

Report on completion of the short-stay study abroad program

School and Dept. : School of Life Science/Department of Physiological Science
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Destination country : Australia
Receiving univ./institute : Eccles Institute of Neuroscience, John Curtin School of Medical Research, Australian National University
Period of study : 18 weeks
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Description of the receiving university

The Eccles Institute of Neuroscience is a new research institute that was formed to bring together all neuroscience research at the Australian National University, which is Australia's top-ranked university. The Eccles Institute recently moved into a new building that houses 10 independent research groups working on a range of topics, including olfaction, hearing, synaptic integration, vascular control, retinal diseases and photoreception. The host institute (John Curtin School of Medical Research) is in itself a major research organization, with nearly 40 groups working on immunology, cancer, diabetes, obesity, etc. The John Curtin School runs a large graduate program (80 PhD students) of which the Eccles Institute is a part. The School also provides many research facilities, including an animal facility, electron microscopy and histology suites, gene sequencing facility, instrumentation and electronic workshops, etc. Overall, I was very impressed by the state of the art infrastructure of the facilities, high quality academic environment, and professional staff who were very friendly and supportive.



Preparation before leaving Japan

My PhD work was at a final stage in my fourth year during which the vacancy of this program came to my notice. This was a great opportunity for me to broaden my experience related to my field in other academic environments. The lab of my interest is specialized and well-established in the field of neurophysiology which is closely related to my PhD work. After receiving some good recommendations, I contacted the PI and luckily he was willing to accommodate me. I found the communication very positive which further boosted my motivation. No language prep was required since I chose a native English speaking country. Because of my nationality, I had no problems to require a visa speedily. However, one should be aware that a number of docs need to be prepared and submitted well in advance. So good planning in a comfortable time frame is recommended.

Study and/or research during the stay

In Japan I have been exposed to training in a range of techniques with the purpose to uncover molecular mechanisms that underlie signal processing of information in the brain. As a vital part of the theme of my doctoral course, this program would allow me to further uncover fundamental principles of information processing in the brain at neuronal circuit level.

I used the primary olfactory cortex as a model to understand the microcircuit underlying oscillatory activity. This primitive 3-layered paleocortex is the first cortical destination of odour information from the nose and is known to be highly susceptible for epileptic activity. Furthermore, I used transgenic mouse in which channelrhodopsin is selectively expressed, allowing us to excite specific cells by flashing them with blue light (optogenetics). This selective excitation allowed us to unambiguously study the cortical circuits and will help us to understand the operation of a simple sensory cortex, and hence the mechanisms of information processing in the brain.

I am full of praise about the professional guidance of the PI who is a well-established expert in his field with a pleasant personality. I enjoyed his teaching and the time and space he makes for me to conduct research and ask questions freely. This experience was very encouraging for me!

Activities other than study or research during the stay

My studio apartment was located in the center of Canberra, which allowed me to be exposed to the dynamic city life of Canberra and also at the same to the peaceful natural environment that surrounds this small capital city. I appreciate the multiculti cocktail of people living in Australia. Aussies are in general really nice. I did not neglect this great opportunity to also explore some beautiful spots including museums, art gallery, government area, war memorial, nature reserve parks, hiking places etc. And it was not uncommon to encounter wild kangaroos or other exotic creatures from time to time. It was a great time. My lab members were very supportive and kind, and I enjoyed their presence. One of them was like an angel helping me out with any issue I had in and outside work. The PI made my stay not only an educating one, but also a very enjoyable one. His curry cooking at his place was yummy! I really appreciate him and the rest of the lab. Thank you very much for the great memories!

Expenses

The grant did not cover all the basic expenses of my stay plus flight tickets, which I already anticipated before departure. So I reserved some amount of my own money. Given my positive experience, I believe it was worth it. Please be aware that if you are a scholarship student like I am, you won't be allowed to receive any scholarship during your absence in Japan. I did not expect this, but it was already too late. So please take this into account in your financial planning!

Things you found difficult (if any)

Other than some struggles with experiments (as usual), I cannot think of any difficulties I faced. If I had any, the lab members were always there to help me out.

Advice for future applicants

I have absolutely no regrets! If you can spare some time in your busy schedule, grab this opportunity to expand your horizon internationally. New experiences are valuable and good for your career and development as a scientist and as a person. Plus it may open new exciting opportunities.

Thank you Sokendai!

