

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

(**Abroad** • Domestic) Internship report form (Student) 12/ 29 (Year/Month/Day)

Name	May June Thu
Laboratory	Unit of Risk Analysis and Management
Year (Grade)	DC4
Internship institution	The Tick Cell Biobank, Department of Infection Biology, Institute of Infection and Global Health, University of Liverpool
Internship period	Internship period: 12 / 07 / 2017 - 12 / 14 / 2017 (Departure Date from Sapporo: 12 / 05 / 2017, Arrival Date in Sapporo: 12 / 16 / 2017)
Purpose	(1) To learn how to establish new cell lines from ticks and other arthropods (2) To understand how to run the research-based nonprofit organization (3) To have discussion on TCB's global network and my research data

### - The reason why you chose this institute

The Tick Cell Biobank (TCB) is a UK and international biological resource run by researchers in the University of Liverpool, UK. TCB holds the world's largest collection of continuous tick cell lines. TCB provides tick cell lines and one-to-one specific training to researchers who receive tick cell lines through funding of UK government. TCB was established eight years ago by tick research scientists Dr. Lesley Bell-Sakyi and her colleagues. Dr. Lesley has over 40 years of experience in working with tick cell lines. I attended her oral presentation at international conference (TTP9) in Australia.



When I recognized TCB for the first time, I became interested in how the research-based organization was established and managed by scientists. I think it is important for researchers to obtain research budget not only from the government but also from other sources. The expanding activity of TCB in the developing countries was also attractive for me. The basic research in these countries including my country

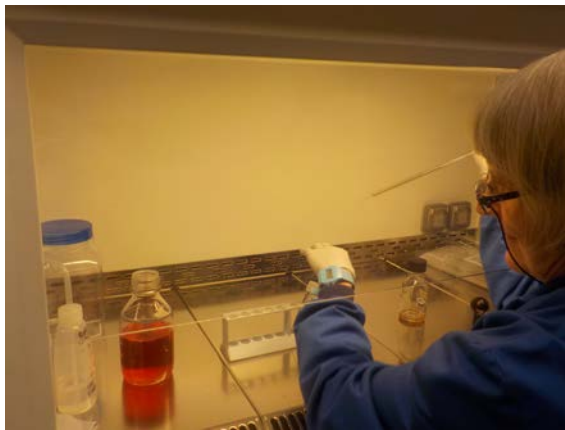


Myanmar is hampered by many problems. I think the experience in this internship provides me

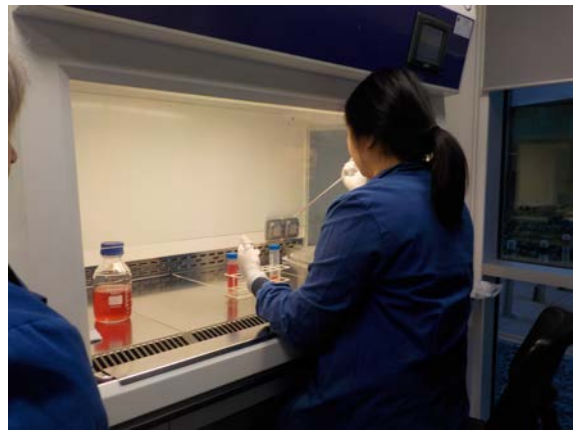
some advises to continue my research carrier when I return to my country.

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

**Day 1:** On the first day, I completed risk assessment documents including biosafety training of TCB and laboratory safety practice according to the rules of Institute of Infection and Global Health. Moreover, I observed laboratory routine tasks which were related with tick cell lines before starting specific training.



Observation of laboratory routine tasks  
from Dr. Lesley



Observation of laboratory routine tasks  
from postdoctoral fellowship

**Day 2:** On the second day, I attended laboratory meeting and introduced my research project to Dr. Lesley's research group members. All laboratory members were very active and energetic



Attending laboratory meeting and  
introduction of my research



Working together with Dr. Lesley at  
Tick Cell Biobank

during research discussion time. I had learnt specific approach of culture medium for tick cell

lines which are not available in commercial companies. That culture medium is very critical for the maintenance of tick cell lines.

### **Days 3-6:**

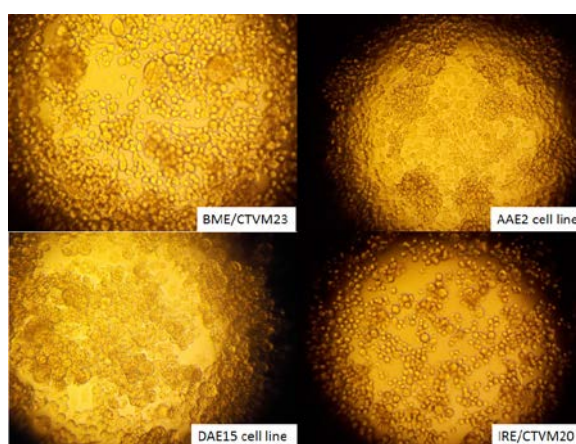
During this internship period, Dr. Lesley provided a lecture on the history and management system of TCB including latest establishment of TCB branch in less-developed countries Malaysia, Kenya and Brazil. TCB is building global network between their partners and scientists. I had also learnt the rule and regulations of TCB related to shipping of biological resources under material transfer agreement. These were excellent information to collaborate for future research project.

