SYNTROPHY

Volume 10

Issue 1: 2009

The Australian Society for Microbiology Incorporated NSW ACT Branch Newsletter (ABN 52 360 314 588)

Upcoming event

Combined ASM/ASA Meeting – Overseas speaker Dr Stephan Harbarth

Date: Monday 2nd March 2009

Time: 6.00-7.00pm Drinks and food; 7.00-8.00pm Meeting

Venue: Douglass Hanly Moir Pathology, 14 Giffnock Avenue, Macquarie Park

Contact: Kerry Varettas (02) 9113 3325 or email Kerry.Varettas@sesiahs.health.nsw.gov.au

Please note the following deadline for submissions to Syntrophy Volume 10:2:2009 **closes 19th March 2009**. Email all contributions, as well as any suggestions or comments, to the Administrative Officer, Natasha Pavic, at natashapavic@hotmail.com.

Syntrophy is distributed to members via details recorded on the branch and national office database. Print copies are available upon request.

Editorial board: Syntrophy is produced via the combined efforts of Natasha Pavic and the committee. The editorial is rotated amongst the editorial board members. The board members solicit the lead articles.

In this issue

From the Editor

Welcome to 2009. We have started the year with a meeting presented by Professor Lyn Gilbert and held at Bicentennial Park at Olympic Park (report by Kerry Varettas in this issue) and our next meeting in conjunction with the Australian Society of Antimicrobials is visiting speaker Dr Stephan Harbarth and the topic will be MRSA Control and if we need universal screening. Stephan Harbarth, M.D., M.S. is a senior registrar and senior lecturer and attending in infectious diseases and associate hospital epidemiologist at the University of Geneva Hospitals and Medical School, Geneva, Switzerland.

If you are a Facebook user, our branch of ASM is now on Facebook courtesy of committee member Bruce Wong.

Microbes in the news always has something bizarre, different or controversial. We have a story of bacteriologists stepping up and claiming the majority of deaths in the 1918 influenza pandemic were caused by Strep pneumoniae..... a valid argument indeed given the lack of antibiotics at the time!

Nestor Solis and Stuart Cordwell present the focus report on *S aureus* 'cell shaving' to identify surface exposed proteins with a longer view to antimicrobial development. How many peptides from mecA did they uncover using cell surface shaving?

We have reports from the Christmas Virology SIG meeting at which Professor Cossart presented on "Parvovirus, Hepatitis B virus and me: unfinished business".

Note the news of an alliance with AACB and AIMS and a conference to be held in July at the Mantra Ettalong Beach (Central Coast of NSW). This could prove popular with those not planning to travel to Western Australia this year as the venue is closer to Sydney and the registration costs will also be kept to a minimum.

Focus

Identification of surface-exposed proteins from Staphylococcus aureus by cell 'shaving' proteomics **By Nestor Solis & Stuart J. Cordwell**

Staphylococcus aureus is a Gram positive opportunistic pathogen responsible for a large number of nosocomial and community-acquired infections. These diseases range from minor skin infections to fatal conditions such as septicemia, endocarditis and bacteremia. Resistance to virtually all classes of antibiotics is a trademark feature of this organism and as such there is a need to develop new drugs, vaccines and screening methodologies that could be used in preventing disease.

The surface proteome of an organism is strictly defined as proteins entirely exposed on, or with regions exposed to, the external environment. As such, it should provide a rich reservoir of components that may be antigenic stimuli for the host and with the potential for providing novel vaccination strategies. Surface-exposed proteins are also significant in mediating other host-pathogen interactions, such as adhesion and colonization, signaling, and nutrient transport. Unfortunately, however, the study of this proteome by classical gel-based proteomics has proven a thankless task due to the generally poor solubility of hydrophobic proteins and those with more than three transmembrane-spanning regions [1].

Continued on page 11

On the Fly

The Australian Society for Microbiology Incorporated
NSW-ACT Branch Broadsheet
(ABN 52 360 314 588)

OVERSEAS SPEAKER – MONDAY 2ND MARCH 2009
Combined ASM / ASA Meeting

Dr Stephan Harbarth
"MRSA control -- do we need universal screening?"

