345, Christchurch, by 5pm on **4 July 2014**

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

Supervisor's Name(s): Dr Kenny Chitcholtan, A/P Peter Sykes

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

Laboratory

Project Title (20 words MAXIMUM): *Cytokine and growth factor profiling in ascitic fluids from chemo-sensitive and resistant of ovarian cancer patients*

Project Description:

Advanced ovarian cancer is very difficult to treat and always has poor prognosis. Women with the disease often show the sign of accumulating body fluid (ascitic fluid) in the abdominal cavity. This ascitic fluid contains several kinds of cytokines and growth factors; proteins that are produced by tumour and normal cells. There is evidence to suggest that these cytokines and growth factors are very important for supporting tumour progression because they can interact with tumour cells and trigger signaling proteins which in turn facilitate tumour growth, survival, and protection from chemotherapy. As such, identifying these proteins in the ascitic fluid derived from patients with chemo-sensitive and resistant disease may allow us better understanding how advanced ovarian cancer resists chemotherapy. Subsequently, this may lead us to tailor treatment based on the characteristics of an individual's cytokine/growth factor profile.

Our research group has been collecting the ascitic fluid from advanced ovarian cancer patients, and we wish to document the cytokines and growth factors they contain. In addition, the effect of these ascitic fluids on the growth activity of ovarian cancer cells in cell culture is not yet fully understood. We also wish to document the growth effect of ascetic fluid on cultured ovarian cancer cells. We hypothesise that cytokine and growth factor profiles in chemo-sensitive are different from chemo-resistant ascitic fluids. As a proof- of- concept, a student will select and analyse ascitic fluids from each of two chemo-sensitive and resistant patients. Concentrations of total proteins from each patient will be determined using a protein analysis kit. Similar amount of total proteins from each patient sample will be adjusted before being subjected to cytokines and growth factors examination. In addition in cultured ovarian cancer cells, we will also use Human phospho-kinase antibody array kit (R&D system) to examine the signal proteins that are responsive to the stimulation of ascitic fluid in cell culture system.

In this project, student will learn many aspects of cell biological techniques, including mammalian cell culture, biochemical analysis, and western blotting for protein expression analysis. Student will use the basic knowledge of calculations, which are included preparation of buffer, and inhibitors. Furthermore, student will learn to record and entry the experimental results and data collections. The project is designed for 10 working weeks and the results obtained from this study will be an ongoing project for suitable students in the future.

