



## Examples of new *Linkage Projects* in 2010

### Mathematics, Information and Communication Sciences

**The University of Queensland** (Contact: 07 3365 1120)

*Skeletome - A curated online knowledge base integrating clinical and biological information on skeletal dysplasias and related conditions (LP100100156)*

**Summary:** The skeletal dysplasia knowledge base will establish Australia as a world-leader in skeletal dysplasia research. This project will provide researchers with an extensible and comprehensive online knowledge-base related to skeletal dysplasias and enhance clinicians' understanding of the diagnosis, treatment and management of skeletal dysplasias. The knowledge base will also facilitate collaborative discussions by patients, clinicians and researchers around specific cases to improve training, management and diagnosis. It will also enhance Australia's research expertise in Semantic Web and social networking technologies.

*Chief Investigator: Professor Jane Hunter*

**ARC funding:** \$273,000 over 3 years

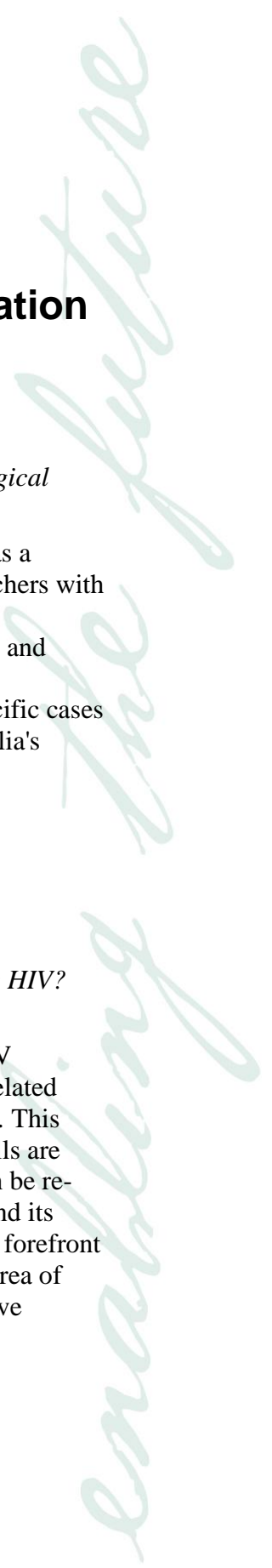
**University of New South Wales** (Contact: 02 9385 2864)

*Can an anti-HIV gene in blood stem cells protect from immune depletion by HIV? (LP100100242)*

**Summary:** Approximately 15,000 individuals in Australia are currently HIV infected. Gene therapy has the capacity to remove antiretroviral treatment related issues, dramatically decrease treatment costs and simplify treatment of HIV. This study will model a new approach to treat HIV in which the patient's own cells are used as the therapy by incorporating an anti-HIV gene. These cells will then be re-introduced into the patient. The strong mathematical focus of this project, and its application to a promising approach against HIV, will place Australia at the forefront of the mathematics of gene research and contribute to the national priority area of Promoting and Maintaining Good Health and the priority goal of Preventative Healthcare.

*Chief Investigator: Associate Professor John Murray*

**ARC funding:** \$360,000 over 3 years





**Queensland University of Technology** (Contact: 07 3138 2361)

*Automated vision-based aircraft collision warning technologies* (LP100100302)

**Summary:** Australia is a sparsely populated country with a number of unique airspace features. This project will investigate novel vision-based collision warning systems that can improve safety for piloted aircraft and also help achieve integration of Uninhabited Aerial Systems (UAS) into national airspace. The benefits of UAS technologies are particularly relevant to Australia, as governments and industry struggle to cope with providing equivalent levels of service to remote communities over vast distances (or border protection of vast regions). The population base of Australia requires that cost-effective solutions are sought to meet this end.

*Chief Investigator: Dr Jason Ford*

**ARC funding:** \$555,000 over 2 years

**University of Wollongong** (Contact: 02 4221 5942)

*Integration of solar, wind and storage systems into distribution grids for network support* (LP100100618)

**Summary:** This project will contribute to the development and utilisation of renewable energy technologies for a sustainable future and facilitate their integration into electricity grids for network support. Innovative methodologies and technologies will be developed to reduce network problems associated with the integration of a large number of small-scale renewable energy resources into distribution grids. This project will also develop assessment tools to examine the impact of renewable energy penetration on power quality aspects, network stability and protection performance. This research will provide remedies for potential problems introduced by their integration and improve voltage support in the electricity networks.

*Chief Investigator: Associate Professor Kashem Muttaqi*

**ARC funding:** \$420,000 over 3 years

**University of New South Wales** (Contact: 02 9385 2864)

*Industrial high efficiency solar cells* (LP100100712)

**Summary:** Photovoltaics is a promising candidate for sustainable energy generation, with Australia well-placed to capture the economic and environmental benefits from maintaining its strong position with this technology. Suntech, a world-leader in silicon solar cell production with US\$2 billion annual revenue, will provide a high profile showplace for the developed patterning technology. This will enhance commercial opportunities arising from the project and confirm Australia's reputation as a world leader in innovative photovoltaic research. This reputation will attract high-calibre professionals to Australia, stimulate local research and will provide opportunities for local manufacturing to exploit the technology developed as part of this project.

*Chief Investigator: Dr Alison Lennon*

**ARC funding:** \$700,994 over 4 years