

**Do specific oocyte secreted proteins alter the metabolism of their surrounding cumulus cells?**

Assoc. Prof Jeremy Thompson

Early Development Group, Discipline of Obstetrics and Gynaecology,  
Level 2, Medical School South, Frome Road.

Phone: 8303 8152. Email: [jeremy.thompson@adelaide.edu.au](mailto:jeremy.thompson@adelaide.edu.au)

Dr Rob Gilchrist,

Discipline of Obstetrics and Gynaecology,  
Level 2, Medical School South, Frome Road.

Dr Karen Kind,

G17, JS Davies Building,

Phone: 8303 7693. Email: [karen.kind@adelaide.edu.au](mailto:karen.kind@adelaide.edu.au)

In a collaborative effort, our laboratory (as well as several other labs) has found that secretory proteins produced by oocytes have a wide-range of effects on the surrounding cumulus cells. Other workers, using a mouse model, have shown that these alter the expression of metabolic genes and alter the metabolic activity of the surrounding cumulus cells. However, previous work from our laboratory found no differences when using bovine (cow) eggs. Furthermore, we now have highly purified and specific oocyte secreted growth factors (GDF-9 and BMP-15) which we can use to investigate this question. These studies will investigate the metabolic pathways of cumulus cells and the influence of GDF-9 and BMP-15, as well as other specific oocyte secreted factors.

Students will learn about the interactive behaviour between cumulus cells and the oocyte, and how metabolism of the cumulus cells plays a major role in determining the developmental competence of the oocyte. Techniques to be developed are cell, tissue and embryo culture and messenger RNA quantification. Metabolism within the cumulus cells will be measured using a variety of techniques, depending on the specific approach required.