Stephan Harbarth from the University of Geneva in Switzerland, has research interests focused on the epidemiology and prevention of antibiotic-resistant healthcare-associated infections. In particular, his studies on the impact and control of nosocomial MRSA transmission have increased our understanding of the epidemiology of MRSA and improved our ability to combat this micro-organism. Other important contributions to the field of antibiotic resistance, which had an impact on policy making, are his research on the adverse effects of prolonged antibiotic prophylaxis after surgery and on the ecologic bias associated with group-level data analyses of antibiotic-use-versus-resistance relationships as well as several well-conducted intervention studies. Complementary research interests include the molecular epidemiology of emerging pathogens such as community-acquired MRSA, the pharmaco-epidemiology of antibiotic use (including international analyses of macro-level determinants of antibiotic overuse), and improved and rapid diagnosis of severe infections in critically ill patients.

VENUE: DOUGLASS HANLY MOIR PATHOLOGY,
14 GIFFNOCK AVENUE, MACQUARIE PARK
DATE: MONDAY 2ND MARCH 2009
TIME: DRINKS AND FOOD FROM 6:00 – 7:00pm
MEETING FROM 7:00 – 8:00pm
COST: FREE
RSVP: ASM NSW-ACT Branch Secretary Kerry Varettas
Email: Kerry.Varettas@sesiahs.health.nsw.gov.au
Phone: (02) 9113 3325

Attention Postgrads!

Thanks to Becton Dickinson and ASM NSW-ACT Branch, you could

with
The Becton Dickinson Award

Award includes:

- Registration fees for the ASM Annual Scientific Meeting 2009
- Budget travel to attend the ASM Annual Scientific Meeting 2009
- Accommodation allowance (up to $50 per day)

BD Helping all people live healthy lives

Criteria:

- An exact copy of their conference abstract, as already submitted to the ASM Annual Scientific Meeting organisers.
- A summary of the intended presentation. This should expand on the brief conference abstract, and MUST include the subheadings AIM (including introduction), METHODS, RESULTS, and DISCUSSION (including conclusions). It should be no larger than two A4 pages, font size 12, approximately 1000 words.
- The recipient of the Award will be selected on the basis of an oral presentation (12 minutes + 3 minutes questions), to be given at the Becton Dickinson Student Award presentation evening.
- All Finalists will be required to write a brief 1 page report on their project (approx. 600 words). The report should be submitted no later than 4 weeks after the conference end date for publication in the ASM NSW-ACT Branch newsletter 'Syntrophy'.

Eligibility: All postgraduate Microbiology students who have submitted an abstract for the ASM Annual Scientific Meeting.

Membership Status: Student. If not currently a student member of ASM, applicants must be eligible for membership and apply for membership at time of application for award.

Closing date: Friday 6th March 2009
(Finalists will be notified by Friday 13th March)

Presentation/Judging Night: Wednesday 25th March 2009
VENUE: UTS CITY SCIENCE BLDG 4 LEVEL 5 Rm 5.01
TIME: 6:00pm start

NOTE: ALL APPLICATIONS WILL BE REVIEWED AFTER THE CLOSING DATE. ONLY THOSE APPLICANTS SELECTED AND NOTIFIED AS FINALISTS WILL BE PRESENTING ON THE PRESENTATION/JUDGING NIGHT. THE RECIPIENT OF THE AWARD WILL BE SELECTED ON THE PRESENTATION/JUDGING NIGHT.

To send applications or for further information on this award please contact:
Kerry Varettas - ASM NSW-ACT Branch Secretary
Email Kerry.Varettas@sesiahs.health.nsw.gov.au
Phone: (02) 9113 3325

Dates for your Diary

Monday 2nd March 2009

Combined ASM/ASA Meeting

Overseas speaker: Dr Stephan Harbath
University of Geneva

"MRSA control – do we need universal screening?"

