

RESEARCH DIRECTIONS

Anticancer Agents

Associate Professor Janice Aldrich-Wright and Professor William S. Price from the Nanoscale Organisation and Dynamics Group from the School of Biomedical and Health Sciences in collaboration with researchers at the University of Warwick are investigating the development of anticancer agents and antibacterial agents. This research was funded by the Department of Innovation, Industry, Science and Research as part of the International Science Linkages program.

'With 33-50% of people likely to get some form of cancer in their lifetime, effective anticancer agents need to be developed and improved', says Associate Professor Aldrich-Wright. 'The biological mechanism(s) that are responsible for the activity of one type of agent - metallointercalators (transition metal-based chemical agents) against tumours and bacteria cells is not really understood. We will use a combination of chemical and molecular biology techniques to determine which molecular targets in a cancer cell are affected or destroyed by the metallointercalators. If we can understand the specific ways this happens – at a molecular level – then drugs can be developed that target cancer cells more specifically and, therefore, more effectively and with less undesirable side-effects. We will also explore the strength of our previously developed compounds for anticancer agents which have shown promise as anti-bacterial agents.'

Anticancer and antibacterial agents will both be tested in the laboratory and drugs that are the best candidates for the next step will be identified. The researchers will use ultra-violet-visible, circular and linear dichroism spectroscopic techniques to examine the interactions of anticancer agents at a molecular level. To guide future drug design strategies, the team will use biological testing data integrated with structural and spectroscopic data.



The undesirable side effects of anticancer drug treatments can be significant, in terms of human suffering but also their economic impact, for example preventing people from working. The development of more effective anticancer agents for improved anticancer drugs would have health, social and economic benefit for all Australians.

Project Title: Metallointercalators as Anticancer and Antibacterial Agents.

Funding has been set at: \$75,187

Contact Details: j.aldrich-wright@uws.edu.au
<http://www.uws.edu.au/school/biomedhealth>

September 2009