

# THE AUSTRALIAN SOCIETY FOR MICROBIOLOGY

## WESTERN AUSTRALIA BRANCH NEWSLETTER

May-June 2006



### Upcoming Events

*Please put these dates in your diary...*

**Tuesday 13<sup>th</sup> June 2006**

*TGA Workshop*

Bruce Hunt Lecture Theatre

Royal Perth Hospital

Click [here](#) to download poster

**25<sup>th</sup> July 2006**

*Bacterial Vaginosis Workshop*

University Club of Western Australia

Time to be advised

**8<sup>th</sup> August 2006**

*Student Careers Night*

FJ Clarke Lecture Theatre

P Block, QEII Medical Centre, UWA

For queries, click [here](#)

**18<sup>th</sup> August 2006**

*Combined Biological Sciences Meeting*

University Club of Western Australia

<http://www.cbsm.uwa.edu.au/welcome>

**Tuesday 22<sup>nd</sup> August 2006**

*ASM-WA Annual General Meeting*

Guest Speaker: Keryn Christiansen

Refreshments from 5pm, AGM at 5.30pm

Mary Lockett Lecture Theatre

P Block, QEII Medical Centre, UWA

**19<sup>th</sup> September 2006**

*Quiz Night*

Details to be advised

**16<sup>th</sup> - 19<sup>th</sup> October 2006**

*NRL Workshop on Serology*

Melbourne

Visit the website for more details:

[www.nrl.gov.au](http://www.nrl.gov.au) or email Linda Tracey

([Linda@nrl.gov.au](mailto:Linda@nrl.gov.au))

**Saturday, 21<sup>st</sup> October 2006**

*Identification of Difficult Organisms Workshop*

Dr Marion Yuen

For details, click [here](#)

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### Attention: Clinical Microbiologists and Microbiology Registrars

*Dr Marion Yuen from the Centre for Infectious  
Diseases and Microbiology, University of Sydney will  
be presenting a workshop on*

### *Phenotypic Identification of Difficult Organisms*

*On*

*Saturday, 21<sup>st</sup> October 2006*

*A limited number of places are available  
Expressions of interest are sought, and may be  
directed to Suellen Blackaby via email at:  
[suellen@blackabydiagnostics.com.au](mailto:suellen@blackabydiagnostics.com.au)*

*For more details contact Suellen by phone on  
9299 -6128*

## *Salmonella & Listeria – A* Report on Recent Outbreaks

By Lyn O'Reilly

Medical Scientist

Molecular Typing Laboratory, PathWest

In mid November 2005 the Enteric laboratory at PathWest noticed that there were more *Salmonella* Oranienburg isolations from faecal specimens than was usual. Historically about five to twelve per year are isolated, however 20 cases occurred in a period of a fortnight. Molecular typing by pulse field gel electrophoresis (PFGE) showed that these isolates generated DNA patterns that were indistinguishable. As there was only one other clinical isolate of *S.Oranienburg* on the PFGE database it was necessary to first establish that this serovar did generate different DNA patterns. The Enteric laboratory retains *Salmonella* isolates for approximately one year so *S. Oranienburg* isolates from earlier in the year were typed by PFGE and the Molecular Typing laboratory was able to establish that previous clinical isolates did indeed have different patterns. This showed that the recent isolations were probably a cluster arising from a single source.

In conjunction with the Food Hygiene laboratory we were able to look at five previous *S.Oranienburg* isolations from food or water sources and established that they all generated patterns that were different from the clinical cluster. Over the next few months clinical and food isolates of *S Oranienburg* were typed by PFGE to ascertain that the same clinical strain was causing disease and to look for the food source of this particular strain. During this time approximately 10 new cases were occurring every week. A case control study performed by the epidemiologists at the Communicable Disease Control Directorate of the Department of Health revealed that these patients had more exposure to alfalfa sprouts than the control group. *S.Oranienburg* was subsequently found in a particular brand of alfalfa that was



### ASM WA Annual General Meeting

*Tuesday, 22<sup>nd</sup> August 2006*  
*Refreshments from 5pm, meeting starts at 5.30pm*

*Special Guest Speaker:*

*Associate Professor Keryn Christiansen,  
President ASM*

*Please note the new venue:*

*Mary Lockett Lecture Theatre  
P Block, QEII Medical Centre, UWA  
Nedlands*

distributed by several big chain supermarkets. The PFGE patterns of isolates from alfalfa sprouts from stores and the production facility were indistinguishable from the clinical isolates of *S. Oranienburg*. The product was recalled from the market. A media statement warning the public of the potential hazard was released and covered well by television, radio and newspapers. Subsequently assistance has been given to the manufacturer to find the source of the contamination and to ensure it does not recur.

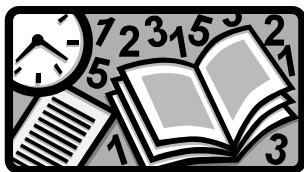
In March and early April 2006, eight cases of Listeriosis occurred in Western Australia. This

*Continued on page 3*

**Salmonella & Listeria report from page 2**

cluster occurred simultaneously with a cluster of cases in the Eastern States and a recall of a certain brand of cheese contaminated with *Listeria monocytogenes*. Listeriosis is a serious disease that affects the elderly, the immunocompromised and neonates. It has approximately a 25% mortality rate. *L.monocytogenes* can cross the placenta, cause abortion, stillbirth or congenital abnormalities. PFGE established that there was one cluster of two and one cluster of three isolates among the eight isolates in WA. The remainder of the isolates exhibited different DNA patterns. Isolates from the Eastern States cluster were received at PathWest but typing revealed no commonality with any of the DNA patterns seen in the recent clinical isolates from Western Australia. No isolate from the recalled cheese product was available. As there appeared to be no single source of contamination a general warning was issued to the public that groups at risk of contracting listeriosis should avoid high-risk foods. The cluster of three isolates from WA had DNA patterns indistinguishable from an isolate of *L.monocytogenes* in a cold meat product produced by a local smallgoods manufacturer. Environmental health officers are currently following up on this lead.