VENUE: Douglass Hanly Moir Pathology,
14 Giffnock Avenue, Macquarie Park
TIME: Drinks and food from 6.00-7.00pm;
meeting from 7.00-8.00pm
COST: Free
RSVP: Kerry Varettas
Kerry.Varettas@sesiahs.health.nsw.gov.au
Phone: (02) 9113 3325

Friday 6th March 2009

Annual Parasitology Meeting

Joint meeting of the ASM Parasitology and Tropical Medicine SIG and the ACTM Standing Committee on Medical Parasitology and Zoonoses

VENUE: University of Tasmania Clinical School, Royal Hobart Hospital, 43 Collins Street, Hobart

PLUS

Saturday 7th March 2009

Parasitology Master Class and Basic Class Workshops

Clinical and scientific reviews of common and exotic infections, new developments and practical workshops in intestinal, tissue and blood parasitology for all levels of knowledge

For further information, please go to the ASM or ACTM web sites:

www.theasm.com.au
www.tropmed.org

or contact:

Harsha Sheorey *Harsha.SHEOREY@svhm.org.au*
Richard Bradbury *rbradbur@utas.edu.au*
Andrew Butcher *andrew.butcher@imvs.sa.gov.au*

Wednesday 11th March 2009

CS&M SIG Meeting

"Hepatitis B"

Speakers:

Gaurav Tandon, Scientific Affairs Manager, Abbott Diagnostics
"The Role of Quantitative Hepatitis B in the Natural History and Management of Chronic Hepatitis B"
Mark Douglas, Infectious Diseases Physician/Virologist, Blacktown Hospital, Senior Lecturer, Uni of Sydney
"New treatments for Hepatitis B – Where are we now?"
John Burnside, Product Manager – Virology Molecular Diagnostics, Roche Diagnostics
"Quantitative HBV testing and PCR"

VENUE: Symbion Laverty Pathology, 60 Waterloo Road, North Ryde. Ample parking on site.
TIME: 6.00 Light refreshments; 6.30-8.00pm Talks
RSVP: Deane Byers on (02) 9779 5915
or email sqap@rcpaqap.com.au

Tuesday 24th March 2009

Virology SIG Meeting

Speaker: Dr Nitin Saksena, Head of the Retroviral Genetics Research Group, Westmead Millennium Institute

"How HIV evolutionary patterns lead to therapeutic clues"

Dr Nitin Saksena has been working on HIV evolution and diversity, as well as other aspects of HIV biology, for many years, and this should be a very interesting talk

VENUE: Edmund Blackett Building Function Room, Prince of Wales Hospital
TIME: 6.30pm for a light dinner; talks to follow at 7.00pm
RSVP: Gillian Scott Gillian.Scott@sesiahs.health.nsw.gov.au

Wednesday 25th March 2009

Becton Dickinson Student Award Presentation/Judging Night

VENUE: UTS City Science Building 4, Level 5, Room 5.01
TIME: 6.00pm start

Dates for your Diary

30th April – 2nd May 2009

Molecular Diagnostics for Infectious Diseases Workshop

Lowenthal Auditorium,
Westmead Hospital, Sydney

Centre for Infectious Disease and Microbiology at Westmead Hospital

invites clinicians, scientists, laboratory managers and public health practitioners to their annual Workshop "Molecular Diagnostics for Infectious Diseases"

The theme of this year is DNA sequence-based identification and genotyping of pathogens and genotyping. Program includes lectures (100 places) and lab demonstrations (30 places) and covers:

* Molecular diagnostics for infectious disease management and surveillance
* Laboratory management in the era of genomic microbiology
* Infectious disease challenges in Asia and Pacific

Speakers include:

Prof Lyn Gilbert, CIDM, ICPMR, Westmead Hospital, Sydney
Prof Margaret Ip, The Chinese University of Hong Kong
A/Prof Jonathan Iredell, CIDM, ICPMR, Westmead Hospital, Sydney
A/Prof Raymond Lin, National University Hospital, Singapore
Prof Peter McMinn, University of Sydney
Prof Theo Sloots, Royal Children's Hospital, Brisbane
Prof Ming Wang, University of Sydney
A/Prof Roger Wilson, SEALS, Sydney
Among many others

For more information on the program and registration, please visit the website:
www.cidmpublichealth.org/workshop.html
or contact Lou Orszulak
Lou.Orszulak@swahs.health.nsw.gov.au
Please register early as there are only 30 places for the laboratory demonstration part and they will be filling in quickly

2nd – 4th July 2009

Combined AACB, AIMS, ASM Conference

Mantra Ettalong Beach, Ettalong

www.mantraettalongbeach.com.au

Program under development.
If you wish to present, speak or attend please contact: ian.carter@sesiahs.health.nsw.gov.au. We hope to make this even more successful than the last meeting held in the Hunter Valley where ASM was not 'directly' involved.

