A nexus of complexity

Many microbiology texts will state that food microbiology covers the interaction between microorganisms and food. An accurate enough description, albeit one that disguises the complexity of an interaction that can require considerations as seemingly diverse as pathogenicity and physical chemistry, and one that disguises operation in a nexus of profit, trade, regulation, public health, litigation, fads and consumerism.

By inviting our colleagues to write articles for this issue of *Microbiology Australia*, we have tried to present an account of contemporary food microbiology and also of the contemporary food microbiologist. This is reflected in the diversity of the topics covered.

The *In Focus* articles on management strategies capture the food microbiologist's principal applied function in helping to assure the supply of high quality and safe food to the consumer. Such strategies require the systematic application of knowledge of microbial ecology, effects of processing, preservation and production, predictive modelling, risk assessment and their translation into practical measures that can control a hazard (real or perceived) at different points in the value chain. Food safety management strategies (Cole) capture our long-standing role of minimising the unintentional contamination of food; and food biosecurity (Knabel) our emerging role in countering the intentional contamination of food.

Supporting such management strategies is a wealth of underpinning science. Some of the required science is captured in the *Under the Microscope* articles where authors have discussed the need for speed (Cox) and quantification (Fegan) in detection technologies, computer modelling tools (Baranyi, Tamplin & Ross), the use of ion flux measurements to characterise stress responses (Shabala, Ross & McMeekin), the potential impacts of metabiotic effects on food safety (Olivier & Chapman), novel food processes to improve quality (Hocking, Begum & Stewart), the importance of understanding gene transfer (Gobius), and surveillance to determine the burden of food-borne illness (Kirk). The role of scientific interpretation in commercial or regulatory compliance, dispute resolution and litigation (Hogg, Tan & Comar) logically follows.

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Australia has a strong record of responding positively to food safety and quality issues through government and private sector research investment. The benefits, though not always immediate, are immense. In recognition that shared knowledge and coordinated effort are essential for all stakeholders contributing to the safety, integrity and competitiveness of the Australian food supply, national research and development initiatives have been established and are worth noting.

In the public health sector, OzFoodNet was established in 2000 by the Federal Government with the aim to enhance the surveillance and determine the burden of infection from food-borne illness across Australia. It is a national network able to detect food-borne outbreaks and coordinate investigations.

CSIRO's National Research Flagships (currently six in number) are large-scale science partnerships aimed to integrate, direct and focus scientific resources on issues of urgent national significance. The Food Futures and, to some extent, the Preventative Health Flagships focus on frontier technologies to transform the international competitiveness of the food industry for the health and wealth of Australians.

The Federal Government's 5 year National Food Industry Strategy (NFIS) commenced in July 2002. Innovation and increasing food exports are at the heart of the strategy for which there can be no compromise for food safety. The NFIS food innovation grants programme is

enabling superior innovation performance by Australian based firms through building on existing research and development activities. The two NFIS National Centres of Excellence (food safety, functional foods) encourage food industry stakeholders to build scientific capacity through participation in syndicates to fund underpinning research that benefits the common good in food safety and quality research.

The Australian Food Safety Centre of Excellence has a significant focus, although not exclusive, on microbial food safety hazards and risks within its science programme and will deliver to and foster information exchange to food industry stakeholders through its knowledge transfer programme. Through its education programme, increased support will be provided for post-graduate research in areas such as food safety microbiology.

Collectively, these initiatives provide a framework to identify the causes of food-borne disease, determine factors that impact on the risks, develop effective interventions and provide Australia with the capacity to be known on the international stage for its innovation and pure image. Food microbiology plays a significant role here in various ways including product innovation, food safety and food quality.

P R E L I M I N A R Y A N N O U N C E M E N T

Shiga Toxin (Verocytotoxin) – Producing Escherichia coli Infections (VTEC 2006)

Crown Promenade Hotel, Melbourne

29 October – 1 November 2006

Dear Colleague

The 6th International Symposium on Shiga Toxin (Verocytotoxin) - Producing *Escherichia coli* Infections (VTEC 2006) will be held in Melbourne at the Crown Promenade Hotel from 29 October to 1 November 2006.

We are planning an exciting meeting to cover all aspects of VTEC biology within the major themes of:

- Virulence factors, genomics and host response
- VTEC in food, outbreaks and epidemiology
- Diagnosis, treatment and vaccines
- Bioterrorism

VTEC 2006 aims to build on the success of previous VTEC meetings by combining the very latest scientific developments in VTEC biology with plenty of social interaction, in this case centred around Melbourne's famous food and wine scene.

We hope you'll be there to enjoy it with us!

Liz Hartland
Chair, Local Organising Committee
VTEC 2006

Expressions of Interest

Details on the program, invited speakers, registration and other meeting information will be announced shortly. However register your expression of interest today and receive 10% off the Early Bird Registration Fee!!
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