

EDSIG

EDSIG is keen to encourage the development of discourse on all matters to do with microbiology education. To this end we would like to hear any comments on the articles that EDSIG members contribute to Microbiology Australia. Feel free to contact the EDSIG convenors: Cheryl Power (cheryljp@unimelb.edu.au) or Chris Burke (C.Burke@utas.edu.au) or write a letter to the editor:



Chris Burke

Should it be microbiology or should it be science?

I have experienced all too frequently after exams, high achieving students demonstrating basic misconceptions of what I thought were significant and well-taught microbiological concepts. Students often have a limited vision of how microbiology fits into the broader context of their degree. They usually see a particular subject as finished and closed once it has been passed. This is a depressing situation and points to poor retention of learning. Similar experiences in teaching a statistics course have been described¹ and the importance of achieving conceptual change in students, so that they think about the discipline in fundamentally different ways than they did before the course, is argued^{1,3}. Can conceptual change be achieved in a traditional lecture and laboratory course in science? I argue that it is difficult to reliably achieve this across a diverse spectrum of student abilities and interests, without the incorporation of alternative teaching practices that encourage students to take a scientific approach to their learning.

Teaching formats based only on lectures and 'cookbook' practicals encourage little in the way of active participation by students in their learning. Because traditional teaching is teacher oriented, students commonly adopt a passive attitude to learning – simply absorbing facts with little reflection on understanding. Such a surface approach to learning can enable students to regurgitate information in assessment, but leaves them unprepared for real-life problems requiring application of information to unknown situations. For example, a report of the inability of undergraduate physics students to apply a concept that they know well (the first law of thermodynamics) to solve a simple problem in adiabatics – the compression of an ideal gas in a bicycle pump⁴. Although it is possible to develop teaching practices that encourage active student learning in lectures or large classes⁵, there remains a more significant problem; that the traditional format of lecturing is the antithesis of science and the scientific process. Scientists do not usually attend a lecture course when they need to expand their knowledge in a discipline. Rather, they perform research

grounded on their pre-existing knowledge, so that clear questions can be formulated and the research used to answer these. Students need to come to appreciate and understand what science is and what scientists do in order to place new knowledge into their own intellectual framework. I believe that this is the most important conceptual change that needs to come about in students as they learn microbiology, or any other science. By teaching students how to practice science, their specific disciplinary knowledge is neither inert (not used or applied to life experience) nor ritual (a suite of meaningless facts)⁶. Over the last few years I have changed my learning objectives in microbiology from a list of specific concepts and knowledge to overarching objectives requiring students to learn aspects of the scientific method in order to demonstrate their understanding of the microbiology content (Table 1).

Thus, for significant learning to occur (conceptual change within the discipline itself) it is far more important what the students do, than what the teachers do in class^{2,5,7}. I do not mean that the teacher is redundant, but that in a constructivist approach^{6,8-10} the teacher provides a framework to guide the students as they construct their knowledge. There are many forms of teaching and learning that involve students actively in the process. Trempey *et al*⁹ describe cooperative learning in microbiology in which undergraduates with or without previous microbiological knowledge are able to successfully carry out learning projects in microbiology and other disciplines. Problem solving, case studies and enquiry based learning are other possibilities for which many examples are given². There are corollaries to constructivism as firstly students must accept responsibility for their learning, and secondly it becomes necessary to teach generic attributes, for example, effective group work collaboration, problem solving and scientific writing. The former may not endear you to your students, but to date my experience has largely been that when the objectives and techniques are well explained, students accept that their learning will likely improve. Teaching generic attributes falls within the orbit of providing an appropriate framework for students to learn.

Necessarily, when a student-centred approach is used, a smaller amount of material can be formally covered. However, this need not mean that students learn less, because they are likely to be learning in more depth and learning outside of the classroom. Udovic *et al*¹⁰ report that students of their workshop biology course (a first-year enquiry-based program) had better critical thinking skills and showed better conceptual learning than students taught a traditional lecture-based course... "*Programs that teach science as enquiry focus on the need for students to experience the process of science in order to view science as a way of knowing, rather than as a body of knowledge.*"

All of these examples underline the importance of students experiencing what they learn, so that the 'how to' component is

Table 1 Learning objectives in the second year unit 'Applied and Environmental Microbiology' with a general microbiology prerequisite.

2004

On completion of this unit you will be able to:

- Explain microbial spoilage of food.
- Carry out methods of food and water examination.
- Explain interactions between microbes, microbial metabolism and the environment.
- Understand the influence of microbes on chemical cycling.
- Appreciate and understand the significance of environmental data in terms of microbial processes.
- Understand how microbial metabolism influences the environmental impact of industrial processes such as aquaculture.
- Organise, carry out and evaluate a scientific project to isolate and characterise a microbe unknown to you.

2006

On completion of this unit, you should be able to:

- Organise, carry out and evaluate a scientific research project.
- Search, evaluate and synthesise scientific literature in order to construct your own knowledge and understanding of microbiology to:
 - Explain interactions between microbes, microbial metabolism and the environment.
 - Understand the influence of microbes on chemical (nutrient) cycling.
 - Appreciate and understand the significance of environmental data in terms of microbial processes.
- Understand how microbial metabolism influences:
 - The environmental impact of industrial processes such as aquaculture.
 - Food safety.
- Carry out methods of food and water examination.

not lost amongst the 'what' component. The active thoughtful participation of students in their own learning sees them not as recipients of perceived wisdom, but as apprentices in a community of learning; the common way to learn prior to the 20th century ¹.

References

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5. Ebert-May D, Brewer C & Allred S. Innovation in large lectures – teaching for active learning. *Bioscience* 1997; 47:601-7.
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Essential management skills for laboratory managers

Leadership is of the spirit, compounded of personality and vision; its practice is an art. Management is of the mind, more a matter of accurate calculation, statistics, methods, timetables and routine: its practice is a science. Managers are necessary; leaders are essential. Field Marshal WJ Slim KG GCB GCMG GCVO GBE DSO MC



Dennis Mok

Convenor
Laboratory Leadership and
Management Special Interest
Group (LLMSIG)
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The importance of developing comprehensive leadership and management skills continues to be discussed every year at the

national meeting of the Australian Society for Microbiology. In today's ever increasing competitive and demanding laboratory workplace, it is apparent that laboratory managers cannot succeed on their technical skills alone. In today's constantly changing business environment, the laboratory managers are required to be multi-talented, highly flexible and experienced in working with a range of different people.