Welcome Back

Pharmaceutical & Medical PROFESSIONALS

Trust the Professionals

We have the **Knowledge** and the **Connectivity** to help you achieve **Success**.

For our Clients, we have a range of experienced candidates available for interview.

For our Candidates, we either have vacant roles for which we are currently interviewing, or we are keen to meet with you and discuss your career development needs.

Enhance your Success in 2009, call the Professionals (02) 8877 8777

Since 1997, we have been providing specialist recruitment services to the pharmaceutical and medical industry. We began with a solid base of pharmaceutical clients and have now expanded to include the wider healthcare, medical, biotechnology and scientific sector. To reflect that growth we changed our name, in late 2008, from Pharmaceutical Professionals to Pharmaceutical & Medical Professionals.

We recruit at all levels and all stages of the product development and commercialisation process and our expertise includes:

- Research & Development
- Formulation
- Engineering
- Manufacturing
- Production
- Operations & Logistics
- Laboratory
- Quality & Validation
- Clinical Research
- Data Management
- Regulatory
- Medical
- Health Economics
- Drug Safety
- Medical Information
- Scientific Affairs
- Human Resources
- Administration
- Customer Service/Call Centre
- Accounting/ Finance
- IT
- Corporate Affairs
- Legal
- Health Insurance
- Sales
- Marketing
- Market Research
- Healthcare Advertising
- Training
- Business Analysis/ Development
- General Management
- Executive/Director/Board level

Knowledge. Connectivity. Trust.

Pharmaceutical & Medical Professionals
Level 2, 101 Waterloo Road, North Ryde, NSW 2113 AUSTRALIA
Tel (612) 8877 8777 **Fax** (612) 8877 8776 **Email** enquiries@pmpconnect.com
www.pmpconnect.com

Australian Society for Microbiology
NSW-ACT Branch

The Joe Levey Graduate Award

Award: Registration fees and budget travel and accommodation costs to attend the ASM Annual Scientific Meeting.

Eligibility: All graduates of less than five years, and currently working in microbiology, are invited to apply for the Award.

Membership Status: AASM, SASM, MASM

Criteria:

1. A one page essay explaining their wish to attend the ASM Annual Scientific Meeting, and indicating what they hope to gain from the experience.
2. A one page account covering their academic achievements and work experience to date.
3. Two referee's reports (to be submitted directly) supporting application for the Award. It is the responsibility of the applicant to ensure that their referees submit the reports to the ASM NSW Branch committee by the closing date.
4. Evidence of their involvement in NSW branch activities since they have been members. This could include attendance at scientific meetings, seminars, social events, newsletter contributions or assistance in the organisation of branch events. Applicants with this record will be preferred, but not exclusively
5. Recipient required to write a brief 1 page report that summarises the proceedings of any one session they attended at the ASM annual scientific meeting (report will be published in the ASM NSW branch newsletter). The report should be submitted no later than 4 weeks after the conference end date for publication in the ASM NSW ACT Branch newsletter 'Syntrophy.

Closing Date: 31st March

Applications to:
Kerry Varettas
ASM NSW-ACT Branch Secretary
Email: Kerry.Varettas@sesiahs.health.nsw.gov.au
Ph: (02) 9113 3325 Fax: (02) 9113 3349

News & Notices

ASM NSW-ACT BRANCH ON FACEBOOK

The ASM NSW-ACT Branch has gone global and has joined the world of Facebook. To get the latest news, gossips and events with what is happening with your ASM NSW-ACT Branch, all members who are registered with Facebook are invited to join the Australian Society for Microbiology (ASM) NSW/ACT Branch group and be actively involved. Members will be able to post photos from future events, suggest ideas, as well as discuss the latest from the world of Microbiology. So don't delay this fantastic opportunity to mix among your peers, fasten your seatbelts, get ready to join others from across the globe and join your Australian Society for Microbiology (ASM) NSW/ACT Branch group on Facebook today.

To locate the group, search for Australian Society for Microbiology (ASM) NSW/ACT Branch on Facebook – www.facebook.com

COMBINED AACB, AIMS, ASM CONFERENCE

2nd – 4th July 2009

Mantra Ettalong Beach, Ettalong

Dear members,

As a result of the raised awareness of the potential for Federal Government requirement for the registration of Medical Scientists, discussions within NSW/ACT between the Australian Association of Clinical Biochemists, The Australian Institute of Medical Scientists and the Australian Society for Microbiology ensued with a resulting alliance to provide strength and support at developing a united and consistent position.

