As of Mar 19, 2015

This report should be submitted within 2 weeks after you return to Japan.

（Abroad・Domestic）Internship report form（Student） 08.06.2016

(Year/Month/Day)

Name	H.M. Suranji Wijekoon
Laboratory	Lab of Veterinary Surgery
Year (Grade)	D3
Internship institution	Institute of Infection, Immunity and Inflammation, University of Glasgow
Internship period	Internship period: 05/10/2016 - 06/01/2016 (Departure Date from Sapporo: 05/09/2016, Arrival Date in Sapporo: 06/03/2016)
Purpose	

The reason why you chose this institute

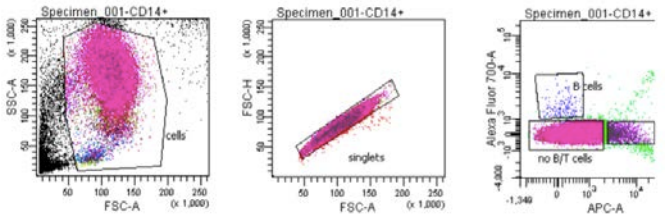
Infectious, autoimmune and inflammatory diseases place an enormous global burden on human and animal health. The Institute of Infection, Immunity and Inflammation comprises scientists and clinicians working together to promote and develop research, drug discovery and ultimately improvements in patient care in this area of critical international importance. My prospective supervisor's research group is focused on understanding immunopathogenesis of disease (i.e., Rheumatoid Arthritis), identify the role of cytokines and develop the biologics for Rheumatoid arthritis. The experiments those are going in this institutes are more similar to my study and the knowledge I will gain through this training will be beneficial for my future work.

Result of the activity （about 800 words、provide photos, tables and figures that clearly show the activities during the period）

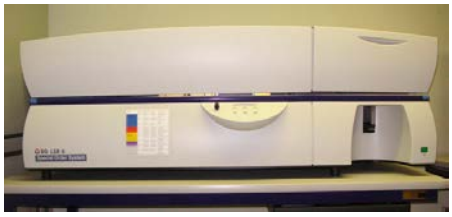
At the institute of infection, immunity and inflammation, basic ethics and safety handling was the first lesson for the new comers of the laboratory to make them familiar with the settings and procedure. Osteoclasts differentiation from human Buffy coat and murine bone marrow samples with different cytokines environment was done to understand the differentiation potential of cytokines on two different species. Human buffy coat isolated from the peripheral blood circulation was subjected to CD14+ monocytes separation by magnetic nanoparticles. Purity of the CD14+ was checked by fluorescence-activated cell sorting (FACS).

C

A



B



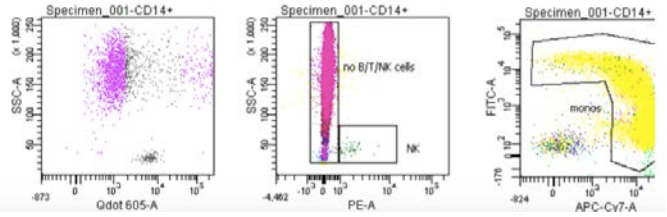


Figure 1: A-CD14 +monocytes separation by magnetic nanoparticles. B- Fluorescence-activated cell sorting (FACS) for CD14 purity check by LSRII analyzer. C- Graphs of the fluorescent-activated cell population.

Cytokines concentration of the monocytes culture medium was measured using ELISA technique after treatment of synovial fluid that was collected from patients having rheumatoid arthritis. I had a chance to enter in to the animal facility of the institute to examine the collagen induced arthritis mouse models.

Figure 2: Poster presentation

I have participated few lab seminars, lectures and poster presentations done by PhD students and gained lots of novel information of field of interest. Study and identify the novel techniques and assays those are used for understanding the immunopathogenesis of rheumatoid arthritis

and synovitis in human is my main target during this training. Further get to know the assays they are using to understanding the role of cytokines in inflammatory arthritis and develop biologic agents in human aspects. I could get experience in GLAZgo discovery center in Institute of infection, immunity and inflammation for acquired more experimental skills. The knowledge acquired through the training will be beneficial to standardize the current experimental work going on dogs to upgrade the currently available therapeutic strategies.

A

B

C

Figure 3: A-Main building of Glasgow university. B- At the transport Museum, Glasgow. C- The building of institute of infection, immunity and inflammation.

What do you think the positive impact of the activity will have on your further career path?

The excellent facilities at the Institute of Infection, Immunity and Inflammation, University of Glasgow underpin a bench to bedside approach that will equip me with training complementary to a range of career options, and I can tailor my study pathway to the precise aspects of infection and immunology that suit my objectives. I will be taught by scientists and clinical investigators of global repute who possess the broad expertise necessary to assist me in achieving my goals. The experience that I will gain through this training will be more beneficial to my carrier pathway as a veterinarian and academic person to disseminate my knowledge among the veterinarian and students in Sri Lanka. This professional training will help me to either gain

more advanced experience in related to my current experiments or making professional connections that is a crucial part of getting start on my career path. The expertise knowledge and advises gain through this internship will pave the way for narrow down my professional focus and clear the way for identifying the strong career destination. Other than career benefit, there will be a more advantage on my recent studies and also to plan my prospective works. My previous experiment work was to investigate the changes of osteoclasts intracellular transcription regulatory mechanisms due to Pentosan Polysulfate Sodium that would be a novel treatment approach for rheumatoid arthritis (RA). Currently I'm working on "Comparative microscopic topological and genomic assay for perceiving osteoclast activity and their micro environment in the synovial membrane of common joint pathological conditions associated with dogs". Already I have finished some work on temporal differential ability of pro-inflammatory cytokines on osteoclastogenesis and study the mechanism of some novel drugs. The encroachment of study on human RA is in more advanced level comparing with animal aspects. At Institute of Infection, Immunity and Inflammation, University of Glasgow where more innovative experiments carry out in human joint diseases including inflammatory arthritis, will give me a great chance to handle human cells derived from patients. This knowledge which I will gain through this training will help me to make discussion and understand the dissimilarity and similarity on osteoclastogenesis, differentiation capability of cytokines and thereby identification and development of the biologics by targeting cytokines in human and animal aspects. This will help to ensuring precise therapeutic agents for inflammatory arthritis like RA thus preventing wastage of drugs, medication and professional time which often accompany an inefficient treatment thereby helping in the health budget.

Advice for your junior fellows

Are you aiming for a career in academia? Do you want to work in a large company? Do you want to join or help found a small company? This is important question to answer. First of all you should understated the scope and capability of each individual to achieve the goal and find the way for success. Research is about finding new insights. You cannot do that without taking risks. You need to dare to fail. All those things similar to find the place for your internship where make you a more sharpen as a researcher or trainer. Internships are a proven way to gain relevant knowledge, skills, and experience while establishing important connections in the field. Internships are also a way to get your feet wet and find out if a specific field is something you could see yourself doing as a full time job. Therefore, the decision on finding place for the

internship should get in well planned manner for the success of the that stay in domestic or international.

Approval of supervisor	Institution・Official title・Name Professor Masahiro Okumura Laboratory of veterinary surgery 印

※1 Send the electronic file to the Leading School section, International Affairs Office, also submit the original print out with seal of supervisor to the Leading School section, International Affairs Office.

※2 Attach a copy certificate of the content of internship activity that is prepared by the counterpart at the internship institution (any form with a signature of the counterpart).

※3 The Steering Committee of the Leading Program will first confirm the content of this report and report will be forwarded to the Educational Affairs Committee for credits evaluation.

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