The School of Chemistry & Molecular Biosciences (SCMB) achieved strongly in the ARC and NHMRC research grant rounds announced October 2009 and in the ARC Future Fellowship round announced September.

In the Australian Research Council schemes, SCMB’s Dr George Vamvounis was awarded an Australian Research Fellowship. The School achieved a success rate of 38% in Discovery grants (counting all grants with an SCMB Chief Investigator) or 23% (for grants administered by SCMB). These figures compare to a national overall success rate of 22.7% (22% in the Biological Sciences and Biotechnology fields) and a UQ success rate of 26.5%. The value of the SCMB grants is more than $2.7M.

A National Health & Medical Research Council Research Fellowship was awarded to Prof Mark Walker, who will be joining SCMB from the University of Wollongong in April 2010. Dr Katryn Stacey, joining SCMB from the UQ Institute for Molecular Bioscience, was awarded a Career Development Award. A success rate of 30% was achieved for other NHMRC grants administered by the School, worth more than $3.5M. SCMB staff are involved in six grants administered outside UQ, worth another $4.75M.

The successes follow on from an announcement in September that Assoc Prof Michael Monteiro, jointly appointed with SCMB and the Australian Institute for Biotechnology & Nanotechnology, and Dr Stacey have been awarded prestigious Future Fellowships by the ARC. Assoc Prof Monteiro will undertake a project entitled Transformer 3D Nanostructures: Stimuli Responsive Polymers, while Dr Stacey’s project is entitled Foreign DNA is a danger signal for mammalian cells.

Head of School, Prof Alastair McEwan, congratulated grant and fellowship recipients on their success and expressed pride in the School’s growing research performance.
The Biotechnology award is in a category that recognises programs and services that enhance the quality of student learning and the quality of the student experience at UQ. Awards are made to projects/services initiated by curriculum teams, groups or organisational units. The Biotechnology team also receives a grant of $10,000.

You can read the awardees’ citations and view videos about their work at www.uq.edu.au/teaching-learning – click on Internal Awards, then Awards for Teaching Excellence and/or Awards for Programs that Enhance Learning.

RESEARCH STUDENT SUCCESSES

PhD candidate Ms Therese Seldon’s (pictured right) poster entry for the Australian Society of Medical Research’s 2009 Queensland Postgraduate Student Conference won first prize. Therese’s research project is entitled Antibody-mediated depletion of dendritic cells: Immunosuppressive applications. Her principal advisor is Prof Ross Barnard.

Five SCMB RHD students were awarded Dean’s Awards for an outstanding thesis. They, their Principal Advisors and topics are:

- Dr Emma Ballard (Principal Advisor Dr Mark Fegan): Improved control of bacterial spot in stone fruit trees through the development and use of bio-PCR protocols for the detection of xanthomonas arboricola pv. Pruni.
- Dr Bennett Datu (Principal Advisor Prof Peter O’Donoghue): Genes associated with the transition from free living to parasitic larvae in the canine hookworm, ancylostoma caninum.
- Dr Terrence Miller (Principal Advisor Assoc Prof Tom Cribb): The Cryptogonimidae Ward, 1917 (Platyhelminthes: Digenea), with emphasis on taxa infecting Indo-West Pacific Lutjanidae and Haemulidae (Perciformes).
- Dr Sarah Smith (Principal Advisor Prof Lawrie Gahan): Spectroscopic and mechanistic characterization of the Fe-Mn phosphatase isolated from sweet potato.
- Dr Priyanjalie Wijegoonawardane (Principal Advisor Prof Peter Walker, CSIRO): Molecular epidemiology of yellow head-complex viruses of cultured prawns in the Asian region.