Effective laboratory managers complete tasks through other people. Laboratory managers make key decisions, allocate resources and direct the activities of others to attain objectives. Generally, all laboratory managers perform four key functions ¹:

Serial (a)	Function (b)
1	Planning – define objectives, establish strategies, develop plans to implement the strategies and achieve the objectives.
2	Organising – determine the tasks, who does them, how they are completed, take responsibility for decisions and follow-up.
3	Leading – motivate employees, direct activities of others, select most effective communication channels or resolve conflicts among team members.
4	Controlling – monitor and compare performance with objectives, address performance shortfalls.

Managers perform interrelated roles that can be grouped as being primarily concerned with three roles ²:

Serial (a)	Role (b)
1	Interpersonal roles – define objectives, establish strategies, develop plans to implement strategies and achieve objectives.
2	Informational roles – determine tasks, who does them, how they are completed, take responsibility for decisions and follow-up.
3	Decisional roles – motivate employees, direct activities of others, select most effective communication channels, or resolve conflicts among team members.

Laboratory managers require certain skill sets in order to carry out their tasks. Development of these management skills must meet continuously changing organisational needs. This becomes vital as the laboratory industry continues to expand and survival depends upon effective management. Three essential management skills have been identified ³:

Serial (a)	Skill (b)
1	Technical skills – the ability to apply specialised knowledge or expertise.
2	Human skills – the ability to work with, understand and motivate other people, both individually and in groups.
3	Conceptual skills – the mental ability to analyse and diagnose complex situations.

Recently it has been demonstrated that the most effective managers possess certain behavioural skills. Rated as the most frequently cited to be possessed by effective managers are ⁴:

Serial (a)	Skill (b)
1	Verbal communication.
2	Managing time and stress.
3	Managing individual decisions.
4	Recognising, defining and solving problems.
5	Motivating and influencing others.
6	Delegating.
7	Setting goals and articulating a vision.
8	Self-awareness.
9	Team building.
10	Managing conflict.

Laboratory managers should actively pursue these skills by regularly gaining additional knowledge and skills across a range of management-related subjects and demonstrating continual improvement in professional competence. Developing highly competent management skills is much more complex than developing the skills associated with a trade.

At the final session of **the LLSMIG Professional Development Workshop 'Laboratory Managers in Action'**, held at the Adelaide Convention Centre on 9 July 2007, further discussion on the development of essential management skills was presented. The **LLMSIG Professional Development Workshop** was not intended just for laboratory staff who plan to enter managerial positions or who currently manage processes or organisations, but all delegates interested in fostering the development of leadership and management skills.

References

1. Fayol H. Industrial and General Administration. Paris, France:Dunold. 1916.
2. Mintzberg H. The Nature of Managerial Work. New Jersey, USA:Prentice Hall. 1973.
3. Katz RL. Skills of an effective administrator. Harvard Business Review 1974; 52(5):90-102.
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LLMSIG Workshop Major Sponsor:



MICRO-FACT

As a direct consequence of climate change, the quantity of sea ice surrounding Antarctica has declined by about 20% since the 1950s.

ASM 2007 Adelaide, South Australia, 9 – 13 July

Report on the 2007 Annual Scientific Meeting of the Australian Society for Microbiology

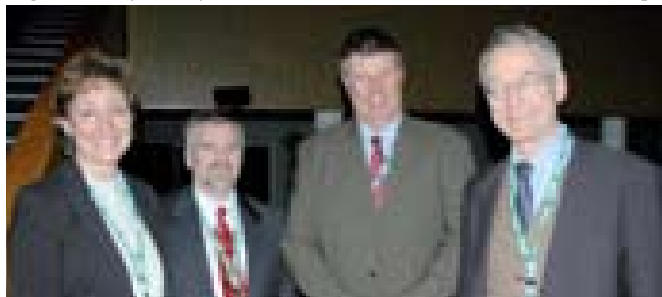
After what seemed a long lead up, with many discussions, many many emails and numerous telephone calls, ASM 2007 has come and gone – we believe very successfully, informatively and enjoyably for the 909 registrants (representing 22 countries) who came in the middle of July to the world class Adelaide Convention Centre, around which most of the conference activity was centred, including the trade exhibition.

The theme of ASM 2007 '*Fermenting New Ideas*' was conceived to encourage creativity and innovation in the practice and presentation of microbiology and for registrants to avail themselves of the lifestyle that we in South Australia hold dear. We believe this was achieved through the very broad scope and excellence of the scientific presentations and topics covered, including those from overseas speakers who made the long journey to Australia, and through the varied social program offered.

Our desire as an organising committee was that the science of microbiology in all its forms – medical, veterinary, industrial and environmental – would be advanced and that an environment for creative and productive exchange of information between conference attendees would be created in a relaxed and enjoyable atmosphere. A sub-theme of the meeting was '*Vintage Microbiology*' and this was evident in our social events program, specifically through the music and entertainment. Mathias Maywald and his team created and presented a continuous screening in the exhibition hall of some 200 slides depicting the history and development of microbiology and microbiologists through the ages, illustrating how our microbiological heritage underpins where we are today in terms of scientific progress.

The meeting was officially opened by the Chief Scientist for South Australia, Prof Max Brennan. Following his presentation we were fortunate to be part of a short play, directed by Ann Weaver and based on *The Importance of Being Ernest* but with some microbiological twists! Set in the Victorian era, this play set the scene for the remainder of the social events, where music from a number of decades was presented.

A very significant part of this year's conference was the workshops organised by Casey Moore and Paul Sideris. These workshops



involved an extraordinary 571 registrants. Thanks to all those who prepared presentations in many and varied forms for this very successful part of the meeting.

Thanks must go to our scientific program committee – organised by Andrew Butcher with input from NSAC Chair Hatch Stokes, and our divisional chairs David Ellis, Tuk Weng Kok, Renato Morona and Gupta Vadakattu, for creating a stimulating and exciting perspective on the world of microbiology, comprising nearly 250 oral presentations and 138 poster presentations. Registrants were privileged to hear the very entertaining Rubbo Oration from Prof Robin Weiss on 'How Cancer Cells Become Transmissible Microbes' while the Beazeley Orator (sponsored by CSL), Prof Gary Nable, delivered a very comprehensive look at 'Vaccine Strategies for Evolving Viruses: AIDS, Ebola and Influenza'. A very important and topical Snowdon Lecture entitled 'Avian Influenza Epizootic: Where do we stand in 2007?' was presented by Dr Bernard Vallat, whose attendance was made possible with the support of AAHL, CSIRO.