The 3 societies will combine to hold a conference at the **Mantra at Ettalong from 2-4th July 2009** titled "**Medical Sciences**" to potentially cover all aspects of each Society and to include a range of speakers.

Expressions are sought from all ASM members within NSW and the ACT for speakers and topics for those able to attend this 'low cost" conference. No set programme has yet been established (there will be plenaries and posters and the usual with some concurrent sessions) but all ASM members, associate members, student members, retired members in NSW and the ACT are welcome to reply with topics and talk titles.

Yes, the annual ASM meeting this year is in Perth from the **6 - 10 July 2009 at Perth Convention Exhibition Centre WA.** **www.asm2009.org** – however the costs of this may be prohibitive for some (particularly students) and this combined conference may offer an alternative for our members to get together and learn more than just the traditional Microbiology. Perhaps old school, TAFE and university friends working within these areas of Pathology will also be attending!

However at this stage SPEAKERS AND TOPICS & EXPRESSIONS OF INTEREST in attending are invited. Please reply to Ian Carter ASAP as we would like this to be a success for all and forge a new strong bond with our other Scientific colleagues.

mailto:ian.carter@sesiahs.health.nsw.gov.au

Microbes in the News

Bacteria main cause of 1918 deaths?

http://www.abc.net.au/science/articles/2009/02/06/2484125.htm?site=science&topic=latest

Strep infections and not influenza may have killed most people during the 1918 influenza pandemic, which suggests predictions about a new pandemic could be exaggerated, say US researchers.

The findings suggest that amassing antibiotics to fight bacterial infections may be as important as stockpiling antiviral drugs to battle flu, they say.

Professor Keith Klugman of Emory University, Atlanta and colleagues report their findings in the journal *Emerging Infectious Diseases*.

The team looked at information available about the 1918 flu pandemic, which killed between 50 million and 100 million people globally in the space of about 18 months.

Some research has shown that on average it took a week to 11 days for people to die - which fits in more with the known pattern of a bacterial infection than a viral infection, write Klugman and colleagues.

"We observed a similar 10-day median time to death among soldiers dying of influenza in 1918."

People with influenza often get what is known as a "superinfection" with a bacterial agent. In 1918 it appears to have been *Streptococcus pneumonia*.

"Neither antimicrobial drugs nor serum therapy was available for treatment in 1918," Klugman's team write.

Gut bacteria can manufacture defences against cancer and inflammatory bowel disease

Science Daily
February 5, 2009
http://www.sciencedaily.com/releases/2009/02/090205214418.htm

Bacteria naturally present in the human gut could produce substances that help to protect against colon cancer and provide therapy for inflammatory bowel disease.

In a paper published in the journal *Microbiology*, researchers from the University of Aberdeen Rowett Institute of Nutrition and Health and from the MTT Agrifood Research Institute in Finland report initial studies showing that bacteria in the human gut convert linoleic acid, a naturally-occurring fat in the diet, into a form called conjugated linoleic acid (CLA) which is absorbed by the gut wall.

There are different types of CLA and not all of them have beneficial effects. The "good" form of CLA is present in dairy foods such as milk and cheese," said Dr John Wallace of the Rowett Research Institute, "but eating lots of dairy foods won't necessarily help our gut health as most of the fats are digested in the small intestine before they get to the large intestine, where most of our gut bacteria are found."

The results of these latest studies showed that several different forms of CLA are produced by gut bacteria. Fortunately, most was of the "good" kind, but Dr Wallace stressed that more extensive studies are needed. One subject produced small amounts of a CLA whose beneficial or otherwise effects are much less clear.

The implications are that, if small quantities of dietary linoleic acid can be delivered to the large intestine, the effects on gut health will be generally beneficial in most people. He added, "The results are of special interest for individuals using anti-obesity treatments that prevent the small intestine from absorbing fats. This means that those fats – including linoleic acid - will pass into the large intestine and the gut bacteria will produce CLA. It has to be the correct CLA, so it is important to understand how individuals produce different CLA. This must depend on which types of bacteria are present."