PhD student Ms Siew Ping Han was awarded second place in the Faculty of Science round of UQ’s 2009 Three Minute Thesis Competition. Siew beat 10 SCMB students to get to the round and 11 other finalists to achieve second place. The competition aims to help students explain their studies in a succinct and compelling way so an average audience without technical skills can understand. Siew’s presentation entitled Don’t underestimate the little guy related to her project The roles of hnRNP A2 isoforms in trafficking of mRNA, supervised by Prof Ross Smith and Assoc Prof Joe Rothnagel.
The fifth annual SCMB Research Students Symposium was held in November to much acclaim. Head of School, Prof Alastair McEwan, hailed it as one of the most successful to date.

The symposium, held at Women’s College, attracted nearly 200 registrations from MPhil, PhD and Honours students, amongst others. For the first time, postgraduate coursework project students were invited to participate.

Nearly 50 posters were presented, and students were selected on the basis of submitted abstracts to give oral presentations.

The day, which also included scientific equipment supplier displays and participation by a number of learned societies, was rounded off with a fascinating talk from guest speaker Prof Michael Good, AO, Director of Queensland Institute of Medical Research. Prof Good spoke on the immunological challenges of developing vaccines for variant organisms.

Prizes were presented for the best posters and oral presentations in a range of fields.

Prof Paul Burn, together with SCMB PhD student, Mr Andrew Clulow, and Prof Justin Cooper-White of the AIBN were $7,500 winners in the Open Section of the 2009 Trailblazer competition run by UniQuest. The Trailblazer competition offers cash prizes to move innovative and entrepreneurial ideas forward. The winning team’s entry was entitled SHIELD: rapid explosives detection – a sensing technology that can accurately detect explosives from the odours they release.

Prof Burn was also part of a second winning team in the Open Section. Dr Muhsen Aljada (Australian National Fabrication Facility, Qld Node) working with Associate Professor Paul Meredith (School of Maths & Physics) and Prof Burn won a $7,500 award for developing futuristic technology for use in flat screen television displays, which enables transparent and flexible screens to be produced with low power consumption and manufacturing costs.
Coordinator of SCMB’s second year Genetics course, Dr James Fraser, negotiated a deal that sees students get access to leading bioinformatics software normally reserved for research laboratories.

The agreement with Danish company CLC bio provides each student enrolled in BIOL2202 with a copy of the company’s main bioinformatics platform, worth around $2 million over four years.

CLC bio is one of the world’s leading scientific software developers, with prominent research organisations like Genomics Institute of Singapore, Institut Pasteur (France), and J. Craig Venter Institute (USA) among their current customers.

Bioinformatics uses computers to interpret large amounts of biological data, from a task as simple as studying a single gene up to comparing the enormous amount of information in whole genomes.

The use of the software is part of a range of new technologies being used to make the new course more engaging. Students use their mobile phones to complete in-lecture quizzes. The practical classes cover topics ranging from performing karyotypic analysis of real cancer cells (just like in a hospital laboratory) through to looking at genetic linkage of phenotypes in plant populations that have been collected from across the world.

The course, which attracted more than 500 enrolments in second semester, is part of the progressive roll-out of the revised BSc curriculum, which started in 2008.

(Sections of this story reproduced from an article prepared by UQ Office of Marketing & Communications.)

Researchers from the Centre for Organic Photonics & Electronics within SCMB received almost $2 million from the Queensland Government in September to lead an international alliance working on the next generation of solar cells. Prof Paul Burn and Assoc Prof Paul Meredith focus on solar cells that have the potential for wide commercial deployment – they’re plastic, portable and low-cost.

The best commercially available solar cells are based on silicon and have efficiencies of about 10-20 percent. It takes five to 10 years of electricity generation to pay off the initial outlay of processing silicon; a fact that hinders universal up-take, especially for households.

Organic solar cell materials have similar properties to silicon but can be manufactured cheaply over large areas, giving the opportunity to form products such as roof sheeting and window panels. In contrast to the heavy and rigid silicon cells, the light and flexible characteristics of organic solar cells open up new markets previously inaccessible to traditional technologies.

The two Pauls are world leaders in organic photonics and electronics, and have both co-founded and generated technologies for high-tech start-up companies in solar energy and optoelectronics.

