

(Abroad • Domestic) Official trip report form (Student)

2016/04/05 (Year/Month/Day)

Name	Wallaya Phongphaew
Laboratory	Division of Molecular Pathobiology, CZC
Year (Grade)	DC2
Destination	University College of Dublin, Ireland
Period of trip	March 11 th -21 st , 2016
Purpose of trip	To attend the short course “Advances in Infection Biology”

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

Purpose of the travel

To attend the module of “Advances in Infection Biology” held by the University College of Dublin (UCD), Ireland. This module was held from 14th-16th, March, 2016.

Background

The “Advances in Infection Biology” module is to provide the graduate students with an overview for the current and future research for graduate students from four universities, including UCD, Trinity College of Dublin (TCD), Maynooth University (MU) and Hokkaido University (HU). The module composed of 6 sessions of the key concepts in infection biology, including molecular basis of host-pathogen interaction, therapeutic and vaccine development, ethics and animal welfare for laboratory animals, and the relationship between infectious diseases and global health. In addition, this module also suggested and gave an idea how to write a grant application. The schedule of the travel and the module are described as below table.

Date	Event
March 11 th	Departure from the New Chitose airport, transit at the Haneda international airport, Tokyo and then travel to the Abu Dhabi international airport, Dubai
March 12 th	Arrival at the Abu Dhabi international airport, Dubai and travel to the Dublin international airport, Ireland
March 13 th	Preparation day
March 14 th -16 th	Attending to the module of “Advances in Infection Biology”, UCD,

	Dublin, Ireland
March 17 th	Ireland national holiday, St. Patrick's day
March 18 th	Tour of the UCD Veterinary hospital
March 19 th	Departure from the Dublin international airport, <i>via</i> Dublin to the Abu Dhabi international airport, Dubai
March 20 th	Departure from to the Abu Dhabi international airport to the Narita international airport, Tokyo
March 21 st	Departure from the Narita international airport to the New Chitose airport

On March 14th, two themes of lecture were held (Fig. 1). The first one was related to the interaction between host and pathogen in the title as below;

- The host preference of *Mycobacterium tuberculosis* complex (MTBC): the lecture was talked about the tropism difference and virulence of *Mycobacterium tuberculosis* (*M.tuberculosis*) and *Mycobacterium bovis* (*M.bovis*). In summary, *M.tuberculosis* is attenuated in the bovine host. Only *M.bovis* caused typical pathological lesion of tuberculosis (TB) in bovine host. The difference might be related to the innate response in alveolar macrophages. However, the precise mechanism is not elucidated yet.
- Oncogenesis caused by viral infection: Understanding the oncogenesis using animal tumor model shed light on the characterization of oncogene and tumor suppressor proteins highlighted the potential use of viruses as therapeutic agents.
- Bacterial interactions with platelets: major topic of the lecture was bacterial virulence factors which promote bacterial binding to platelet. It has been reported that *Streptococcus mitis* and *Staphylococcus aureus* directly bind to CD36 on platelet surface. Inhibition of platelet binding attenuates virulence of bloodstream bacterial pathogens.

The other themes were related to development of antimicrobial drug, antimicrobial resistance and limitation of bacterial diagnosis.

On March 15th, the lectures composed of the fundamentals of vaccine development of Helminth and TB, and Global health, including the topic of viral epidemiology in Africa, Childhood pneumonia and HIV. We learnt about the impact of epidemiological research on

global health. Furthermore, we also had group discussion with the other students from UCD and TCD to design the detection method for bacterial pneumonia (Fig. 2).

On March 16th, the themes of lectures were zoonotic diseases, ethics of animal experiments and grant writing. The contents of lectures were biology, immune responses, and others basic researches for Campylobacteriosis, prion disease and arbovirus infection. In the afternoon session, we learnt about the ethics of laboratory animal experiments and grant writing. We learnt the definition of ethics of animal experiments and three main ethical approaches (Contractarianism, Utilitarianism and Deontology) and also “Three R’s (Replacement, Reduction and Refinement)”, to use animals for research.

On March 18th, some students from HU, TCD and UCD presented their current researches. Thereafter, the staff of UCD kindly guided us through the UCD Veterinary hospital (UVH) (Fig. 3). We visited both large and small animal units. We took a look at the operation and recovery rooms for horses. We also had a chance to visit the radiology unit, teaching and clinical practice room for the Veterinary students. In this clinical practice room, there are many facilities and equipment for practice such as surgical practice pads, dog models, horse and dairy cow dummies.

In conclusion, this trip not only gains my knowledge for the infection biology, but also provides the good opportunity for academic network. We have chance to meet many experts and researchers for infectious diseases. This module expands my understanding about infectious diseases and guides me how to achieve the grant writing.



Fig. 1: the entrance of UCD

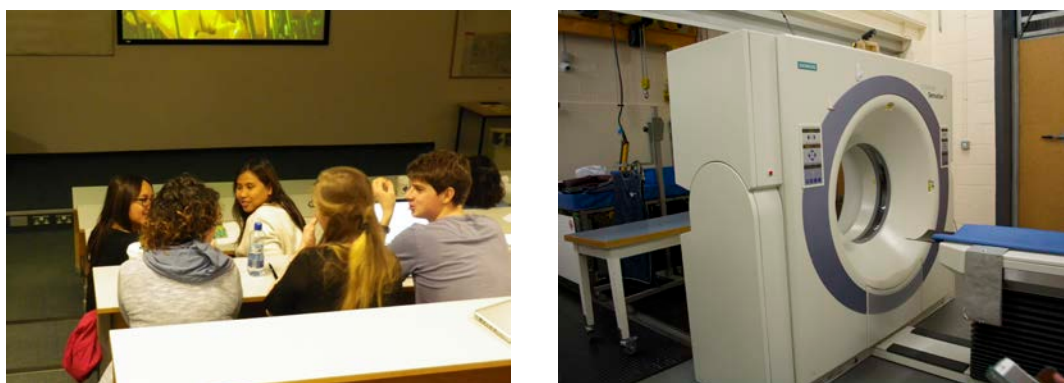


Fig. 2: Discussion time between HU students and other university students (left). The CT scan machine for small animals in the radiology unit, UVH (right).



Fig. 3: Clinical practice room for Veterinary students. This room provides many facilities to improve practical skill, such as cow and horse dummies and surgical practice pads (left). Showing group photo of students and staff from HU with Prof. Gordon who is the modulator of this module (right).

Approval of supervisor	Institution • Official title • Name : <div style="text-align: right;">印</div>
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