

CASE STUDY

IMMUNE CELL PREGNANCY LINK A WINNER

In 2009 PhD student Alison Care was named the 2009 winner of the prestigious Young Investigator Award and a \$10,000 prize for shedding new light on why some women are infertile and why some pregnancies end in miscarriage. Kathryn Gebhardt, also of the Robinson Institute, was a runner up at the awards.

Alison's research has examined the role of a type of immune cells (white blood cells) known as macrophages within the ovary, which are found in abundance around developing eggs and in hormone-producing structures.

The study, conducted in mice, shows that when these white blood cells are depleted there is a substantial decline in the amount of progesterone the ovary produces. Progesterone is a hormone produced by the ovary that is essential for the maintenance of early pregnancy.

Research shows that the ovary requires a vascular network in order to deliver the high levels of progesterone the body requires to maintain early pregnancy. The formation of this network occurs very quickly following ovulation, and macrophages may be involved in establishing that blood supply.

It appears that the ovary has its own specialist pathway to achieve this, and that macrophages have an essential role in building the blood supply that we hadn't previously appreciated.

This research identifies immune system cells as critical determinants of normal ovarian activity and the maintenance of early pregnancy. This might be a key to helping prevent early pregnancy loss, such as recurrent miscarriage.

A number of factors - such as smoking, obesity, poor nutrition and stress - can alter the way macrophages behave and may provide reasons for infertility or miscarriage in some women and a new explanation for infertility.



Alison Care