Rachael Pratt and the social organising committee worked hard to deliver a varied and entertaining social program to support the conference as a total package of not only intellectual stimulation but also enjoyment. The Rubbo supper was an exceptional event and offered South Australian fare at its best, including a lamb barbeque in the middle of the foyer of the Adelaide Convention Centre (novel!). The culmination of the social events was the conference dinner when around 300 registrants danced the night away to the varied music of the 1950s – 80s. The number of people dancing and the range of what could be described in some cases as bizarre dress, suggested that these decades of music remain very popular!

No meeting of this size and type can operate without significant contributions from the scientific trade, which comprised 37 exhibitors and many other sponsors of sessions and/or events during the week. Support from Roche as our Major Sponsor, Oxoid as Gold Exhibitor, plus Abbott, bioMerieux, Bio-Rad Laboratories, Panbio, Sanofi Pasteur, Siemens Medical and Wyeth, together with all the other exhibitors, allows the science of microbiology to be presented at a much higher profile than would be otherwise possible and is very much appreciated.



The exhibition hall was well set out and comfortable for trade exhibitors and delegates alike. A passport system, organised by Ingrid Lusi, was again in place and three prize packages of exceptional South Australian produce were presented to the winners.

A sincere and large thanks must go to ASM President Keryn Christiansen the ASM national office staff, most particularly Janette Sofronidis, for all their help over many months before

and then during the week of the meeting. ASM can be pleased with the way Janette has put in place an organisational template for the annual scientific meetings. This makes the job of the local organising committee much easier and allows it to more fully concentrate on the issues of scientific and social program content. Well done Janette and the team at National Office!

Last but certainly not least, I would like to thank each and every one of the SA LOC, some of whom I have already mentioned. The remainder comprises Helena Ward, Grace Chang, Mary Barton, Helen Brettig, Eveline Bartowsky, Lynda Kutek, Angelina Lekas, Ming Qiao, Heather Rickard, Scott Robson, Sophia Tan, Bruce Wetherall, Haig Henry, David Nielsen, Chris Ossowicz, and Bill Winslow. This large group of people worked together very well and I know that each one of the 'purple peril' not only worked hard with great energy, but also had a fun time whilst being of service to ASM.

Andrew Lawrence, Chair
ASM 2007 Adelaide

Book Review

Streptomyces in nature and medicine

The Antibiotic Makers



Dr Ipek Kurtböke

University of the Sunshine Coast
Queensland, Australia

Prof Sir David Hopwood
Oxford University Press Inc 2006
ISBN13: 978-0-19-515066-7
ISBN10: 0-19-515066-X

Prof Sir Hopwood elegantly provides an insider's view on the streptomycetes and their contributions to the field of medicine through the production of potent antibiotics.

This is the first book in the field that fills all the gaps of information to increase our understanding of how antibiotic production has evolved to the advanced understanding of the process we have today. The importance of understanding the biology and molecular machinery of antibiotic producing organisms and the antibiotic switch is emphasised.

The book starts with the earliest observations leading up to antibiotic production, from initial attempts of large-scale production to today's genetic engineering, which produces hybrid antibiotics. The advancements due to genome sequencing information that revolutionised our understanding of the antibiotic production genes have also been illustrated.

The book then moves on to functional genomics and describes how the response of *S. coelicolor* to oxidative stress provides a good example of using databases to help deduce gene functions. More importantly, the book illustrates how the information gained from the study of streptomycetes could be used to develop genetic systems to control the still deadly pathogen, *Mycobacterium* another actinobacteria; an example being the protoplast manipulation on *Streptomyces* species conducted at the John Innes Institute in Norwich, leading to pioneering work on the expression of mycobacterial genes in *E. coli*.

This is a fascinating account by an insider as to how it all began and where we are today in antibiotic production. The book contains 80 black-and-white photographs, 12 colour pictures and 50 purpose-drawn line drawings to illustrate the concepts described.

Prof Sir Hopwood's distinguished career and encounters with the leading contributors to the field since the discovery of streptomycin continue to provide younger generations with important insights.



Mycology MasterClass III: The Immunocompromised Patient

2 – 3 November 2007 | Hamilton Island, QLD

www.mycologymasterclass.org

An advanced medical mycology course for specialists and trainees in Infectious Diseases, Microbiology, Haematology & Intensive Care Medicine and for Laboratory Scientists / Technicians specialising in Medical Mycology. The MasterClass will reflect current clinical and laboratory practice in the diagnosis and management of fungal infections in the immunocompromised patient.

The MasterClass is organized under the auspices of the **Australian Society for Microbiology**

FACULTY

A/Prof Ken Bradstock	Head of BMT Service, Westmead Hospital, Sydney
Dr Sharon Chen	CIDM, Westmead Hospital, Sydney
A/Prof David Ellis	Mycology Unit, Women's & Children's Hospital, Adelaide
Dr Nicky Gilroy	CIDM, Westmead Hospital, Sydney
A/Prof David Gottlieb	Faculty of Medicine, Westmead Hospital, Sydney
Dr Tom Gottlieb	Infectious Diseases & Microbiology, Concord Hospital, Sydney
Dr Catriona Halliday	CIDM, Westmead Hospital, Sydney
Dr Peter Hopkins	Queensland Heart-Lung Transplant Unit, Prince Charles Hospital, Brisbane
A/Prof Debbie Marriott	Dept of Microbiology, St Vincent's Hospital, Sydney
A/Prof Wieland Meyer	CIDM, Westmead Hospital, Sydney
Dr Orla Morrissey	Infectious Disease Dept, Alfred Hospital, Melbourne
Dr Geoffrey Playford	Infection Management Services, Princess Alexandra Hospital, Brisbane
Dr Monica Slavin	Victorian Infectious Disease Service, Royal Melbourne Hospital, Melbourne
Prof Tania Sorrell	CIDM, Westmead Hospital, Sydney
Prof Jeff Szer	Dept Clinical Haematology & Bone Marrow Transplant Service, Royal Melbourne Hospital, Melbourne
Dr Karin Thursky	Victorian Infectious Disease Service, Royal Melbourne Hospital, Melbourne
A/Prof David Tuxen	Dept Intensive Care & Hyperbaric Medicine, Alfred Hospital, Melbourne

PRELIMINARY PROGRAM

THURSDAY 1 NOVEMBER 2007

12.00pm – 4.00pm	Hotel check-in & MasterClass registration	1.00pm – 1.30pm	Primary & secondary antifungal prophylaxis in haematology malignancies Monica Slavin
5.30pm – 7.30pm	Welcome Mixer (cocktails) (Bougainvillea Pool)	1.30pm – 2.00pm	Antifungal prophylaxis strategies in the ICU Geoffrey Playford