Blue light destroys antibiotic-resistant staph infection

Science Blog

January 29, 2009

http://www.scienceblog.com/cms/blue-light-destroys-antibiotic-resistant-staph-infection-18376.html

Two common strains of methicillin-resistant Staphylococcus aureus, commonly known as MRSA, were virtually eradicated in the laboratory by exposing them to a wavelength of blue light, in a process called photo-irradiation that is

described in a paper published online ahead of print in Photomedicine and Laser Surgery. The article will appear in the April 2009 issue (Volume 27, Number 2) of the peer-reviewed journal published by Mary Ann Liebert, Inc. The paper is available free online at www.liebertpub.com/pho

Antibiotic-resistant bacterial infections represent an important and increasing public health threat. At present, fewer than 5% of staphylococcal strains are susceptible to penicillin, while approximately 40%-50% of Staph aureus isolated have developed resistance to newer semisynthetic antibiotics such as methicillin as well.

Chukuka S. Enwemeka, Deborah Williams, Sombiri K. Enwemeka, Steve Hollosi, and David Yens from the New York Institute of Technology (Old Westbury, NY) had previously demonstrated that photo-irradiation using 405-nm light destroys MRSA strains grown in culture. In the current study, "Blue 470-nm Light Kills Methicillin-Resistant Staphylococcus aureus (MRSA) in Vitro," the authors exposed bacterial colonies of MRSA to various doses of 470-nm light, which emits no UV radiation.

The two MRSA populations studied—the US-300 strain of CA-MRSA and the IS-853 strain of HA-MRSA—represent prominent community-acquired and hospital-acquired strains, respectively.

The authors report that the higher the dose of 470-nm blue light, the more bacteria were killed. High-dose photo-irradiation was able to destroy 90.4% of the US-300 colonies and the IS-853 colonies. The effectiveness of blue light in vitro suggests that it should also be effective in human cases of MRSA infection, and particularly in cutaneous and subcutaneous infections.

"It is inspiring that an inexpensive naturally visible wavelength of light can eradicate two common strains of MRSA. Developing strategies that are capable of destroying MRSA, using mechanisms that would not lead to further antibiotic resistance, is timely and important for us and our patients," says Chukuka S. Enwemeka, PhD, FACSM, Co-Editor-in-Chief of the Journal and first author of the study.

Focus continued

For some time, researchers have been hoping to overcome this problem by using research proteases (typically trypsin) to 'shave' the surface of intact cells to release their surface-exposed peptide epitopes. This approach has two potential benefits; it would i) allow for the identification of proteins not previously amenable to standard proteome analysis; and ii) provide information on the regions within surface proteins that are genuinely exposed and thus most likely to be immunogenic. Obviously such an approach is desirable, however, a major technical limitation is the instability of the cells, which may lyse during protease incubation and release their intracellular contents thus providing a vast list of abundant, contaminating cytoplasmic proteins.

A study on the surface proteome of group A streptococci was the first to achieve a high degree of enrichment for true surface-exposed proteins [2]. GAS cells were incubated with proteases, and the 'shaved' peptides identified by liquid chromatography – tandem mass spectrometry (LC-MS/MS; Figure 1). A total of 72 proteins were identified, of which only 4 were predicted to be intracellular, with the remainder predicted as cell-wall or membrane-bound proteins. The data were then used to select a handful of proteins to determine their ability to provide protective immunity in mice. Despite this initial apparent success, a number of other groups have struggled to achieve the same level of surface protein enrichment when attempting a similar technical approach [3,4].

We have been interested in using a cell shaving approach for determining the surface topology of *S. aureus*. Development of the shaving technique would allow the comparison of different "surfaceomes" [5] between antibiotic resistant and / or highly virulent strains to identify proteins associated with different phenotypes. This insight will identify potential markers that may be useful to monitor strains (both endogenous patient strains and strains in the wider community) to identify those that are potentially problematic, or to identify targets for novel intervention strategies.

