

Lab Visit Report

Shampa Ghosh

ICMR-Senior Research Fellow

India

Host Laboratory: Dept. of Pharmacology, School of Medical Sciences, Faculty of Medicine,
University of New South Wales

Host: Prof. Margaret J. Morris

Funding: ISN-CAEN Fellowship Category 1A

Overview of Lab Visit:

I, Shampa Ghosh, Senior Research Fellow from India, got the excellent opportunity to visit the laboratory of Prof. Margaret Morris, Dept. of Pharmacology, School of Medical Sciences, University of New South Wales, under the ISN-CAEN Fellowship Category 1A: Visit by the applicant to another laboratory.

On my arrival on July 14 at Dept. of Pharmacology, UNSW, Prof. Margaret Morris warmly welcomed me. She had taken time off her busy schedule to arrange for a tea party to welcome me and introduce me to all lab members. Soon after that, I was helped by Mrs. Christine Riordan to fulfill all the administrative formalities and register as a UNSW Visiting Fellow. All the lab members extended full support to get me settled.

I received hands-on training in molecular techniques of bisulphite mutagenesis of genomic DNA and LUMA assay for examining global DNA methylation from Dr. Neil Youngson, a senior postdoctoral scientist in the lab. I also learnt regional brain dissections and assessment of anxiety as well as depressive behavior in rats. In addition to the above, I established DNA damage assay technique (Comet Assay) for detection of single-stranded and double-stranded breaks in DNA along with IBRO Research Exchange Fellow Dr. Jitendra K. Sinha in the Department of Pharmacology with the help of Dr. Neil Youngson. We also trained two Ph.D. students of the host laboratory in the same. This sensitive assay works at a single cell level and when DNA loops lose their supercoiling due to any breakage they start moving towards the anode under electrophoresis. The samples are then stained with a fluorescent dye for image acquisition and

analysis. These studies were done in prefrontal cortex and hippocampus of rat dams fed with either chow or high fat diet (HFD) and their male pups at postnatal day 35. The basic aim of the study was to check if any DNA damage induced in the brain due to obesity in the mother is transmitted through to the next generation. I am presently analyzing the data. These results would tell us a lot about the possibilities of trans-generational effects of maternal high fat diet in the brain.

During my stay, I regularly attended seminars, lab and journal club meetings by visiting professors, researchers and students of the University. I also attended the 2014 Australian Centre for Perinatal Science Symposium “Game Changers in Perinatal Science”.

Like all good things, my visit to Prof. Morris’s lab also had to come to an end. On September 29, I left Sydney, scientifically enriched and confident to utilize my experience to bring a positive difference to my home lab.

Relevance to my Research:

Working under the guidance of Prof. Margaret Morris improved my technical skills and understanding of concepts in neuroscience; Training in epigenetic techniques like bisulphite mutagenesis of genomic DNA and LUMA assay for examining global DNA methylation will be very beneficial for me to apply in my ongoing research endeavors in my home institute.

Acknowledgements:

I would like to thank CAEN and ISN for selecting my application and funding my visit. I also want to express heartfelt thanks to Prof. Margaret J. Morris for her continuous encouragement. This Lab visit would not have been possible without her kind support. I also want to thank Dr. Neil Youngson for teaching me sodium bisulphite mutagenesis of genomic DNA and LUMA assay for examining global DNA methylation. I am grateful to Dr. Mukesh Raipuria for permitting me to use his samples from his maternal obesity cohort. I am thankful to Mrs. Christine Riordan for helping me with all the administrative formalities.



Photo 1: (From left to right) Dr. Shampa Ghosh (ISN-CAEN fellow), Prof. Margaret Morris (Host scientist and Head, Dept. of Pharmacology, UNSW), Dr. John Hunt (Deputy Head, School of Medical Sciences, UNSW) and Dr. Jitendra Kumar Sinha (IBRO-APRC Research Exchange Fellow at Morris Lab).



Photo 2: Dr. Shampa Ghosh (ISN-CAEN fellow) working in the Pharmacology lab at UNSW, Sydney, Australia.



Photo 3: Dr. Shampa Ghosh at UNSW Kensington Campus, Sydney, Australia.