

Dean's Report

The Research School of Chemistry has established itself as a 'centre of excellence', maintaining the highest international standards for over 30 years to further fundamental knowledge in chemistry. Concentrating on areas of research with national importance, our activities strengthen the discipline of chemistry in Australia.



Our outstanding performance is recognised around the world. Fellowships of learned academies are the scientific equivalents of the halls of fame for sports stars and movie stars. The RSC has had more Fellows of the Australian Academy of Science (thirteen) than any other chemistry department in Australia. Since it was founded in 1968, RSC has earned seven Fellowships of the Royal Society of London. The rest of Australia has claimed only one. It is therefore with great pleasure that we can announce that Professor Bruce Wild was elected a Fellow of the Australian Academy of Science this year.

The Australian National University ranks higher in terms of the total number of literature citations than any other institution in the southern hemisphere. On the basis of chemistry citations, ANU chemistry ranks in the top 100 institutions world wide. The RSC has also built on its previous ARC Grant successes. During this year new ARC grants with a total value of \$5,089,035 were awarded to the School.

Our innovative research tackles an extensive range of issues in chemistry from understanding the basic building blocks of life through to the dynamics of chemical reactions in the upper atmosphere. We are increasingly able to manipulate and control the structure and behaviour of individual molecules and even atoms – nanotechnology. This opens up the exciting possibility of controlling the fundamental properties of materials such as colour, strength, magnetism and electrical conductivity. Nanotechnology has the potential to be the next technological revolution, leading to huge advances in medicine, biotechnology, manufacturing and information technology.

Our studies of fundamental processes in biology and nature such as the structure and function of DNA and proteins inform the development of new and improved drugs for treating important diseases like cancer and Alzheimer's disease. For example, ground-breaking research by PhD student Mr Brendon Barratt and Dr Jamie Simpson is aiming to combat illnesses caused by hormone overproduction (one of the mechanisms some cancers use to grow) by targeting the final stage of hormone production (peptides). This new approach is to make a tiny structural change to the prohormone that would normally overproduce hormone that is causing the disease. By exchanging a nitrogen atom, a prohormone mimic is created that will prevent hormone production – a biological Trojan horse.

We are developing new techniques to improve the cost-effectiveness of synthesising complex molecules used in pharmaceutical and industrial applications. Other molecules under investigation may help solve environmental problems such as removing pesticide residues from the environment or protecting the Great Barrier Reef from degradation.

Several important staff appointments were made in 2003. Dr Aaron Oakley was appointed as Fellow in the Biochemistry Group, Dr Edith Sevick's fixed-term appointment was converted to a standard appointment, and Dr Michelle Coote was appointed as the 2nd Rita Cornforth Fellow. As a result of his appointment as Fellow of the Australian Academy of Sciences, Bruce Wild was promoted to E2 Professor, Ray Withers was promoted to professor, Edie Sevick was promoted to Senior Fellow; and Drs Peter Mahon, Michelle Coote, Pavel Prosselkov, Patrick Schaeffer and Madeleine Schultz were promoted to Research Fellow. Success in the competitive grants system

allowed the appointment of sixteen postdoctoral and research fellows to fixed-term appointment of one to three years. Two of our support staff, Mr Don Pepper and Mrs Didy van der Gugten retired at the end of the year. We wish them well in the future.



Denis J. Evans
Dean