

Molecular and immunological investigations of bat-virus interactions

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Bats are an important reservoir of many emerging viruses such as Hendra and Nipah. However virus infection of bats is usually asymptomatic, virus replication is limited and antibody responses are inconsistent. A collaboration of researchers at CSIRO Australian Animal Health Laboratory (AAHL) in Geelong are working to sequence the transcriptome of *Pteropus* and *Rhinolophus* bats, in order to identify bat proteins which are important to the immune system, for example interleukins, interferons and T-cell receptors. The identified bat proteins can then be assessed for biological function and compared to proteins involved in immunity in other mammals, including humans. A greater knowledge of bat-virus relationships will potentially facilitate new approaches to isolate viruses and prevent disease outbreaks.

In my six weeks at AAHL, I aimed to identify, clone and express interleukin-1B and interleukin-6 of *Pteropus vampyrus*. The project built upon many techniques, which I was currently learning as part of my science degree, such as restriction digests, plasmid purification, PCR and gel electrophoresis. I was not only able to practice these techniques, but learn how they were integrated, why they were the best procedure and what conditions to set. I also extended my knowledge from DNA techniques, to work with proteins by performing western transfers and immunoblotting, something I had never done before.

The six weeks at AAHL was an amazing experience. I not only learnt and improved so many techniques, but also developed an understanding and appreciation for the world of research beyond the undergraduate laboratories. I now have a greater insight into the contributions AAHL (amongst other laboratories) makes to preventing outbreaks of disease and protecting public health. A big thank-you to Dr. Dieter Bulach, who introduced me to this fantastic opportunity and guided me through the project, and Mary Tachedjian, who constantly helped me in the lab even when her time was short.

