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): Lisa Stamp and Assoc Prof William Taylor	
Department: Medicine	Institution: UoC
Phone: 03 364 0624	E-mail: lisa.stamp@cdhb.govt.nz
Mailing Address: Department of Medicine, POBox 4345, Christchurch	

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

Project Title (20 words MAXIMUM):

Systematic literature review of the effects of urate lowering on clinical outcomes in gout.

Project Description:

Background: Gout is a common form of arthritis and the prevalence is increasing worldwide. In New Zealand gout is particularly common because of the high rates in Maori and Pacific peoples.

The primary biochemical abnormality in gout is an increase in serum urate concentration. When super-saturation concentrations are reached (0.41mmol/L at 37^0C) monosodium urate (MSU) crystals may form and can deposit in joints and peri-articular tissues. Once deposited MSU crystals cause damage through tophus formation and chronic gouty synovitis. Painful attacks of gout are caused by an acute inflammatory response to MSU crystals within joints. Inadequately treated gout leads to recurrent acute attacks, formation of tophi, and joint damage.

The key to successful management of gout is adequate and sustained reduction of serum urate. Serum urate is thus regarded as a critical outcome measure in the management of gout and in gout clinical trials. Both the British Society for Rheumatology and the European League against Rheumatism have published guidelines for the management of gout, which include a target serum urate concentration 0.30mmol/L and 0.36mmol/L respectively.

The OMERACT gout special interest group, of which Prof Stamp and Assoc Prof Will Taylor are both members, has highlighted the lack of validated clinical outcome measures for both acute and chronic gout studies. Consensus exercises identified serum urate as an important outcome measure in chronic gout studies with the highest median rating. However, as an outcome measure, serum urate is a surrogate biomarker for key clinical outcomes that are of importance to both patients and their physicians. Thus, before serum urate can be accepted as a true biomarker evidence is required that a reduction in serum urate has a beneficial effect on clinical outcomes important to patients such as gout flares and quality of life.

Aims: The aim of this project is to undertake a systematic literature review to determine whether a reduction in serum urate results in improvement in clinical outcomes and the strength of association between serum urate reduction and improved clinical outcomes, in order to demonstrate surrogacy.

Methods: A systematic search strategy will be formulated. The student will be required to undertake the systematic literature review, obtain all relevant publications, review them and extract all relevant data. Drs

Stamp and Taylor will have developed a spreadsheet which will indicate the key information the student will need to extract and record from any publications identified.

Time line: This project will be easily completed in the 10 week summer student time frame. Ethical approval will not be required. The student will be responsible for the basic analysis with the assistance of Drs Stamp and Taylor.

This project will provide the essential first step in the larger programme of work to validate serum urate as a biomarker. The work will continue after the summer student has finished. A complex and novel statistical analysis that will be required to validate SU as a biomarker which will be undertaken with colleagues in Europe. It is anticipated that all work will be completed for the OMERACT meeting in 2016 at which time we hope serum urate will be accepted by OMERAC T as the first ever biomarker in rheumatology.