

## **ARC Centres of Excellence Program**

### **ARC Centre of Excellence in Biotechnology and Development**

**Interim Director: Professor R J Aitken**

**Collaborating Institutions:** The University of Newcastle  
Monash University  
The University of Queensland  
The University of Melbourne  
The Australian National University

The Centre will bring together a unique group of experts to study the differentiation and maturation of male germ cells. There are few areas where intensive study of the complex processes that control cell behaviour and fate could have such immediate, practical applications in the development of Australian biotechnology industries, the management of animals in the Australian environment, and the health and well-being of the Australian people.

The Centre will undertake integrated and coordinated research across a spectrum of problems associated with male fertility. One program will explore the mechanisms leading to the formation of spermatogonial stem cells, a transition believed to be central to testicular cancer. The research may identify the environmental factors that are inducing a rising tide in the incidence of this distressing disease in young Australian men. Another program will explore new ways to enhance, diminish and control male fertility, for application to human fertility issues and also to control male fertility in animal populations for commercial and environmental applications. Centre research will aim to explain a number of genetic diseases that result from exposure of the male parent to environmental toxicants and are expressed as increased risk of disease (e.g. cancer or dwarfism) in the offspring. Biotechnology benefits from the Centre's research may include non-surgical methods to sterilize male domestic animals, and new methods for the production of transgenic animals using the male germ line, which would then express commercially valuable genetic products. The Centre recognises the opportunities in these areas, and has already established links with manufacturers of veterinary products.

The Centre has a strong commitment to building national and international networks for research, research training and commercialisation. Such networks are of particular importance to a regional university such as the University of Newcastle.