

The Microbiology Awareness Campaign moved forward recently when microbiologists met with members of the National Assembly for Wales to discuss the microbiological issues that affect the principality.

Microbiology Awareness Campaign Welsh Assembly, 8 March 2006

The event, which attracted many Assembly Members (AMs) and civil servants, was held at the National Assembly for Wales building in Cardiff Bay and kindly sponsored by **Elin Jones, AM**, who began by welcoming everyone. A series of short presentations was then given, followed by a drinks and buffet reception where the guests had an opportunity to talk to microbiologists from around Wales.

Professor Hugh Pennington, President of the Society, described the many activities and roles of the SGM, and this was followed by a presentation on microbiology and the environment from **Professor Andrew Weightman**, a microbial geneticist from the University of Cardiff. He described how research in his institution was highly relevant to many local issues. He touched on topics ranging from the adaptation of microbes to degrade toxic organic pollutants to a potential link between bovine pathogens and clusters of Crohn's disease cases in Cardiff.

Avian influenza was on the programme and **Sir John Skehel**, Director of the NIMR, informed those present of the challenges facing us from this highly topical and potentially deadly disease. SGM Education Officer, **Dr Susan Assinder**, discussed the importance of microbiology education – in schools, and for the wider public and the media.

Educating children at school is a prime way of increasing public understanding of microbiology, as this gives access to a captive audience that is receptive and not yet set in bad habits. She described the range of educational resources produced by SGM, to which had recently been added some factsheets and investigations for children translated into Welsh. These would be used during National Science Week activities in Wales, and would be available free on request to schools.

The event was brought to a close by the Minister for Health and Social Services, **Dr Brian Gibbons, AM**, who talked of the recent outbreaks of *E. coli* O157 and *Cryptosporidium* in Wales as powerful reminders of the importance of microbiology to our lives and which also affected government policy.

The attendees were also treated to an exhibition from various groups and organizations from around Wales who are working on many fascinating and hugely important areas of microbiology.

With no medical faculty, the strength of microbiological research at **University of Wales Aberystwyth** lies in environmental and animal microbiology. The exhibit at MAC, a joint venture with the **Institute of Grassland and Environmental Research** (IGER), highlighted key aspects of research in Aberystwyth,

ymgyrch ymwybyddiaeth microbioleg cymru microbiology awareness campaign wales

micro-organeddau

mae bacteria, ffyngau, algâu, protosoa a frysau yn effeithio ar bob agwedd ar ein bywydau.

microbiolegwyr

mae eu hangen i astudio microbau, gwneud defnydd o'u pwerau ac ymdrin â mathau niweidiol sy'n achosi clefydau.

microbioleg

mae'n bwysig i bobl Cymru ac i economi Cymru.

Mae agweddau pwysig yn cynnwys:

- iechyd pobl ac anifeiliaid
- biotechnoleg a chreu cyfoeth
- microbioleg amgylcheddol, amaethyddol a morol

Drwy ein haelodau niferus yng Nghymru, gall SGM gynnig gwybodaeth amhledioliol ac arbenigol ar unrhyw fater microbiolegol.

SOCIETY for general
Microbiology
www.sgm.ac.uk

micro-organisms

bacteria, fungi, algae, protozoa and viruses affect every aspect of our lives.

microbiologists

are needed to study microbes, exploit their powers and deal with harmful types that cause disease.

microbiology

matters to both the people and economy of Wales.

Important areas include:

- human and animal health
- biotechnology and wealth creation
- environmental, agricultural and marine microbiology

Through our many members in Wales, SGM can offer impartial and expert information on any microbiological issue.

▲ The SGM display banner from the MAC event in Cardiff

notably rumen microbiology, environmental microbiology and biotechnology (in collaboration with local spin-out companies). The medical aspects of University of Wales Aberystwyth research relate to tuberculosis latency, dermatophytic fungi and insect digestive systems as a reservoir for human pathogens. Exhibitors on the stand reported a

good response from AMs attending the event, especially in relation to the threats facing microbiological research at IGER following recently announced cuts in DEFRA funding.

The **University of Wales Bangor** exhibit focused on mining and acid mine drainage (AMD), one of the most pernicious forms of environmental pollution in Wales. Harnessing microbes has led to the now established biotechnology of 'biomining' in which acidophilic micro-organisms are used to extract base and precious metals from ores, including those that are uneconomical to process by conventional means. Biomining also has the advantage that it is less polluting to the environment. The exhibit also highlighted approaches for treating AMD. The Bangor team participates in projects that aim to optimize 'passive' bioremediation in wetlands and compost bioreactors, and is also developing novel integrated sulfidogenic biosystems for selective recovery of metals from contaminated wastewaters.

