

Department Profile

Biomolecular and Physical Sciences, Griffith University, Australia

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Upcoming issues of Pharmacognosy Communications will feature departmental profiles from the authors and readers of Pharmacognosy Communications. To begin, I have included a profile of my own department, Biomolecular and Physical Sciences, at Griffith University, Australia. We welcome departmental profile contributions from all regions of the world where pharmacognosy research and studies occur.

Griffith University consists of five main campuses in the Brisbane and Gold Coast region of southeastern Queensland, Australia. The university has diverse and unique settings, with two campuses sitting in a bushland/nature conservation area (Nathan and Mt Gravatt campuses), one campus in a rural setting bordered by farmland and a golf course (Logan campus), one campus in an urbanised coastal region (Gold Coast campus) and another campus in the central business district (CBD) of Brisbane (Southbank campus).

The University currently has approximately 40,000 students and 4,000 full time equivalent staff. Science, Environment, Engineering and Technology (SEET) is one of four main academic groups/faculties that comprise the university. SEET is further divided into individual schools. The School of Biomolecular and Physical

Sciences (BPS) is one of four schools that comprise SEET (the others being Engineering, Environment and Information and Communication Technology). BPS offers degree programs and postgraduate studies in diverse fields including the physical sciences, biomolecular and biomedical sciences, medical science, forensic sciences and aviation. Both traditional and emerging science disciplines are taught. The facilities include modern research facilities, with access to most modern technologies.

BPS researchers undertake a diverse range of research with projects including but not limited to:

- Medicinal agents discovery from Australian and international plants and fungi.
- Mechanistic studies into the toxicity of Australian native plants.
- Cancer drug discovery and cancer therapies.
- Molecular modelling for drug discovery and design.
- Novel antimicrobial agents, antimicrobial mechanisms and antimicrobial therapies.
- Antimalarial drugs and antimalarial therapies.
- Ataxia telangiectasia.
- Neurodegenerative disorders, treating Parkinson's and Alzheimer's Diseases.
- Stem cell research and stem cell therapies.
- Cytotoxic natural products from marine invertebrates.
- Ecosystem restoration.
- Drug design with novel target proteins to fight parasitic diseases.
- The molecular basis of symbiosis in insects.

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- The replicative mechanisms of thermophilic bacteria.
- Investigation of metal based small molecule drug targets.
- Molecular probes for pancreatic cancer.
- Novel antimicrobial agents from bacteriophage proteins that interfere with DNA replication.
- Novel therapeutics for Human African trypanosomiasis.
- Protein engineering of variants of the Green Fluorescent Protein (GFP).
- Regulation of apoptosis (programmed cell death).

- Regulation of cell surface sialylation by targeting the CMP-sialic acid transporter: towards the development of anti-metastatic agents.
- The role of Semaphorins in the immune system, neuronal development and cancer development.
- The use of natural product scaffolds in the generation of novel chemical libraries.
- Transcriptional control of gametocytogenesis.
- Wolbachia's role in nematodes.
- Natural compounds from traditional Chinese medicine (TCM).

This is by no means a complete listing of the research projects undertaken in BPS at Griffith University. For a more comprehensive and up to date listing, see the Griffith University web site.^[1] New projects will be listed on this site as they become available.