Further information can be obtained by contacting Lyn by email: [lyn.o'reilly@health.wa.gov.au](mailto:lyn.o'reilly@health.wa.gov.au)

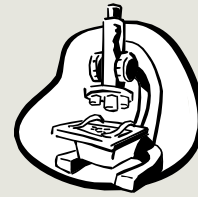


**It's on Again!**

**Get your team together for the  
2006 Quiz Night**

**19<sup>th</sup> September 2006**

**Details will be advised closer to the  
time**



### **Good Clinical Practice For Clinical Research Professionals Course**

*This course is an intensive training course designed to boost knowledge and understanding of good clinical practice (GCP) and regulations and guidelines such as the TGA Regulations, NHMRC National Statement, FDA Code of Federal Regulations (CFR), the European Directives, and the International Conference on Harmonisation (ICH).*

*This course will enhance participants' performance in Clinical trials by learning the intrinsic researchers' responsibilities to ensure essential patient safety, well-being and protection of rights. This will lead to a reduction in operational risks and data queries and therefore better quality studies. Moreover, TGA and NHMRC require compliance to ICH standards for all research.*

#### **Who should attend?**

*Clinical research physicians, investigators, study coordinators, or other members of the study team who either have had less than 2 years experience in clinical trials or who require a refresher course.*

#### **The program will cover:**

- Overview of GCP
- Research development process
- Clinical trial processes
- Tools and resources for conducting clinical trials.
- National and International Regulatory standards

#### **Course details**

*The next course will be run on 17-18 July 2006, and courses also run periodically throughout the year*

*Time: 8.30am to 5.30pm*

*Venue: The Alfred Medical Research Education Precinct,*

*Commercial Rd, Melbourne*

*Cost: \$675 including GST*

#### **Need to know more?**

*Click [here](#) for course details and expressions of interest in future courses or email Vanessa Hannay [vanessa.hannay@clinetserv.com](mailto:vanessa.hannay@clinetserv.com) for more information*

## BD Travel Award Winner

Congratulations to Chelsea Papadopoulos, a PhD student in the Tea Tree Oil Research Group at UWA, who has received the BD Travel Award to attend the ASM National Conference at the Gold Coast in July. Chelsea will be presenting her ASM talk to WA members later in the year, and her winning abstract is presented here.

### **The Outer Membrane Core Lipopolysaccharide of *Pseudomonas aeruginosa* is associated with Tolerance to Tea Tree Oil and components.**

*Melaleuca alternifolia* (tea tree) oil is an established topical antimicrobial agent with broad spectrum activity. *Pseudomonas aeruginosa* is less susceptible than most bacterial species to the oil, with MICs ranging from 1–8%, compared with <0.5% for other Gram negative bacteria. The outer membrane of Gram negative organisms is traditionally considered the principle defence against antimicrobial agents, and is known to protect *P. aeruginosa* from the antimicrobial action of tea tree oil (TTO) and its components. However, the specific components of the outer membrane that are important for this protection, such as Porins or constituents of the lipopolysaccharide (LPS) layer, had not been previously determined. A series of well characterized rough mutants of *P. aeruginosa*, with variations in production of the LPS core and A-band and/or B-band O-antigens, was obtained. The susceptibility of these mutants to TTO and terpinen-4-ol, its major active component, was examined using time-kill assays and by determining MICs and MBCs. The absence of O-antigen did not affect susceptibility, however when the core was truncated the organism became statistically significantly more susceptible to TTO and the components terpinen-4-ol, alpha-terpineol and cineole. In the case of alpha-terpineol there was a 32-fold increase in susceptibility. In time-kill assays, treatment with 0.125% terpinen-4-ol had no effect on the viability of *P. aeruginosa* PAO1, but caused a dramatic reduction in the viability of the rough mutant PAO1rmIC after two hours, with a 2.5 log decrease. Similarly, treatment with 4% TTO caused a two log

decrease in viability over 2 hours in the wild-type strains, however it took only 0.06% TTO to cause a 3.5 log reduction in the rough mutants after 45 minutes. This work has shown the importance of a complete LPS core in the protection of *P. aeruginosa* from the antimicrobial activity of TTO and its components.

More information about the Tea Tree Oil Research Group can be found at:

[www.meddent.uwa.edu.au/teatree](http://www.meddent.uwa.edu.au/teatree)



Congratulations to Dr Nicky Buller, a Senior Microbiologist in the Animal Health Laboratories, Department of Agriculture, Perth who was recently awarded her PhD. Dr Buller's thesis was titled: Molecular epidemiology, clonality and virulence of *Dichelobacter nodosus*, the agent of ovine footrot.

In the thesis, DNA fingerprinting methods (Pulsed Field Gel Electrophoresis and Infrequent Restriction Site-PCR) were developed to study the molecular epidemiology of *Dichelobacter nodosus*, the causative agent of footrot in sheep. Analysis was conducted on 735 bacterial isolates. The findings identified clonal or similar groups within the strains, but indicated that the bacterium has a high rate of genetic diversity. These methods are now in use to aid in tracebacks of outbreaks of the disease on farms in WA, and will assist with the eradication of this disease in WA.

For more information, contact Dr Buller by email at [nbuller@agric.wa.gov.au](mailto:nbuller@agric.wa.gov.au)

## ASM WA Branch Committee

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*Our website is being redeveloped*

*Members will be notified of the new address  
when it is available*

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