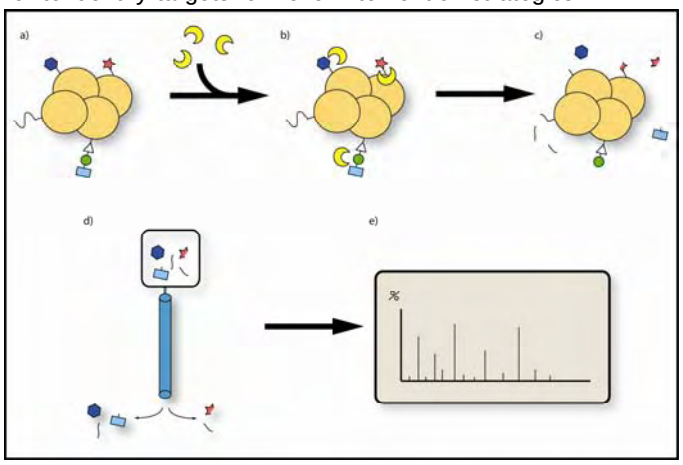

Figure 1. Cell surface 'shaving'. a) Bacterial cells display a number of surface proteins. **b)** Addition of a protease will cleave the proteins to generate peptides of various lengths while cells maintain integrity. **c)** Fragments are collected, concentrated and purified. **d)** Peptides are separated by LC and analyzed by MS/MS. **e)** Analysis of the resulting spectra and database interrogation provides identity of the proteins of interest.

As described above, the primary concern in the study of the surfaceome is potential contamination by cytosolic components. For our work on *S. aureus*, we monitored the degree of cell lysis by total cell counts and SDS-PAGE, and minimised the duration of the protease treatment based on the degree of cell lysis observed over a time course ranging from 0-240 minutes. The optimal duration for protease treatment was < 30 minutes before significant cell lysis was observed. Cells were then incubated with trypsin, proteinase-K or no enzyme (false positive control). Supernatants were harvested and purified, and the 'no enzyme' control subjected to trypsin digestion. This would identify any proteins present in the supernatant resulting from cell lysis, since the cells were not incubated in the presence of a protease. Peptides were purified by reverse-phase chromatography and identified by MS-MS using an LTQ Orbitrap (Thermo) instrument. Database interrogation was performed based on the generated RAW files and peptides were manually verified for correct sequence assignation and peptide subtraction performed using the false positive control. Topological predictions of identified proteins and peptides were performed using PSORTb v2.0 and TmPRED.

This approach enabled the identification of 59 predicted surface proteins, of which 20 had not previously been identified in *S. aureus* proteomics studies. The vast majority of identified peptides corresponded to predicted surface-exposed regions (86% of total identified peptides). One marked example of this is the penicillin binding protein 2' (PBP2'). It is encoded by the gene *mecA*, and is one protein involved in antibiotic resistance, and as such represents an important virulence factor. Cell surface shaving identified 23 peptides from MecA in the trypsin dataset, 11 in the proteinase-K set and only 4 in the trypsin false positive control. All of these peptides were predicted to be surface-exposed.

Cell surface shaving represents an important technological approach for understanding bacterial virulence and host-pathogen interactions. It is now likely that the method will be employed to understand differences in surface topology amongst strains of *S. aureus*, as well as to understand changes in the *S. aureus* 'surfaceome' upon different environmental stiumuli, such as those mimicking conditions encountered in the host.

References

[1] Cordwell SJ (2006) Technologies for bacterial surface proteomics. *Curr Opin Microbiol* **9**, 320-329.

[2] Rodriguez-Ortega MJ, Norais N, Bensi G, Liberatori S, Capo S, Mora M, Scarselli M, Doro F, Ferrari G, Garaguso I, Maggi T, Neumann A, Covre A, Telford JL & Grandi G (2006) Characterization and identification of vaccine candidate proteins through analysis of the group A *Streptococcus* surface proteome. *Nat Biotechnol* **24**, 191-197.

[3] Severin A, Nickbarg E, Wooters J, Quazi SA, Matsuka YV, Murphy E, Moutsatsos IK, Zagursky RJ & Olmsted SB (2007) Proteomic analysis and identification of *Streptococcus pyogenes* surface-associated proteins. *J Bacteriol* **189**, 1514-1522.

[4] Tjalsma H, Lambooy L, Hermans PW & Swinkels DW (2008) Shedding & shaving: Disclosure of proteomic expressions on a bacterial face. *Proteomics* **8**, 1415-1428.