FRIDAY 2 NOVEMBER 2007

8.30am – 10.00am	Activity in BMT & what the future will hold Jeff Szer	2.00pm – 2.30pm	Infection control & immunocompromised hosts Nicky Gillroy
	Update on chemotherapy, conditioning regimens & monoclonal antibodies Ken Bradstock	2.30pm – 3.00pm	Afternoon Tea Break
		3.00pm – 4.00pm	T cell responses to <i>Aspergillus</i> & an update on adoptive T cell immunotherapy for invasive <i>Aspergillus</i> infections in HSCT patients David Gottlieb
10.00am – 10.30am	Morning Tea Break		
10.30am – 11.15am	Invasive fungal infections in the solid organ transplant patient Peter Hopkins	5.15pm – 9.00pm	BBQ Safari Tour
11.15am – 12.00pm	Invasive fungal infections in the Surgical & ICU patient David Tuxen		
12.00pm – 1.00pm	Lunch Break		

SATURDAY 3 NOVEMBER 2007

8.30am – 9.00am	The <i>Aspergillus</i> (ASPID) study Orla Morrissey
9.00am – 9.30am	Clinical value of serology & molecular tests in diagnosing invasive aspergillosis in high risk patients Catriona Halliday
9.30am – 10.00am	Fungal Sinusitis Sharon Chen
10.00am – 10.30am	Morning Tea Break
10.30am – 11.00am	<i>Scedosporium</i> & <i>Fusarium</i> infections in Australia Monica Slavin
11.00am – 11.30am	Zygomycosis – are there new management options? Tom Gottlieb
11.30am – 12.00pm	<i>Candida</i> infections – difficult sites Debbie Marriott
12.00pm – 1.00pm	Lunch Break
1.00pm – 1.30pm	Empiric therapy update (antifungal guidelines) Orla Morrissey

1.30pm – 2.00pm

Treatment update (antifungal guidelines)

Kas Thursky

2.00pm – 2.30pm

When to use combination therapy?

Tania Sorrell

2.30pm – 3.00pm

Afternoon Tea Break

3.00pm – 3.30pm

In vitro antifungal susceptibility testing, resistance trends & serum drug levels

David Ellis

3.30pm – 4.00pm

Molecular epidemiology in clinical mycology

Wieland Meyer

7.30pm

Conference Dinner

(Romano's Italian restaurant)

SUNDAY 4 NOVEMBER 2007

9.00am – 11.00am

OPTIONAL satellite workshop for laboratory staff

(workshop fee applies)

Descriptions of QAP Fungi?

David Ellis

REGISTRATION

REGISTRATION FEES (incl GST)

Member*	\$175
Non Member	\$265
Workshop	\$35

HOW TO REGISTER

Go to **www.mycologymasterclass.org** for details

OR contact the conference organizers

(tel: 03 9867 8699)

*Discounted member rates are available to financial members of the Australian Society for Microbiology (ASM), the Australasian Society for Infectious Diseases (ASID) or the Haematology Society of Australia & New Zealand (HSANZ)

REGISTRATION INCLUSIONS

- All MasterClass materials
- Programmed MasterClass Morning & Afternoon Teas and Lunches
- All programmed MasterClass evening social functions
- Access to discounted accommodation rates if booking via the MasterClass accommodation agents
- Option to purchase registration for the Sunday Workshop

- Option to purchase additional tickets for partners / family to attend the evening social functions with you
- Option to purchase discounted hotel breakfast vouchers (only applies for pre-paid vouchers)

[Flights, accommodation & non-programmed activities, food & beverage are own expenses]

ACCOMMODATION

A specially discounted room rate is available at the Reef View Hotel and the Whitsunday Holiday Apartments for MasterClass participants. The rate is inclusive of return airport transfers & portage. Both hotels are within a 3 minute walk to the conference venue. Only bookings made via the MasterClass accommodation agents are eligible for the discounted rates.

ROOM RATE (inc GST)

\$240 per room per night (does not include breakfast)

CONFERENCE MANAGEMENT

MasterClass Convenor | A/Prof David Ellis

Australian Society for Microbiology

Janette Sofronidis | Conference Manager

tel: 03 9867 8699

email: janette@theasm.com.au

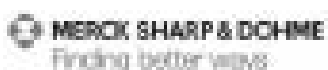
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ASM Awards and Rubbo Oration

2007 Frank Fenner Research Award

Dr Andrew Holmes

Andrew Holmes's career started at the University of Queensland and took him via the University of Warwick in the United Kingdom to Macquarie University then to his current location at the University of Sydney. His research interests centre around microbial ecology, evolution, biochemistry and biotechnology. He is particularly interested in the interactions between cells and the environment at the genetic level, and the implications this has for the evolution of bacteria and for how ecosystems function. Although he has had many 'pet projects' over the years, he considers his three research highlights to be methane oxidation, microbial biogeography and integrons.

In late 1992 he went to the laboratory of Colin Murrell, University of Warwick, as a post-doctorate to study methane-oxidising bacteria and more specifically their role in the global methane cycle. Since numerous environments contained methane sinks that could not be attributed to cultivated bacteria most of this work focused on development of techniques to link molecular data to physiological processes independently of culture. Arguably their major successes were in developing probes based on genes encoding membrane-bound monooxygenases (pMMO and AMO). In collaboration with Niels Iversen and Peter Roslev (Aalborg, Denmark) they conducted one of the first studies to directly link isotopic tracers to molecular markers of a physiological process. This study demonstrated that novel high affinity methane-assimilating bacteria were responsible for atmospheric methane uptake by soils.

In late 1996 Andrew returned to Australia and joined Macquarie University as a research fellow and, in collaboration with Michael Gillings, established a group focused on microbial diversity. Much of their work was in collaboration with a large team of ecologists on a study of spatial heterogeneity of soil biota in Sturt National Park – with over 1500 soil samples analysed this was one of the largest microbial ecology studies of the time. A major outcome of this work was demonstration of the species-area relationship for microbes.

A natural offshoot of their microbial diversity interest was 'prospecting' for biotechnologically useful genes in natural environments, that involved a very productive collaboration with other researchers at Macquarie University including Hatch Stokes, Mike Gillings, Helena Nevalainen and Bridget Mabbutt. The initial impetus for this work was to identify the origins of gene cassettes encoding antibiotic resistance genes. Their studies have shown that integrons and gene cassettes are widespread in natural environments and contain unprecedented levels of genetic diversity. Andrew has carried this work forward to the



Andrew Holmes with Frank Fenner.

University of Sydney where his current interests are focused on development of integrons as a tool for directed evolution and exploring their role in bacterial speciation.