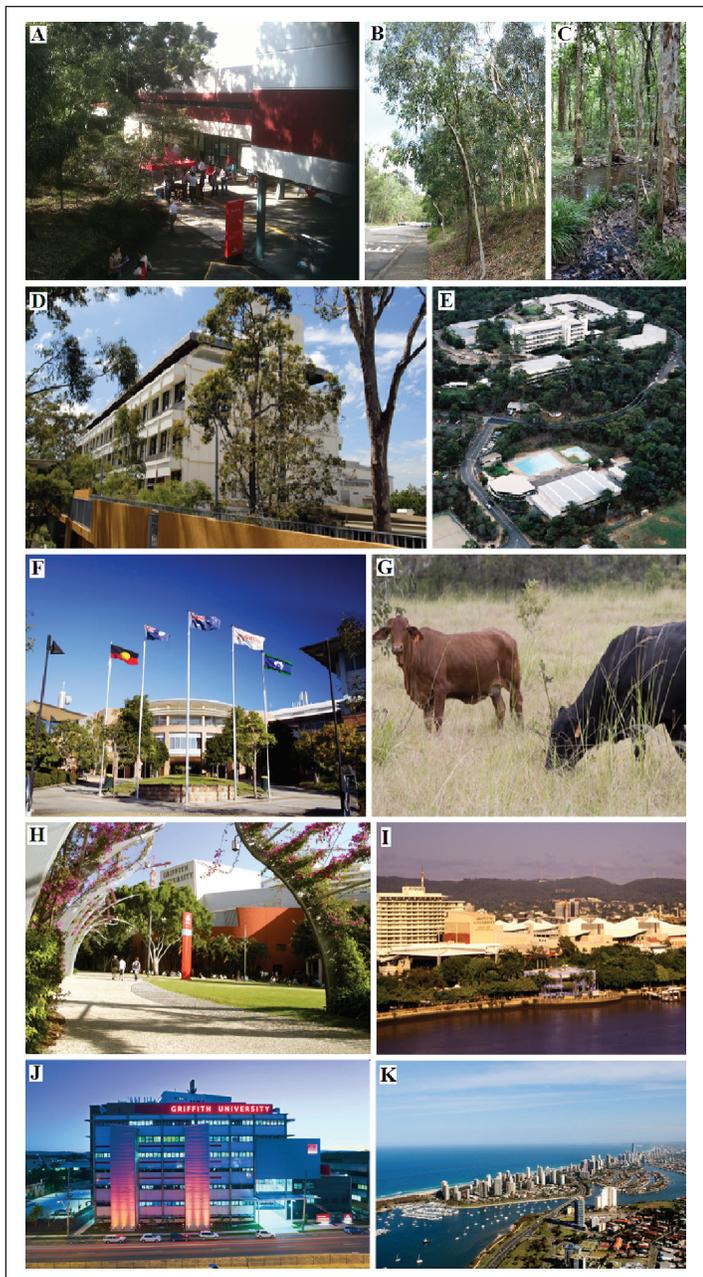


Figure 1: The diversity of Griffith University's campuses: (a) Nathan campus, (b) and (c) the unique bushland setting of Nathan campus, (d) Mt Gravatt campus, (e) Mt Gravatt campus surrounded by Toohey Forest, (f) Logan campus, (g) the rural setting of farmland adjoining Logan campus, (h) Southbank campus, (i) the river side setting of Southbank campus, (j) Gold coast campus and (k) the coastal setting surrounding Gold Coast campus.



Figure 2: Research postgraduate students in a Biomolecular and Physical Sciences research laboratory at Nathan campus.

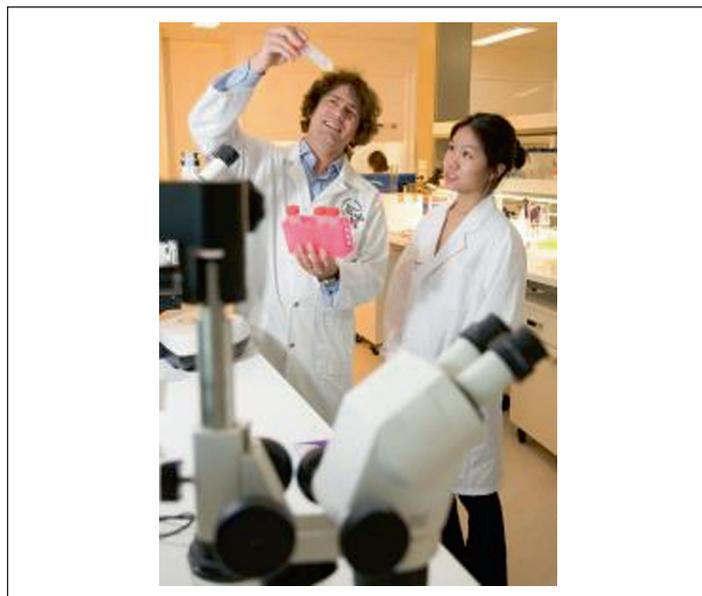


Figure 3: Dr Derek Kennedy of Biomolecular and Physical Sciences instructing a student in a laboratory on Gold Coast campus, Griffith University.

Griffith University in general and BPS specifically provides an outstanding research environment for its staff. Recently, Excellence in Research for Australia (ERA) ranked the university in the top eight research universities in Australia.^[2] Forty five research disciplines within the university were regarded as performing above world standard with some research fields (including the physical sciences) awarded the highest possible ranking for outstanding research. Indeed, 93% of the university's researchers have been assessed by ERA as being world standard or better. Furthermore, recent Nature rankings (based on the number of primary research articles published in the Nature family of journals in a one year period) ranked Griffith University seventh

in Australia and 30th in the Asia-Pacific region for research outputs.^[3] The university is currently experiencing rapid growth and whilst it already outperforms many larger universities, the university's administration is predicting further improvement in Griffith University's ranking in future years.

REFERENCES

1. <http://www.griffith.edu.au/science-aviation/school-biomolecular-physical-sciences/research/research-projects>
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