Must be typed

（For JSPS Fellow）

Form B-2
(FY2018)

Date（日付）
04/10/2018 （Date/Month/Year：日/月/年）

Activity Report -Science Dialogue Program-
（サイエンス・ダイアログ事業　実施報告書）

- Fellow's name（講師氏名）: Patrick Michael Lelliott （ID No. P17117 ）

- Participating school（学校名）: Ritsumeikan High School

- Date （実施日時）: 20/09/2018 （Date/Month/Year:日/月/年）

- Lecture title（講演題目）: Researching malaria in Australia and Japan

- Name and title of your companying person（講義補助者 職・氏名）
N/A

- Lecture format（講演形式）:
◆Lecture time（講演時間） 90 min（分）, Q&A time（質疑応答時間） 20 min（分）
◆Lecture style（ex.: used projector, conducted experiments）
（講演方法（例：プロジェクター使用による講演、実験・実習の有無など））
Powerpoint presentation with projector

- Lecture summary（講演概要）: Please summary your lecture 200-500 words.

Malaria is a disease caused by Plasmodium parasites, which is spread by mosquitos. When someone is bitten by an infected mosquito, parasites travel to the liver, and eventually begin to invade and live within red blood cells in the bloodstream. During malaria, parasite numbers are typically kept low by the immune system, and infection is normally cured; it is the pathologies associated with malaria that are ultimately responsible for the high numbers of deaths due to this disease. The causes of these pathologies are largely unknown.

Despite ongoing efforts, malaria is one of the largest public health problems in the world today. No effective vaccine is available, current treatments are failing due to the development of drug resistance, and over 200 million people are diagnosed with malaria annually. While most people recover, nearly 500,000 people died from malaria in 2015.

My current research and previous PhD research has focused on why some people get extremely sick and die due to malaria, while most others are able to completely recover. My PhD research investigated how our genetic makeup can change the way we respond to malaria. Due to genetic differences, some people are almost never infected with malaria, or if they are infected, they

recover quickly. If we can understand why this happens, we may be able to develop drugs to prevent malaria in the same way.

My current research is focused on the pathology of malaria. In particular, why does malaria cause severe health problems such as coma and anemia. Only 0.5% of people infected with malaria die from this disease. While the elimination of malaria completely is the most important goal, if this can't be done then we may be able to develop drugs which prevent the symptoms caused by malaria, without directly curing disease. I am investigating neutrophil extracellular traps, a novel kind of immune response, how they might be contributing toward malaria pathology and death, and if this can be prevented.

A large part of my research has focused on developing new techniques for studying malaria. During my PhD I developed an technique to quickly identify and count the number malaria parasites in the blood. In my current research I have development a method to take images of neutrophil extracellular traps during malaria infection. I believe developing new tools is one of the best ways to make progress and is an important part of scientific research.

This lecture had 3 parts

1. History of where I came from and how I became a scientist. I explained my career and what motivated me to become a scientist from high school onwards. I explained the options I had along the way to becoming a postdoctoral fellow.

2. What it means to be a scientist and what I find interesting about it. I explained what it is like being a research scientist and the various pros and cons of becoming an independent researcher.

3. My research as outlined above. Throughtout this section I included true and false questions to engage the students and test their knowledge.

- Overall advice or comments to future participants in the program（今後の講師へのアドバイス）:

I think its a good idea to stop the lecture regularly to ask questions and get the students involved. Each time I did this during the lecture the students were interested and discussing the answer, it also led to questions at the end of the talk.

- Other noteworthy information（その他特筆すべき事項）:

- Impressions and comments from the accompanying person（講義補助者の方から、本事業に対する意見・感想等がありましたら、お願いいたします。）
N/A