

CASE STUDY

UTILISING FIBRE OPTICS FOR NEW REPRODUCTIVE HEALTH TECHNOLOGIES.

Two leading University of Adelaide scientists, **Professor Robert Norman (Director of the Robinson Institute)** and **Professor Tanya Monro (Director of the Institute for Photonics and Advanced Sensing)**, were awarded a \$700,000 Premier's Science and Research Fund Grant from the South Australian Government to develop sensing technologies for advanced reproductive research.

Through this funding a collaborative transdisciplinary laboratory will be established that will lead the world in creating unique technologies for biomedical sensing and promote dialogue between two highly innovative disciplines.

This will enable South Australia's reproductive health researchers and clinicians to lead in adopting emerging optical fibre-based technologies, and seed the development of a new biotechnology industry for South Australia.

The majority of women experience some form of reproductive disorder over the course of their life, and many chronic and severe reproductive disorders remain without preventive strategies, clear diagnostics or successful treatment. **Preventable reproductive disease costs Australia more than \$3 billion per year and affects more than 25% of women between 15 and 45 years of age.**

In addition, reproductive efficiency and pregnancy loss is a major issue in livestock breeding, directly impacting on other industries such as agriculture. However, at present it is not possible to monitor developing embryos or assess the uterine environment non-destructively.

In the 21st century, the greatest health gains stand to be made from research addressing the multiple points of vulnerability throughout the pre-birth and post-birth phases of life that are susceptible to the impact of internal and external influences. The very earliest stages of embryogenesis are the most susceptible.

These emerging sensing platforms will provide a richer understanding of the science of early embryo development, as well as improved diagnostics for endometriosis, reproductive cancers and infertility.