2007 Teachers Travel Award

Dr Kirsten Schliephake

Kirsten Schliephake's special interest in education is related to the application of microorganisms in food and industrial technology, including waste management and bioremediation. Building on this interest, she is engaging industry to support short- and medium-term science research projects. These projects look at aspects of a particular challenge to the industry and offer an additional incentive for students wishing to develop research capabilities and making industry contacts. She applied for the award as a new academic with commitment to a broadened teaching and learning program that engages industries and delivers outcomes that contribute to knowledge and assist in the development of further collaboration between industry and academia.



2007 Pfizer ASM Mycology Encouragement Award

Dr Jocelyne D'Souza-Basseal

Jocelyne D'Souza-Basseal is currently a post-doctoral fellow based at the University of Sydney and conducting a *Cryptococcus gattii* research project in collaboration with experts at the University of Sydney, the University of Technology and Westmead Hospital. The aim of her project is to use differential display proteomics to identify significantly up- or down-regulated proteins during animal infection, with the eventual plan of using these as novel drug targets.

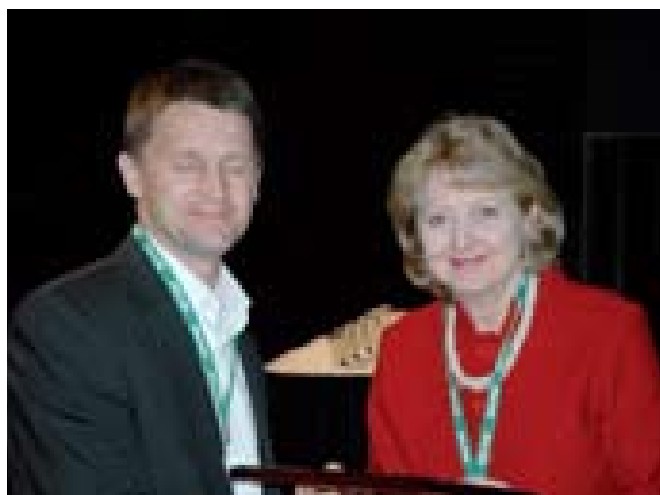


Prior to this appointment, Jocelyne has worked exclusively on bacterial pathogens, and only began her studies on fungi over the past nine months. In the past few months, she has made some exciting progress on the proteomics methodology, in particular the extraction of proteins from highly encapsulated *Cryptococcus gattii* strains. She presented the first report of a novel method to enhance protein extraction and the first whole proteome to be performed on *C. gattii*. This change in research direction, as well as discovering an entire new field of research has been exciting and challenging. Jocelyne has been a longtime member of the ASM, and is a current NSW ASM branch committee member. Attending and presenting her research at the 2007 ASM Annual Scientific Meeting with the support of the Pfizer ASM Mycology Encouragement Award, was a wonderful opportunity to establish a new network of research peers within the field of mycology.

2007 bioMerieux ASM Identifying Resistance Award

Associate Professor John Iredell

This award cites the recognition and characterisation of transmissible carbapenem resistance genes in Australia, and their implications in a clinical context. The issue is the



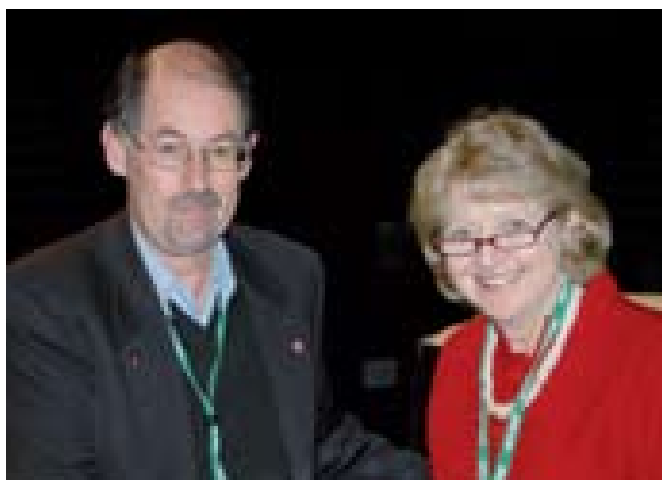
emergence of transmissible genes encoding serine proteases and metalloproteases in non-fermenting bacteria (e.g. *Acinetobacter baumannii*), and in the enterobacteriaceae over the last few years in Australian critical care services; and the analysis of their epidemiology and the clinical and laboratory implications. They are a major clinical problem, especially in the critically ill, and can be difficult to recognise in the diagnostic laboratory.

John Iredell has contributed to the ASM Antibiotic Susceptibility textbook (edited by John Merlino) and a number of articles in high impact journals on drug resistance and infectious disease profiling.

Distinguished Service Award

Professor Julian Rood

ASM past-president Prof Julian Rood from the Department of Microbiology at Monash University, was honoured by the society with a Distinguished Service Award. Julian has had a long history of service to the ASM, having been a member of three different state branch committees in addition to his more recent service on the national executive. He first joined the Victorian branch committee as a PhD student in the early 1970s and then served again as a committee member in the early 1990s. In the interim he served as a secretary of the ACT branch for two years in the late 1970s and then on the WA branch committee in the early 1980s. He was a member of the organising committee and joint publicity officer for an Annual Scientific Meeting held in Perth. In 1994 he was the scientific program chair for the Annual Scientific Meeting in Melbourne. More recently, about eight years ago he proposed what was then a radical reorganisation of the structure of the ASM, replacing the secretary and treasurer with a vice-president (scientific affairs) and a vice-president (corporate affairs) and proposing a divisional scientific structure headed by NSAC. With the strong support of the executive of the time, this proposal was adopted by the national council and then by the membership. Julian then was elected to the position of inaugural vice-president (scientific affairs) and chaired NSAC, which has been responsible for the reorganisation of the way the symposia are organised for the Annual Scientific Meeting. After



two years as vice-president, Julian was elected to the position of president-elect and served the society as president from 2004 to 2006. During his presidency ASM consolidated its organisational changes and increased its role in organisations such as FASTS and the National Committee for Biomedical Sciences and was more active politically, making submissions to government bodies on matters of concern to the profession. Julian has just completed his term as past-president and so has stood down from the ASM executive and national council, after six years of service to the society. The award was presented by ASM President Keryn Christiansen.