[5] Cullen PA, Xu XY, Matsunaga J, Sanchez Y, Ko AI, Haake DA & Adler B (2005) Surfaceome of *Leptospira spp*. *Infect Immun* **73**, 4853-4863.

***About the Author – Nestor Solis

ASM NSW-ACT Branch Honours Award Winner 2008

Nestor Solis completed his Bachelor of Science (Molecular Biology and Genetics) and Honours in 2008 at The University of Sydney. His Honours project was devoted to microbial proteomics specifically to surface proteomics of Staphylococcus aureus. He has had previous experience in proteomics during a Summer Research Scholarship with Dr Sharon Leung and Prof Rob Baxter from The Kolling Institute of Medical Research and is interested in applying these technologies to understand pathogenesis, mechanisms of disease progression and environmental influence of microbes. Currently he is undertaking a PhD in microbial proteomics under the guidance of Dr Stuart Cordwell at The University of Sydney.

Reports from Recent Events

Virology SIG End-of-Year Dinner 2nd December 2008

Virology SIG-ers who gathered at Thai La-Ong restaurant in Newtown for a relaxed, informal dinner were treated to a feast for their bellies and their minds, kindly supported by the ASM NSW-ACT Branch. After a sumptuous Thai banquet, good conversation and some good Kiwi wine, Emeritus Professor Yvonne Cossart gave us a tour of her extensive professional career, which included the discovery of Parvovirus B19 in 1975, titled ***"Parvovirus, Hepatitis B virus and me: unfinished business".***

Prof Cossart has recently retired, but once a virologist, always a virologist, and her talk included many amusing stories, cautionary tales, and the differences between virology in its early days and today.
We would like to thank Yvonne for finishing the Virology SIG year on a high note, and invite everyone to the 2009 inaugural Virology SIG meeting on the 24th March featuring Dr Nitin Saksena from Westmead Millenium Institute.

Reported by Gillian and Sacha

February Meeting 18th February 2009 Professor Lyn Gilbert

Professor Lyn Gilbert

Attendees were treated to a special event on Wednesday 18th February when Professor Lyn Gilbert gave a presentation on 'Moral hazards – does clinical microbiology need a code of ethics?'. The diagnosis of infectious diseases has been slow or retrospective as laboratories and public health waited, for example, for Salmonella phage typing results to identify outbreaks which can take 4 – 6 weeks. This delay can have a high impact on individuals and the community. Laboratories have a moral obligation to inform relevant individuals and groups quickly and effectively. Recent advances in infectious disease diagnosis and surveillance has been assisted by new molecular techniques. Professor Gilbert presented futuristic scenarios such as universal medical records and networked databases between all laboratories and hospitals. These would allow health providers access to the same information and rapid feedback to all health providers would result in better outcomes in morbidity and mortality with a reduction in costs and improved practice and prevention. Professor Gilbert pointed out that it would be unethical not to fast-track these improvements. Of course, these require extensive public and professional debate before implementation and the audience took part in an active discussion of the many issues raised.

Charlotte Webster, Ian Carter & Professor Lyn Gilbert

Thuy Phan, Charlotte Webster, Ian Carter & Karen Macleod

The Waterview Convention Centre at Sydney Olympic Park set a very high standard in providing the attendees with an abundance of high quality and very filling food. The warm evening allowed everyone to take advantage of the lounges on the veranda and enjoy the park and lake views. This was a memorable evening with good company and a thought-provoking presentation by Prof Gilbert.

Reported by Kerry Varettas

ASM Contact Details

ASM NSW-ACT Branch Secretary – Kerry Varettas

Ph (02) 9113 3325 or email Kerry.Varettas@sesiahs.health.nsw.gov.au

ASM National Office

Ph (03) 9867 8699 or email admin@theasm.com.au

Submissions and enquiries can be directed to the Administrative Officer at natashapavic@hotmail.com. Companies seeking to fill positions and ASM members seeking employment are welcome to place an advertisement in an upcoming issue of Syntrophy. Please contact the Administrative Officer with your details for inclusion.

ASM National Conference Calendar

July 2009	ASM2009 Perth
July 2010	**ASM2010 Sydney**
July 2011	ASM2011 Hobart
July 2012	ASM212 Brisbane

Websites

National ASM:
www.theasm.com.au/

ASM NSW Branch:
www.theasm.com.au/nsw/