Plasmid-mediated AmpC – an emerging problem in the laboratory setting

Molecular studies suggests that plasmid-mediated AmpC β-lactamases (PMACBL) are derived from the chromosomal AmpC of certain gram-negative bacterial species, for example, *Citrobacter freundii*, *Enterobacter cloacae* and *Morganella morganii* and are subsequently mobilised onto transmissible plasmids. PMACBL have similar substrate profiles to the chromosomal AmpC from which they originated.

Detection of PMACBL presents a major challenge for clinical microbiology laboratories. As yet, CLSI has not published recommendations for their laboratory detection. Clinical microbiology laboratories need to be able to detect this emerging β-lactamase and report isolates possessing it as resistant to all broad-spectrum cephalosporins, so as to avoid therapeutic failure.

Mike’s Part 3 FASM paper examines the origins of PMACBL, the nomenclature used and epidemiology. Screening strategies, reporting and treatment options are discussed. Reduced susceptibility to cefoxitin is a sensitive but not specific indicator of the presence of AmpC. While Multiplex PCR remains the gold standard for the detection of PMACBL, a number of phenotypic tests have been developed for use in routine laboratories. Some of these tests use specific inhibitors of AmpC such as boronic acid or cloxacillin. A variety of phenotypic tests are discussed and evaluated.
The ASM recently invited me to attend a workshop at Parliament House, Canberra to discuss the theme *Women in Science in Australia*. The workshop was an initiative of the Federation of Australian Scientific and Technological Societies (FASTS) and brought together around 60 women and men from diverse public or private sector and higher education organisations. The initiative arose from the fact that the retention and support of women in science appears to have fallen off the political agenda, despite little improvement in the number of senior women taking up leadership roles in science, engineering and technology. In 1995, a survey of women’s participation in Science, Engineering and Technology conducted by an Australian government advisory group noted that women were seriously underrepresented in some specific scientific disciplines and lacking from leadership and senior roles in all scientific disciplines. The recent draft report commissioned by FASTS and led by Professor Sharon Bell, University of Melbourne, found that, sadly, little has changed over the last decade and a half. Today men outnumber women almost 10 to one at academic positions above senior lecturer. This is despite increased enrolments and graduation of women from undergraduate and postgraduate science degrees. More women than ever are qualifying as highly trained researchers but they are lost from postdoctoral levels at an alarming rate.

In preparation for the final report from FASTS, the workshop sought to examine possible solutions to stem the loss of women from the science and technology workforce. After an outline of the current problem by Professor Bell, Professor Doug Hilton, Director of the Walter and Eliza Hall Institute, gave an overview of his approach to encourage more women to take up positions as laboratory heads at the institute. This has included the establishment of the Cory Fellowship, which will provide funding of $250,000 a year over 5 years to female researchers to establish a laboratory at the Walter and Eliza Hall Institute.

With an emphasis on the economic impact of the attrition of women in science to Australia rather than on issues of equity, the workshop then examined several areas of possible intervention and development. These included approaches to generate organisational change to the culture of the workplace, ways to empower male and female leaders to address the issue of women leaving science, ways to increase women’s influence in science by greater participation in policy making and funding bodies, new approaches to getting the attention of government on issues of women in science and ways to maintain and grow the evidence base on which decisions are based about women in science.

While the importance of role models and mentoring was widely acknowledged, family-friendly work practices and flexibility, as well as changes in both men’s and women’s attitudes were also recognised as critical to organisational change. In addition, the majority of participants believed that framing the problem as an issue of productivity and skills loss was essential for the issue to be raised on the political agenda.

The Final Report *Women in Science in Australia: Maximising Productivity, Diversity and Innovation* will be launched by the Federal Minister for Innovation, Industry, Science and Research, Senator Kim Carr, in the coming weeks.
Scholarships for students of Industrial Microbiology

Seventy scholarships are available for students to attend the 11th International Symposium on the Genetics of Industrial Microbiology. This conference is held in Melbourne, preceding ASM2010 (which is held in Sydney).

The competitive scholarships offer free student registrations and have been made available through the generous support of the Department of Innovation, Industry and Regional Development and the Melbourne Convention and Visitors Bureau. For details on how to apply go to <http://www.gim2010.org>
2009 – Golden Jubilee Year

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13-17 December
Lorne, VIC

5th Australian Virology Group Meeting
Invited International Speaker – Prof Ann Arvin
Symposia themes:
- New, emerging and re-emerging viruses
- Virus structure, receptors and assembly
- Virus-host interactions
- Gene expression and replication
- Viral vectors and gene therapy
- Viral epidemiology and diagnostics
- Viral disease
- Biosecurity
- Evasion of host defences
- Viral control strategies – Vaccines and Therapeutics
www.avg.org.au

2010

21-24 February
Baltimore Marriott Waterfront Hotel, MD
8th ASM Biodefense and Emerging Diseases Research Meeting
www.asmbiodefense.org

24-26 February
Beijing, China
BIT Life Sciences’ 2nd Annual World Vaccine Congress – 2010

25-27 February
Softel Sydney Wentworth Hotel, Sydney, NSW
Antimicrobials 2010
www.antimicrobials2010@icms.com.au

29 March - 1 April
Edinburgh International Conference Centre, UK
Society for General Microbiology, Spring 2010 Meeting
Main theme: Systems microbiology
www.sgm.ac.uk/meetings/MTGPAGES/Eicc2010.cfm

10-13 April
Vienna, Austria
20th European Congress of Clinical Microbiology and Infectious Disease
http://www.congrex.ch/ECCMID2010/

19-22 April
Hilton Clearwater Beach, Clearwater, FL
32nd Symposium on Biotechnology for Fuels and Chemicals (Society for Industrial Microbiology)
http://www.simhq.org/meetings/meetings.aspx

23-24 April
Daytona Beach, FL, USA
Molecular Virology Workshop
http://virology.org/MVWhtml

25-28 April
Daytona Beach, FL, USA
26th Annual Clinical Virology Symposium
http://virology.org/CVS.html

23-27 May
San Diego Convention Center, CA
110th General Meeting of the American Society for Microbiology
http://gm.asm.org

28 June – 1 July
Melbourne Convention and Exhibition Centre, Melbourne, VIC
11th International Symposium on the Genetics of Industrial Microorganisms
Chair: Ian Macreadie
www.gim2010.org

4-8 July
Darling Harbour Convention Centre, Sydney NSW
ASM 2010 Sydney

1-5 August
Hyatt Regency Embarcadero, San Francisco, CA
SIM 60th Annual Meeting and Exhibition (Society for Industrial Microbiology)
http://www.simhq.org/meetings/meetings.aspx

1-6 August
Edinburgh, UK
The 9th International Mycological Congress (IMC9);
The Biology of Fungi
www.imc9.info

6-9 September
University of Nottingham, UK
Society for General Microbiology, Autumn 2010 Meeting
http://www.sgm.ac.uk/meetings/MTGPAGES/Nottingham2010.cfm

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