

Summary of Research

The overall objective of our current work is to determine the pathophysiological mechanisms by which pregnancy-induced hypertension causes organ disturbances. Specifically, an association between preeclampsia (PE) and incidence of cardiac dysfunction during pregnancy and later in life has been observed in recent studies and we are interested in the mechanisms underpinning this.

Despite being the leading cause of maternal and perinatal morbidity and mortality, there is still no cure for PE other than early delivery of the baby and the placenta. Therefore, we are interested in identifying and testing therapeutic targets for the treatment of this disease.

To perform these studies, we utilize a rat model of PE where placental-ischemia is induced by reducing uterine perfusion pressure (RUPP). The RUPP model has been well studied and recapitulates many of the characteristics of the human condition including hypertension, proteinuria, release of placental factors into the maternal circulation (such as sFlt-1 and TNF- α), inflammation, reductions in glomerular filtration rate and endothelial dysfunction.