

## Jovi Wong

Awarded the OMERS Scholarship 2015-2016

DPhil (PhD) Oxford University



At 15, Jovi began her Bachelor's studies at the University of British Columbia having graduated from the University Transition Program, a unique, accelerated high school programme providing gifted students the opportunity to complete secondary school in two years.

Jovi had always been interested in medicine and bio-medical science and created her own major in integrated sciences (Pharmacology and Pathophysiology) at UBC. Encouraged by her professors to get involved in laboratory work, Jovi joined a research group, which not only helped her understand her lectures more completely and the experimental work involved behind her-studies, but introduced her to her Honours Thesis supervisor.

In 2009, Jovi applied to volunteer with the World Health Organisation in Geneva, Switzerland, which at the time was dealing with the swine flu outbreak. However, she did not meet the 20 year age restriction. Her Thesis supervisor directed her to a research opportunity in Geneva, leading Jovi to organise a summer research internship and ultimately receive a scholarship from the Swiss and Canadian governments to complete her Master's degree in Neurosciences at

the University of Geneva. Her Masters solidified her interest in research, leading her to seek out projects in neuroscience where she could undertake her PhD.

Jovi had always wanted to study neurosciences in the UK and was thrilled to obtain a DPhil (PhD) position at the Nuffield Laboratory of Ophthalmology, University of Oxford. The research lab she is part of includes a diverse group, resulting in her ability to appreciate how scientific problems can be approached from many different directions.

Jovi's thesis aims to investigate the role of cryptochromes (CRYs), a core protein involved in circadian rhythms in the mammalian retina. Circadian rhythms allow for the anticipation and adaptation to the 24 hour light-dark cycle. Circadian neuroscience is a growing field and Jovi believes it is an important area to develop as disturbance of these rhythms is widespread occurring in shift workers, frequent travellers, and in people suffering from mental health disorders. Jovi explains that our sleep-wake cycle, daily rhythms in body temperature and appetite are generated by an intracellular core clock mechanism, of which CRYs play a central role. While the central circadian clock exists in the brain the mammalian retina receives light and transmits information to the brain regarding the light environment. A retinal circadian clock exists to regulate the light signal going to the brain, however how this works is unclear. Jovi has identified three retinal physiological responses regulated by CRYs, implying that it has an essential role in the retinal circadian clock, thus improving our understanding of retinal physiology and light regulation in the eye. Jovi expects that future experiments will investigate the role of CRYs as magneto receptors, as they are thought to sense magnetic fields in birds during long distance migration.

It is important to Jovi that her research will have a direct impact on patients and she feels she can best achieve this by working in academic medicine as a clinician scientist. She is currently applying to medical schools in the U.K., U.S. and Canada to achieve this but while here, she is happy to take full advantage of all that Oxford offers. Jovi is coxswain for her College Boat Club as leads the Women's University Rifle team.

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