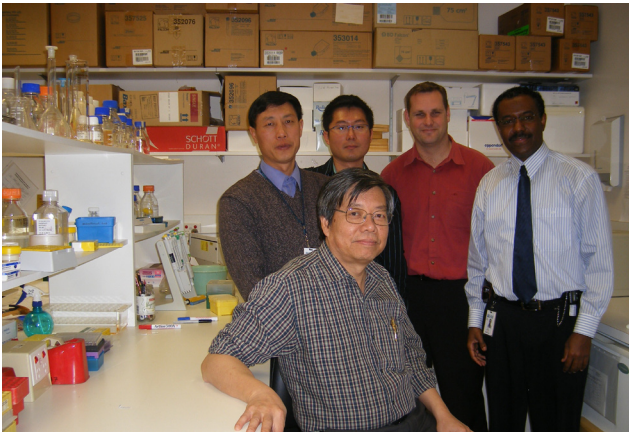


# Exciting research projects for Maternal Fetal Medicine



*Assoc Professor Kei Lui (seated) with a group of researchers in the Neonatal Research Laboratory.*

The Perinatal Research Laboratory at RHW has doubled in size in 2009. The existing Neonatal Research Laboratory has now been complemented by a large Maternal-Fetal Medicine Research Laboratory. Both have recently been accredited by the University of New South Wales for the next five years.

Assoc Professor Kei Lui (Neonatology) and Professor Alec Welsh (Maternal-Fetal Medicine) have recruited Dr Savita Kurup, an experienced postdoctoral research scientist to act as Laboratory Manager for the combined Perinatal Research Laboratory. Savita brings a wealth of experience in cell culture and basic science techniques to complement the clinical skills and perspectives of her co-researchers.

As well as a number of existing neonatal research projects, a number of very exciting projects are being started that relate to Maternal-Fetal Medicine. These include the development of advanced cell culture techniques to allow the growth of tiny fragments of placental tissue (chorionic villous samples) to produce a “trophoblast culture” for basic science experiments.

In addition placental perfusion experiments are being performed that allow for tests of blood flow using ultrasound in the laboratory and for modelling placental function in late pregnancy. Collaborative projects are also underway in conjunction with other successful research teams on the UNSW campus.

The focus of the new part of the laboratory will be the placenta. This unique and vital organ of pregnancy controls the fetal environment, its growth and development and ultimately the child's and adult's outcome. Previously it was thought that the placenta acted as a simple filter for the fetus, but it is increasingly being recognised that the placenta finely controls the intrauterine environment to safeguard the fetus.

In addition the placenta has unique properties that allow it to safely implant within the uterus in a controlled manner in normal pregnancy, and to then restrict this invasion. All of these properties can be disrupted in complicated or pathological pregnancy, and the ability to examine placental tissue in the laboratory provides a unique opportunity to evaluate all these aspects of placental function.

The Royal Hospital for Women, as a stand-alone maternity teaching unit in a large city with a full University campus adjacent to it, provides the perfect environment and resources for true translational research, relating the laboratory environment to clinical practice.

The immediate plans for the Laboratory is to purchase the remaining pieces of equipment required for the trophoblast culture experiments, and to provide research assistants for Dr Kurup. This will allow for the generation of pilot data to apply for National Health and Medical Research Council funding in the near future and to develop the Royal Hospital for Women as an Internationally recognised centre for Perinatal Research.

With your help, the RHW Foundation will be raising the necessary funds to help equip the laboratory so that this very important research continues to develop.

## A very special Centre

if you have ever spent time in the **Newborn Care Centre (NCC)**, you realise very quickly that nurses, clinicians, neonatologists and consultants work around the clock caring for critically ill and premature babies. On behalf of the families whose precious babies have spent time in this very special Centre, we salute the staff and dedicate this Newsletter in recognition of their commitment and care.

### **Learn more about the NCC:**

Since January 2009, the NCC has cared for 902 premature and ill babies.

The NCC has the highest level of Intensive Care in NSW, and this year 148 babies requiring very special care were brought by ambulance or helicopter from other hospitals throughout the State.

This year in the NCC, the number of tiny patients weighing less than 1000 grams was 28, and 62 babies born less than 30 weeks gestation received special intensive care.