

## PhD Fellowship in Organic Chemistry at IPAS – Reproductive Health Sensing

An opportunity exists for an organic chemist to work on a multidisciplinary project at the interface of synthetic chemistry, photonic sensing, surface science, and reproductive biology directed at developing a new fibre-based sensing platform for the real time measurement of H<sub>2</sub>O<sub>2</sub> levels in embryos. The project will provide new insights into the earliest stages of life, with the potential to improve assisted reproduction technologies. The resulting sensors will also have potential in monitoring the growth, proliferation, differentiation, and migration of cancer tumor cells and stem cells relevant to anti-tumor chemotherapeutics and regenerative medicine.

The project involves experience and training in the following key areas:

- The synthesis and spectroscopic characterization of new and existing fluorophores for real-time monitoring of hydrogen peroxide levels in solution and on surfaces.
- Chemical attachment of these structures to surfaces using existing and new chemical approaches for surface functionalisation
- Characterization of the properties of these systems in solution and on surfaces, particularly microstructured optical fibres.
- The successful candidate will have an opportunity to work with key collaborators to develop these structures into a sensor for monitoring the development and viability of embryos and other biological systems.

The postgraduate student will work closely with Professor Andrew Abell and Dr Sabrina Heng (synthetic and surface chemistry), Erik Schartner (photonics), and Professor Tanya Monro (Director of IPAS, see <http://www.adelaide.edu.au/ipas/>).

This exciting transdisciplinary project within IPAS provides a unique opportunity to gain a PhD in organic chemistry with significant exposure to aspects of surface science, fibre optics and photonics, as well aspects of biology. The successful candidate will be expected to have training and experience in organic synthesis and chemical characterization and a desire to work across disciplines.

Applicants must have, or expect to obtain, a PhD scholarship and a top up scholarship of up to \$10,000 will be provided to the successful candidate to give a total scholarship value of \$32.5k pa. Eligibility requires a minimum of a Second Class Honours Division A or equivalent and applicants must be Citizens or Permanent Residents of Australia or New Zealand. Other international students must apply for an international scholarship.

Please forward your expression of interest including a CV, to Professor Andrew Abell ([andrew.abell@adelaide.edu.au](mailto:andrew.abell@adelaide.edu.au)) by the end of October 2011.