BD Student Awards 2007

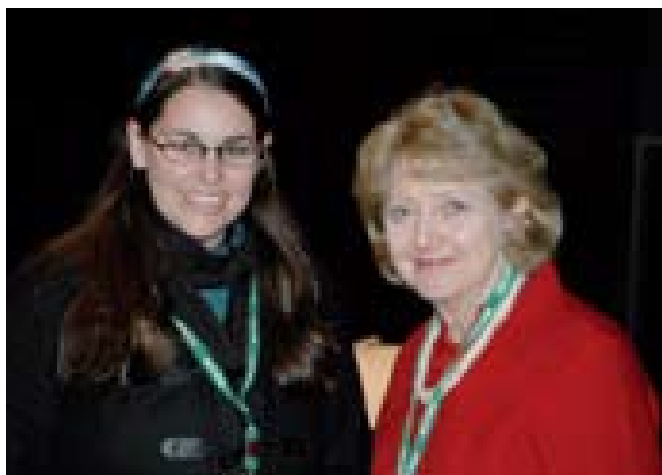
The annual competition for the BD Student Awards showcases the work being done by young Australian microbiologists. One award is available in each state to the best student presentation of their research work. The award covers the cost of attendance at the ASM annual conference, and winners presented their work at a special BD plenary session of the conference. This year's winners were presented with their awards by ASM President Keryn Christiansen.

New South Wales

Miss Phoebe Peters

University of Technology, Sydney

A cell-cycle regulated helical structure of *FtsZ* in *B. subtilis*.



Victoria

Mr Wilson Wong

Monash University, Clayton

A disulphide tethered occluding loop confers elastase-like activity on the subtilisin-like protease AprV2.

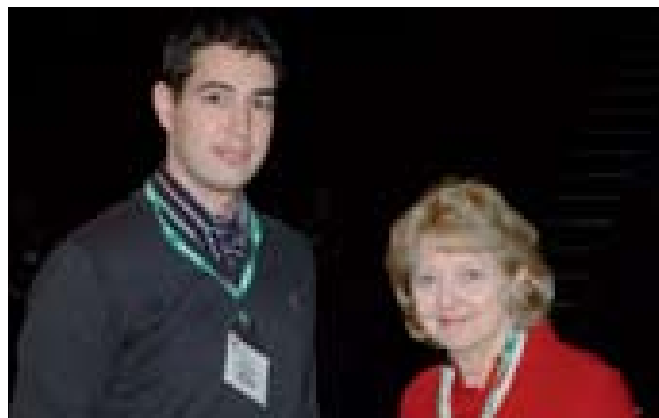


Queensland

Mr Luke Burrow

University of Queensland, St Lucia

Bioenergetic models for acetate and phosphate transport in bacteria important in enhanced biological phosphate removal.



South Australia

Mr Damien Chong

University of Adelaide, Adelaide

Intracellular trafficking of subtilase cytotoxin, a novel AB5 bacterial toxin that targets the endoplasmic reticulum chaperone, BiP.

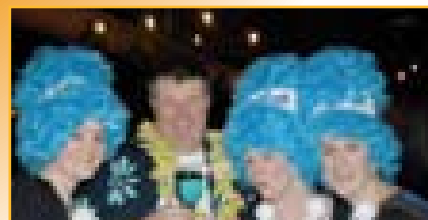
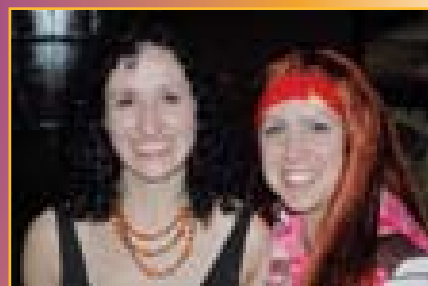
Rubbo Orator

Prof Robin Weiss with the Rubbo Orator's medal.



Microbiologists at work . . . and play

Photos courtesy of David Ellis



ASM **NEW MEMBERS**

NSW

Chow Wenn Yew
Quoc Vuong Tu
Zsuzsanna Kova'ch
Justin Ford
Aminul Islam
Kin Ming Tsui
Aidan Kerr
Kate Harriott
Sandra Morales
Maurizio Labbate
Larissa Beale
Tim Newsome
Neil Wilson
Cherie Lay
Karen Ka Yin Wong
SharonChow
Zin WaiNaing
AliciaSteller
ShahinOftadeh
Leonardo Bascur
Katherine Phan
Rebecca Rashid
Vicki Sifniotis
Joseph Sean Tierney
Vanessa Tyrrell
Virginia Post
Amy Cain
Jennifer Burrows
Kieda Watson
Lynelle Robyn Tilbrook
Michael Strauss
Ngoc Awh-Thu Phan
Amanda Cork
Cheryl Wallace
Zane Kerr
Rebekah Cooke

Candice Savell
Michelle Freame
Alecia Brazenall
Kym Whitlock
Erin Shanahan

NT

David Crowe
Rachael Lilliebridge
Rebecca Towers

QLD

Joanne Platell
Robyn Carter
Gabriel Padilla
Bradley Andrew Smith
Siyu Guo
Tanya Fraser
Daniel William Mitchell
Jessica Ewin
Angelita Lopez McKenzie
Nathan King
Mani Heck
Luke Allsopp
Rebecca Watts
Karen Riley
Andrew Wright

SA

Kelly Newton
Marcin Grabowicz
Sutthiwan Thammawat
Richard Lardner
Huey Chi Low
Faseeha Noordeen
Ramin Mazaheri Nezhad Fard
Nicholas Anagnostou

Matthias Maiwald
Nhu Luong
Tamira Clements
Luke Tscharke
Neville Gully
Mei Mei Hii
Jane Owens

TAS

Kellie Ollington

VIC

Hui Tat Chan
Donna Cowley
Assunta Pelosi
Nalin Wongkattiya
Zara Marland
Julian Vivian
Steven Tomlinson
Naomi Bishop
Margareta Aili
Suma Erancheryillam
Glen Carter
Radhika Bantwal
Emma Byres
Meabh Cullinane
Helen Cain
Rebecca Orth
Helen Mitchell
Ruth Tesdorp
Catherine Cheng
Kate Mackin
Deanne Catmull
Lauren Stevenson
Paola Vaz
Nicholas Tobias
Sacha Pidot

Andy Allen
Deanna Suzanne Deveson
Khalid Mahmood
Jessica Porter
Carlos Rosado
Jessica Phillipps
Shauna Lyons-Schinder
Michelle Dunstone
Ellen Higginson
Aimee Tan
Yogita Garyali
Jega Iswaran
Rebecca Joyce
Brendan McKenzie-McHarg
Corrine Porter

WA

Sarah Potten
Joanne Alvisse
Anita Coombs
Rachel Bench
Brad Strachan

INTERNATIONAL

CHINA

Ka Ho Lai
Yiu Wai Chu

NEW ZEALAND

Michelle Parfett
Rosemary Greenlees
Naomi Runnegar
Aditya Kesarcodi-Watson

USA

Chandra Iyer

Congratulations to the new Fellows of ASM

TuckWeng Kok, IMVS, SA
Daimien Stark, St Vincent Hospital, NSW
Martin Laxton, St Vincent Hospital, NSW

Michael Frese, University of Canberra, ACT
Wayne Monaghan, Princess Alexandra Hospital, QLD



The ASM – ASM Postgraduate Travel Award

Applications are invited from Australian Society for Microbiology student members for the ASM – ASM Postgraduate Travel Award. This is a new award negotiated between the American and Australian Societies for Microbiology that allows for the reciprocal exchange of one student member each year to visit the national conference of the other society and to visit the research lab of a researcher in that country. The aims of this scheme include the desire to:

.... strengthen a long lasting bond between the American and Australian Societies for Microbiology and is designed to benefit PhD students in both countries by giving them the opportunity of travelling overseas to present their work and experience the best of microbiology in the partner country.