Additionally, I had a chance to observe the morphological examination and of different species of tick cell lines. Each tick cell line has specific condition and troubleshooting among different laboratories. I was able to make sure of the cryopreservation in liquid nitrogen, resuscitation and continuous maintenance of tick cell lines in TCB. I had learnt specific points of primary tick cell cultures in dealing with variety of cells because some tick cells have taken more than 30 years to yield a cell line. I had to prepare the prepackaging of tick cell lines shipping for international transfer. It was very satisfying to work with Dr. Lesley.

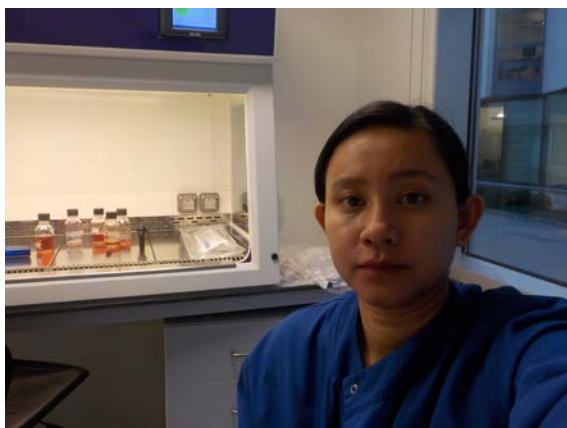
TCB had started their project at the beginning of this year. In addition, TCB still has a plan to hire postdoctoral fellowship in near future. This internship training is a good opportunity to build the strong connection for my further study in UK. Currently, I am handling and processing of post-transfer tick cell lines development from TCB. I could adapt the experimental conditions in TCB to tick cell maintenance system in my laboratory.



Monitoring of variety of tick cell lines



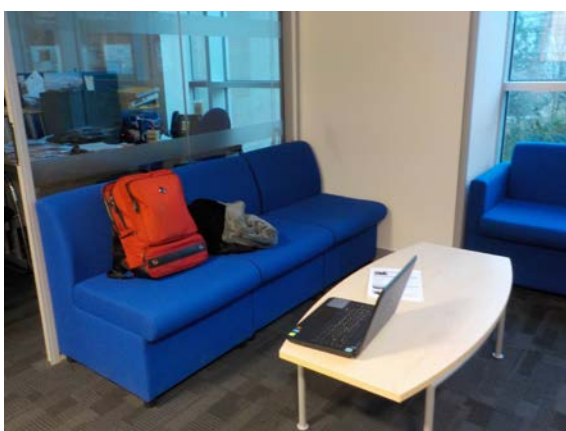
Examination of different tick cell lines



Working at the laboratory



Outside view of laboratory



Workplace behind Dr. Lesley's office



The last day of tick cells training

The daily activities in TCB are summarized as the below table.

Days	Activities
Day 1	>Observed the laboratory routine tasks
Day 2	>Attended the laboratory meeting >Prepared the basic critical medium
Day 3	>Specific culture medium preparation for different cell lines >Examined the maintenance of different tick cell lines
Day 4	>Cryopreservation and resuscitation of tick cell lines
Day 5	>Preparation and initiation of primary tick cell cultures >Washing up procedures of tick cell cultures' equipment
Day 6	>Isolation, propagation and purification of tick-borne bacteria from tick cell lines
Day 7	>Intensive training about the tick cell lines processing for shipping >Troubleshooting of tick cell culture



	>Attended the Department meeting
Day 8	>Learnt the history and management system of TCB >Follow up checking the cell line prepacking

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

During my internship, I could build the global research networking under TCB. With the knowledge and skills obtained from TCB, I would like to continue my research as a professional scientist. After completing my PhD course, I would able to get a position at TCB or TCB branch institutes for my future research advance.

Furthermore, this internship gave me encouragement and confidence to make a strong connection with developing country including my country, Myanmar. Since, my previous institution still need to build a global research network, I will able to help my university to improve the research community by gaining knowledge that I got from TCB internship and postdoctoral training.

At the point of positive impact, Dr. Lesley gave me the suggestions and feedback on my experimental data which I had done for PhD course. It is really useful for my publication of PhD thesis. Now, I understand the point which I had a troubleshooting about tick cell culture during the last 3 years experiment.

### **- Advice for your junior fellows**

1. It is better to know basic information about university, city including electronic ticket (e-ticket) for transportation. Sometime, Google map is not working well or error on your phone.
2. Check your transit visa and visa application. Some nationality need transit visa.
3. Please print out paper related to your experiments. Summarize the information which you want to know from the experts.
4. Do not worry about language skill. You can easily catch up and understand from native speaker. They will polish your English skill.
5. Some procedure took long time. So, you should start the preparation early.

Approval of supervisor	Institution • Official title • Name Norikazu ISODA Unit of Risk Analysis and Management, Research Center for Zoonosis Control, Hokkaido University
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- ※1 Send the electronic file 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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