Cardiff University has a long history of strong research, covering environmental, medical and applied microbiology. The exhibitors described projects that are carried out in collaboration with groups all over the world. These include research into prevention of *Burkholderia cepacia* infections in patients with cystic fibrosis, prokaryotic interactions in deep subsurface layers, prevention of *Proteus mirabilis* crystalline biofilm formation in bladder catheters and use of *Photobacterium fischeri* for monitoring toxic compounds in environmental samples, including water supplies.

The **Sustainable Environment Research Centre** (SERC) of the University of Glamorgan highlighted two major areas in its exhibit: anaerobic digestion and fermentative hydrogen production. The research group has long experience in methane production from many types of organic wastes and the process is of increasing interest to local authorities as they implement the Landfill Directive. Dark fermentative hydrogen production from renewable resources, using mixed microflora from natural sources, is a less understood process and is being investigated by SERC. This method of hydrogen generation could make a contribution to the low-carbon economy, delivering a secure energy supply to a locality.

The exhibit for the **National Public Health Service for Wales** (NPHS) emphasized the scope of general and specialist microbiology services that are to be found around Wales. These provide laboratory, clinical and scientific support that underpins communicable disease prevention, diagnosis and management to the NHS throughout Wales. General microbiology services provided by NPHS include laboratory diagnostic services to hospitals and general practitioners, leadership of hospital infection control programmes, involvement in regional and national surveillance programmes and assistance to health protection teams in relation to outbreaks and community infection control, in addition to many specialist services.

The display from the **University of Wales Swansea** underlined the recent expansion in microbiology at the University, it being a foundation discipline in the new **School of Medicine and Institute of Life Science** (ILS). ILS research includes staphylococcal biofilms, pathogenesis of implant-associated infections, critical roles of P450 enzymes in microbial metabolism, streptomycete antibiotic discovery, gene regulation in yeast, medical benefits of probiotics, and viral evolution and disease spread. Environmental microbiology is also a key area, with an emphasis on terrestrial and marine environments, and aquaculture, including exploitation of fungal insect pathogens as biocontrol agents, characterization of bacterial pathogens of crabs, and investigation of microbial community structure in wetlands treating organic waste from land-based fish farms.

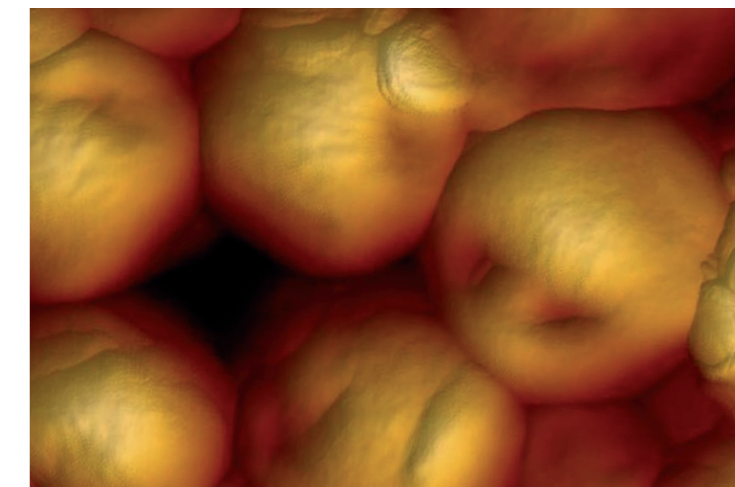
Other exhibits were supplied by the University of Wales Institute Cardiff, Food Standards Agency Wales and the Welsh Microbiology Association.

The staff at SGM Headquarters would like to take this opportunity to thank all of those involved in putting together the exciting programme for this event.

Faye Stokes, Public Affairs Administrator

Useful websites

- www.biology.bangor.ac.uk/research/bart/
- www.cardiff.ac.uk/biosi/research/micro/index.html
- www.medicine.swan.ac.uk/ils_innovation3.html
- www.medicine.swan.ac.uk/medmicrobiology.html
- www.medicine.swan.ac.uk/p450.html
- www.swan.ac.uk/research/ActinoGEN/index.htm
- www.aquaculturewales.com/index.html



▲ Atomic force microscopy image of *Saccharomyces cerevisiae*.
Dr Chris Wright, School of Engineering, University of Swansea Wales