With regard to the award for 2008, the successful applicant from Australia will be invited to submit an abstract to make a presentation (oral or poster) at the 108th General meeting of ASM (USA) to be held in Boston on 1 – 5 June 2008. The successful applicant will also have negotiated an agreement to visit the research laboratory of a USA scientist in the period either immediately before or immediately after the general meeting of ASM (USA). ASM (Aus) will pay for return economy airfares between Australia and the USA and any necessary internal connecting flights, as well as a per diem living allowance for up to 14 days to a maximum limit of \$6,500. ASM (USA) will waive the meeting registration fee for the successful applicant. Success of the award will also be conditional on ASM (USA) accepting the submitted abstract for some form of presentation.

The award will be made on merit and will be determined by a sub-committee of the National Scientific Advisory Committee (NSAC). To be eligible, applicants must be student members of the Australian Society for Microbiology and be enrolled in a PhD program at an Australian university. Applications should include a brief CV and a maximum one page synopsis of their research. This synopsis should also include details of the research and/or educational activities that will be conducted at the laboratory to be visited, the applicants stage of PhD candidature and tentative submission date. The successful applicant will also need to provide evidence of an active or emerging research collaboration between the student's supervisor and that of the research group to be visited in the USA. Such evidence may include recent or current joint grants, joint publications or a statement from the PhD supervisor that joint research opportunities are emerging. In any event, the application must include an invitation from the USA host institution agreeing to a visit at a suitable time.

Applications should be submitted electronically to the ASM National Office by **close of business on 1 October 2007**. The email address is: admin@theasm.com.au. The subject line should state 'ASM – ASM Postgraduate Travel Award'. Further information on the award can be obtained from Hatch Stokes (hstokes@cbms.mq.edu.au).

MICRO-FACT

Free-living diazotrophic microbes fix atmospheric nitrogen and contribute to the global terrestrial N cycle.

ASM SUSTAINING MEMBERS

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Diagnostics – Australia

International yeast conference report

The world's best microbe ...

Leading scientists were attracted to Melbourne in July 2007, when the Australian Yeast Group (AYG) hosted the 23rd International Conference on Yeast Genetics and Molecular Biology (ICYGMB). Key yeast researchers attended from 40 countries, with the most represented, after Australia with 110 registrants, being the USA, Japan and South Korea. In all there were 450 registrants accompanied by a further 16 individuals, many visiting Australia for the first time. The visitors were greatly impressed by the Melbourne Convention Centre and the friendliness of the conference and its hosts. The main event of the social program was the conference dinner and dance at the Melbourne Aquarium – an incredibly good evening.

The 23rd ICYGMB was five years in the planning and was a high point for the AYG, which had its first meeting seven years earlier. AYG members have been regular attendees at many of the previous twenty-two ICYGMB meetings, twenty-one of which have been held in the Northern Hemisphere. There was a strong desire to showcase Australian yeast research and to bring ICYGMB to Australia.

The major sponsor, the Victorian State Government, backed the conference with strong support through the Department of Industry, Innovation and Regional Development. Victorian Parliamentary Secretary Mr Tony Lupton, opened the conference and highlighted Melbourne's great history with yeast, including the story of Vegemite production, which is linked to the re-use of yeast from Carlton and United Breweries.

Conference topics ranged from all aspects of basic research to the application of yeast in beer, wine, fuel and food production, to yeast as a pathogen. A constant theme of yeast research nowadays is the translation of yeast research into human benefits; after all yeast is a model eukaryote and is well established in biotechnology. Therefore, an underlying focus of the conference was the application to human welfare. Newspaper headlines

reporting the conference included 'Yeast conference focuses on people' and 'Cure rises in the yeast'. The work of Nobel Laureate Sir Paul Nurse is an example of the application of yeast molecular biology to understanding the development of human cancer.

'Cancer treatment innovations – how studying yeast can help', along with other yeast advances, was featured during the final conference day. The session, held at the Melbourne Town Hall was open to the public, as part of *Melbourne Conversations* and the *Alfred Deakin Innovation Lecture series*. Sir Gus Nossal chaired the forum, which included three panellists. President of Rockefeller University Sir Paul Nurse spoke on 'What is cancer?' Ian Macreadie (your author) spoke about liver and cervical cancer preventatives (hepatitis B vaccines and Gardasil) and mentioned the CSIRO's current activities using yeast as a model for Alzheimer's disease. Founder and Vice President of Globe Immune Dr Alex Franzusoff introduced new therapeutic approaches to cancer through stimulation of cell-mediated immunity using whole yeast-containing recombinant antigens – interestingly, Globe Immune produced these antigens with a yeast expression system I developed at CSIRO with my colleagues. Sir Gus then opened the session to numerous and lively audience questions addressed to the panel.

It is likely that Australian yeast research may never be the same. AYG members made many new contacts and exposed their capabilities like never before. In addition, all registrants received the May issue of *Microbiology Australia* with the theme 'Yeast Products and Discovery', reviewing Australian yeast research. Regionally it appears that our New Zealand and Singaporean neighbours will keep closer contact with the AYG and its meetings. In addition, on the world scene the AYG members are further recognised as competent, world-class and pleasant to work with. Feedback from students presenting their work at the ICYGMB was that the experience was greatly helpful and very stimulating. Strong student subsidies, around 60% off regular registration, meant that 157 students attended with many presenting their work.

The Australian Yeast Group thanks ASM for providing generous support for the ICYGMB.

Ian Macreadie (Chair of 23rd ICYGMB).

The Australian Yeast Group has highly diverse interests in yeast. As well as interests in yeast biology, the group have interests in yeast biotechnology, yeast as models, and the understanding of yeast pathogens. The AYG is affiliated with the Mycology Special Interest Group of the ASM.