(Sections of this story reproduced from an article prepared by UQ Office of Marketing & Communications.)
SCMB’s Prof Istvan Toth is the recipient of the 2009 Adrien Albert award for sustained, outstanding research in a field related to biomolecular chemistry.

The premier award of the Royal Australian Chemical Institute’s Division of Biomolecular Chemistry was presented to Prof Toth at the 7th Asian Federation for Medicinal Chemistry’s International Medicinal Chemistry Congress held in Cairns in August.

Prof Toth, who has a joint appointment with the School of Pharmacy, is SCMB’s chair of biological chemistry. His PhD and postdoctoral research focused on organic synthesis; mainly on reserpine alkaloids and terpenes. Prof Toth later moved towards peptide and carbohydrate chemistry and now is an internationally recognised expert in drug delivery.

With a demonstrated track record in research commercialisation, Prof Toth is one of the key founders of Alchemia (ASX listed), Implicit Bioscience Pty Ltd, Neurotide Pty Ltd and TetraQ. Winner of a Business/Higher Education Round Table Award for outstanding achievement in international collaborative R&D, Prof Toth has served as a member of the ARC College of Experts and is a referee for many international scientific journals and granting bodies.

Adrien Albert (1907-1989) introduced and firmly established the discipline of medicinal chemistry in Australia. He was foundation chair of medicinal chemistry at the ANU.

Prof Mary Garson has been recognised for her contribution to supporting and encouraging other women into science, engineering and technology. She was highly commended in the Public or Community Sector category of the Our Women, Our State awards for 2009. A Queensland Government initiative, the awards recognise and reward Queensland girls and women who have made positive contributions to advancing women in traditionally male-dominated industries.

Mary’s citation reads: “Throughout her career, Mary has been influential in the training and professional development of countless female scientists. Through her work at The University of Queensland, Mary mentors emerging female scientists and provides encouragement to younger students through presentations at various career events. She is currently proposing to host a series of international women in chemistry breakfasts to connect women in this field from across the globe.”
SCMB again this year offered a number of workshops for school students and teachers as part of its Schools Outreach activities. The annual Chemistry Titration competition brought 260 high school students from 30 high schools on to the campus, with the top-placed teams returning later in the year for the Queensland round of the national competition.

UQ Open Day in August drew hundreds of prospective students, their parents, friends and members to visit SCMB’s displays and talks. There were plenty of hands-on activities and interesting displays and demonstrations, including the popular ‘Frozen Moments Liquid Nitrogen Show’, ‘UQ CSI’ – a crime scene scenario using do-it-yourself DNA extraction, and new ‘Elephant’s Toothpaste’ and ‘Metallic Hedgehogs’ displays. The event showed that not only does Science have many practical applications relevant to modern careers, but it can be fun.

Assoc Prof Stuart Kellie was part of a UQ delegation to visit Latin America in September to investigate new linkages. Visiting universities in Colombia, Peru and Chile, Assoc Prof Kellie identified a number of opportunities for research collaborations and RHD student enrolments, as part of the School’s plan to diversify its international development.

Meanwhile, Prof Ross Barnard has described to a public audience in Chennai, India, how UQ’s biotechnology discipline is responding to global change. The November lecture attracted alumni, prospective students, local university officials and others. Prof Barnard spoke, amongst other topics, about next-generation approaches to disease-detection and prevention, biofuel production from non-food crops, and drug development from natural products.

Congratulations to John Fuerst, Lawrie Gahan and Michael Monteiro, who have been promoted to Professor, and to Luke Guddat, who has been promoted to Associate Professor.

The School farewells long-standing staff members Assoc Prof Trevor Appleton and Assoc Prof Peter Wilce, who retire at the end of 2009 with distinguished careers, and welcomes new Marketing and External Relations Officer, Ms Ros Boulton. Prof Appleton’s retirement and contributions to his profession have been recognised by the Royal Australian Chemical Institute which has awarded him a prestigious Distinguished Fellowship.