

## **Dr Kay Nguo- ANTF Visiting Travelling Fellowship Report- May 2017**

My name is Kay Nguo, I completed my PhD in the Department of Nutrition, Dietetics and Food at Monash University in October 2016 and am now working as a post-doctoral researcher. A core and exciting element of my position at Monash University is working with a dual inlet Isotope Ratio Mass Spectrometer (IRMS) to analyse stable isotopes for the determination of body composition and energy expenditure in humans. This gold standard technique is called Doubly Labelled Water (DLW). There are actually very few nutrition scientists with knowledge of the DLW technique in Australia and as such, Monash University will be the first facility in the state of Victoria.

I was fortunate to receive an ANTF Visiting Travelling Fellowship to spend a week in the lab of Professor Dale A Schoeller, Professor of Biotech Center and Nutritional Sciences at the University of Wisconsin, Madison, USA. Professor Schoeller is the internationally recognized expert in DLW. He was the first to apply DLW for the measurement of energy expenditure in humans in 1982.

I felt very honoured and privileged to be able to meet him in person and was very much impressed by his depth of knowledge, exceptionally wise insights and extensive experience. I had read a lot of his papers, so to actually meet him felt a little surreal. He was very generous with his time and patiently answered my many questions. He provided me with advice about DLW study protocol development and spent time refining the protocols for projects that we will be starting up here at Monash. I also learnt some specifics about DLW data analysis and DLW practicalities. It was also reassuring to hear from him that learning the IRMS and associated data analysis is not something that occurs overnight, rather it is a learning process and develops with time and experience.



Professor Schoeller and I

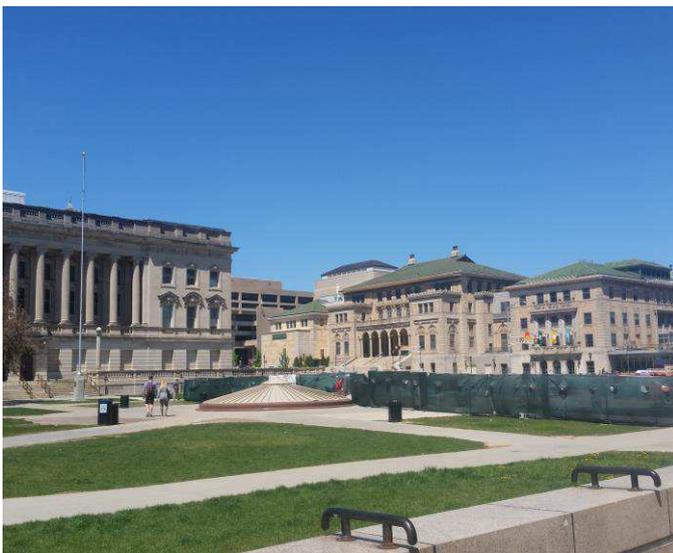
During my visit, I also spent time with Professor Schoeller's two senior research scientists- Tim and Natalie. Tim had been working under the guidance of Professor Schoeller for 20 years and Natalie for 10 years. Both were also very welcoming and kind and imparted knowledge about laboratory techniques/practicalities of DLW and data analysis. One very interesting activity I got to try was filtering urine through a syringe with carbon black. I was also impressed by their depth of knowledge and also their ability to diagnose mass spectrometry problems and their competency with all sorts of tools. I was shown around the lab and learnt about other different types of mass spectrometers and the basic principles of how they work, including the cavity ring down spectrometry and the continuous flow mass spectrometer. Tim also enlightened me on the different isotope levels in tap water across the United States, hence the importance of not travelling far distances whilst undergoing a DLW study.



The different types of spectrometers in Professor Schoeller's Lab.

During my week visit, I also encountered the influence of Australian based technology and research. I attended a research seminar at the University whereby a presentation was delivered by one of Professor Schoeller's students. The presentation was on a research project conducted in undergraduate American School Football teams using the Australian Institute of Sport activity monitoring tool- Catapult. The low FODMAP diet also came up in other conversations so it was nice to see Monash University research having such wide outreach.

Professor Schoeller also gave me a driving tour of the lovely and grand campus of the University of Wisconsin. The campus itself is situated alongside the largest of the four lakes in Madison, Lake Mendota. This lake freezes in the Winter time and is home to a number of Winter activities such as ice boating. The campus was beautiful and the buildings historical. I also spent a weekend exploring the city of Madison including visiting the State Capitol (Parliament House), art gallery and science museum. At the science museum I found out that three important molecules were discovered in Wisconsin laboratories, Calcitrol (1971), warfarin (Coumadin) (1948) and 5-fluorouracil (antitumor drug) (1957).



University of Wisconsin, Madison



University of Wisconsin, Madison



Wisconsin State Capitol

Overall, my time at Professor Schoeller's laboratory was invaluable and I am very grateful for the having being provided the opportunity. I gained a wealth of knowledge to take with me back to Melbourne, which will all help with the setup of our own IRMS/DLW lab here at Monash University. Being able to meet with somebody in person and have hands on experience really is of utmost benefit compared with conversations by email or Skype. I recommend those who wish to visit other laboratories to also apply for an ANTF Fellowship, they offer a variety of travelling fellowships- Visiting Travelling Fellowship, Short-term Travelling Fellowship and Extended- term Travelling Fellowship.

I wish to thank the ANTF for their financial support for this visit; Professor Helen Truby for her encouragement and Professor Dale Schoeller and his colleagues Tim and Natalie at the University of Wisconsin for hosting and welcoming me at their lab.