Prof Ian Macreadie, Dr Takehiko Yoko-o, Dr Miwa Tanaka, Sir Paul Nurse, Dr Tomoo Ogata, Dr Alex Franzusoff

Meetings

Contributions listing relevant meetings are welcome. Please send to: editor@theasm.com.au

2007

7 – 10 September
Cairns Convention Centre
Cairns, Queensland

13th International Symposium on Staphylococci and Staphylococcal Infections

Conference Chair: Graeme Nimmo
 Email: iss2008@icms.com.au Website: www.iss2008.com
 Hosted by Australian Society for Antimicrobials with collaboration from ASM.

23 – 26 September
Mantra Erskine Beach Resort
Lorne, Victoria

BacPath9 – The molecular biology of bacterial pathogens Microbiology goes to Lorne!

Ever been jealous of those biochemists trotting off to Lorne every year? Well here is your big chance to see what all the fuss is about. The Great Ocean Road, here we come! Bacpath is a biennial ASM-sponsored conference that aims to encourage, facilitate and advance Australian research in the fields of bacterial pathogenesis and host-pathogen interactions.
 Conference Chair: Julian Rood. Contact: miin@med.monash.edu.au
 Website: <http://www.miin.monash.org/bacpath9.html>

7 – 11 October
Dunk Island, Queensland

5th International Workshop on Antigen Processing & Presentation

Organising Committee: Jose Villadangos, Bill Heath, Jim McCluskey. Conference Management: ASN Events Pty Ltd
 Tel: +61 3 5983 2400
 Website: www.antigenpresentation2007.org
Confirmed speakers include:
 Kwansoog Ahn, Sebastian Amigorena, Facundo Batista, Frank Carbone, Vincenzo Cerundolo, Peter Cresswell, Laurence Eisenlohr, Gunter Hammerling, Bill Heath, Ann Hill, Max Krummel, Jean Langhorne, Eugene Maraskovsky, Jim McCluskey, Betsy Mellins, Ira Mellman, Chris Norbury, Hidde Ploegh, Ken Rock, Jamie Rossjohn, Andrea Sant, Nilab Shastri, Ken Shortman, Jon Sprent, Emil Unanue, Peter van Endert, Jose Villadangos, Colin Watts and Jon Yewdell. Furthermore, to commemorate the 20th anniversary of the publication of the crystal structure of HLA-A2, this year the meeting will have Jack Strominger as ASI-sponsored Keynote Speaker.

12 October

Molecular Microbiology Young Microbiologists Minisymposium: Prokaryotic Membranes

Jacques Monod Amphithéâtre; Institut Pasteur,
 25 rue du Dr Roux, Paris 15 [Limited to 120 registrants]
 Contact: Tony Pugsley, Molecular Microbiology Office,
 Institut Pasteur, Paris, France
 Email: molecularmicrobiology@yahoo.co.uk

21 – 23 October
The Walter and Eliza Hall Institute of Medical Research,
Parkville, Melbourne

On 21 October, it will be the 50th anniversary of the publication of the concept of clonal selection in the *Australian Journal of Science* by Nobel Laureate and first Australian of the Year, Sir Macfarlane Burnet. It is no exaggeration to suggest that these two pages, written over a weekend, and published in an obscure society journal, changed immunology forever. The incredible impact of this paper on national and international science is worth celebrating as an exemplar of the immense power of one idea to change our world. To mark this event, the Immunology Division at The Walter and Eliza Hall Institute of Medical Research, under the patronage of Professor Emeritus Sir Gustav Nossal and Professor Suzanne Cory, invites you to a unique celebratory three-day conference from 21 – 23

October. Our meeting will follow the sequence of ideas in the paper, contrasting historical perspectives with up-to-date results in scientific areas envisioned for the first time in Burnet's paper and vision. The meeting will feature luminaries of immunology past and present. Stars of early immunology include Sir Gustav Nossal, Gordon Ada, Frank Fenner, Jacques Miller, Graham Mitchell and Ian Mackay. The stars of today include Chris Goodnow, Len Harrison, Charles Mackay, Polly Matzinger, Tim Mosmann, Michael Neuberger, Chris Parish, Jonathan Sprent, Australian of the Year Ian Frazer and Nobel Laureates Peter Doherty and Rolf Zinkernagel.
 Website: <http://www.wehi.edu.au/burnetconference>
 Organiser: Andrew Lew

2 – 3 November
Hamilton Island, Queensland
Mycology MasterClass III
The Immunocompromised Patient

Exclusive advanced class in medical mycology designed for specialists and trainees in infectious diseases, microbiology, haematology and intensive care medicine and for laboratory scientists/specialists specialising in medical mycology.
 Chair: David Ellis
 Email: david.h.ellis@adelaide.edu.au
 Conference Manager: Janette Sofronidis
 Australian Society for Microbiology, Conference Management
 Tel: (03) 9867 8699
 Email: janette@theasm.com.au Web: www.mycologymasterclass.org

9 – 13 December
Fraser Island, Queensland
4th Australian Virology Group (AVG4) Meeting

Organised by the Virology Special Interest Group and particularly aimed at post-graduate students and post-doctoral scientists.

Professor Richard Kuhn from Purdue University, USA will present a number of talks during the meeting. He will contribute to the judging of poster and oral presentations for awards, and participate in a Meet the Professors lunch especially set up for, and restricted to, our post-graduate students.
 Website: www.avg.org.au

2008

6 – 10 July 2008
Melbourne Convention Centre VIC
ASM 2008 Melbourne
Annual Scientific Meeting of the ASM

Chair: Sue Cornish
 Conference Management: Australian Society for Microbiology
 Janette Sofronidis, Conference Manager
 Tel: (03) 9867 8699
 Email: janette@theasm.com.au Website: www.asm2008.org

Confirmed speakers include:
 Prof Jay Hinton, Dr Gopinath Balakrish Nair, Dr Liliane Grangeot-Keros, Prof Terri Camesano, Ms Lynne Garcia, Prof Malic Peiris, Prof Stephen Goff, Prof Craig Roy, Prof Tony Pugsley, Prof Alan Cowman (Rubbo Orator).

17 – 22 August
Cairns Convention Centre, Cairns, Queensland
ISME12

Microbial Diversity – Sustaining the Blue Planet

Website: http://www.microbes.org/symposia_future.asp
 Email: blackall@awmc.uq.edu.au

12 – 13 September 2008
Crowne Plaza Hotel, Alice Springs NT
TriState 2008

Conference Management: Australian Society for Microbiology
 Tel: (03) 9867 8699
 Stay tuned for website, registration and program details.

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Division 3

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Rapid Methods

Vacant

Students

Vacant

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