

ABIC 2006

6-9 August

newsletter



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Dpi scientific discovery: wallaby milk contains powerful weapon against human superbugs

Researchers from the Department of Primary Industries (DPI) have discovered an antimicrobial compound 100 times more effective than penicillin in killing antibiotic resistant 'superbugs', Minister for Agriculture, Bob Cameron, announced today.

Mr Cameron said the DPI research team, led by Dr Ben Cocks, uncovered the super-potent compound — AGG01 — in wallaby milk.

"Recent testing has revealed the extremely high potency of the AGG01 compound, and Dr Cocks' team have also discovered its potential to fight off bacteria and fungus is much broader than first estimated," Mr Cameron said.

"This includes a relative of the hospital superbug, MRSA — often referred to as 'golden staph' — and other important disease-causing bacteria including E. coli; Streptococci, Salmonella, Bacillus subtilis; Pseudomonas spp; Proteus vulgaris; and Staphylococcus aureus," Mr Cameron said.

Dr Cocks said this scientific discovery, could have a profound impact on both animal and human health.

"The discovery came from a "mammary gland genome" project at the DPI analysing bovine and wallaby lactation" Dr Cocks said.

"Funded through the Victorian Government's \$620 million Science, Technology and Innovation Initiative (STI Initiative), the project was a predecessor to the international kangaroo (Tamar wallaby) genome sequencing project.

"This compound has the potential to be commercially synthesised and may prove vital in the war against increasingly resistant human and animal diseases."

The DPI scientists have been researching the chemical properties of the breast milk of Tamar wallabies to pinpoint how their immune-deficient newborns build up resistance to bacteria during their growth in the pouch.

They identified more than 30 anti-microbial factors using an advanced computer system and bioinformatics technologies.

The international kangaroo (Tamar wallaby) genome sequencing project is collaborative research between the Australian Genome Research Facility and the US National Institutes of Health. ■

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Book before 2 June 2006 and receive the Early Bird rate of \$1100

Wool provides bridge across industry gap

Keratec sees significant market potential in topical and oral skincare ingredients

A skin care ingredient duo launched recently by the Lincoln-based biotech company aims to bridge the gap between topical cosmetic products and dietary supplements, helping traditional supplement companies move into skin care, and skin care companies to cross over into supplements.

There are two skin health ingredients in the range. Cynergy TK™ for topical application and Cynergy NK™, which can be used as an oral supplement.

The introduction of Cynergy™ is an important step towards a game-change in the nutritional, skin health and cosmeceutical industries, Keratec's Vice President of Business Development, Fertram Sigurjonsson says.

Both products use the remarkable cell-strengthening and softening properties of Functionalized Keratin™ extracted using patented processes from New Zealand sheep wool, and can be taken individually or together for a synergistic effect.

Keratin is a structural protein that is a main constituent in skin and hair. Although it is normally non-soluble, Keratec has developed a method of extracting keratin from wool in a soluble, functional form by separating wool fibre into its constituent keratin parts without destroying the different fractions.

"Used together, the products become more active than as individual components, so they synergize — hence the name Cynergy," Fertram says. "Our offering to consumers is a natural, renewable and bioactive solution to the dilemma of which materials to select for integrated skin health solutions."

TK is delivered in three forms; powder, liquid or extruded. The powder and flakes are completely odourless, the liquid version is water-like and also odourless.

As well as providing the lanoline-tourist product industry with some differentiation opportunities, Cynergy also offers manufacturers an excellent brand story, he adds.

Potential applications for the oral ingredient include incorporation in capsules, beverages and food bars, while the topical ingredient can be used in skin creams and toners or any other product where the intent is to deliver nutrients directly to the skin or hair.

With a range of New Zealand companies manufacturing skin products for the consumer industry, Keratec expects there will be a local market for the ingredients.

"There are in general not many cosmetic supplement ingredients on the market, and we have stronger substantiation to our claims than other ingredients available."

The product launch took place at the annual Natural Products Expo West tradeshow held recently in California, which attracted over 36,000 industry professionals from more than 80 countries. →



ABIC 2006 Poster Presentation

Scientists and researchers are invited to take part in the ABIC 2006 Poster Presentation. The posters are open to any non commercial institutions and the subject of the posters should be in relation to the topics in the program.

A winner will be selected by the Chair of ABIC 2006, and will be awarded a free registration to ABIC 2007.

To submit a poster you will need to be a registered full paying delegate for ABIC 2006 and submit an abstract of your poster. Abstracts need to be submitted no later than 21st July 2006.

Abstract guidelines can be found on the ABIC 2006 website. All Submissions to be sent to ABIC 2006 Conference Managers (61) 2 9285 0700 or email abic2006@tourhosts.com.au

→ "The Expo West trade-show in Anaheim was a success for us," Fertram says.

"The key to successful tradeshow participation is of course a strong media plan before the show and active direct marketing to secure a good flow of people on the booth. We have now built up a very good database of prospects in the industry and used the database extensively in our preparation.

The company now has four product lines within the Personal Care and Consumer Health business area that all centre around its Functionalized Keratin platform:

Cynergy — cosmeceutical ingredient

Keratec — topical ingredients

Cynatine — health indicated supplement ingredients

Pronine — animal health and care ingredients.

Keratec was also one of the recipients of a Government grant announced by Minister for Economic Development the Hon Trevor Mallard in April, under the Australia New Zealand Biotechnology Partnership Fund. In collaboration with Australian Biotechnologies, Keratec will commercialise its patented bone graft technology that helps bones to heal faster, cleaner and more naturally than existing biomaterials on the market. The technology also uses Functionalized KeratinT.

The grant is worth NZ\$1 million over three years and is contingent on Keratec putting in \$1 million of its own money and in securing a matching contribution of \$2 million from its Australian partner. ■

Genetic mapping reveals most efficient beef cattle

Victorian scientists are using the latest DNA developments that could help farmers identify the best cattle to breed from.

Minister for Innovation John Brumby said Victorian scientists were using techniques used to map the human genome, and the recently completed bovine genome, to develop a combination of DNA markers to work out how well animals can convert pasture into meat or milk known as feed conversion efficiency (FCE).

"It is estimated that a 10 per cent improvement in FCE could lead to economic benefits for Victoria of \$66 million for beef and \$70 million for dairy," Mr Brumby said.

"The FCE research results have important implications for improving the efficiency of Australia's meat export sector, its international competitiveness, as well as the potential to generate significant economic benefit."

"By revealing the cattle with the best FCE, scientists can help farmers identify cattle that have the same output for less pasture or high genetic merit thereby improving on farm efficiencies."

Victorian Minister for Agriculture, Bob Cameron said feed conversion efficiency had to date been very difficult to measure, making it hard for farmers to know which animals are appropriate to breed from or develop.

"The research has enabled new avenues of research that will allow us to more rapidly pinpoint the physiological processes underlying high FCE," Mr Cameron said.

"Armed with this information Australian exporters of beef will have a competitive edge in the international market, further enhancing our reputation for quality."

Mr Cameron said research was being conducted by the Victorian Department of Primary Industries, in collaboration with Meat and Livestock Australia and the Beef Co-operative Research Centre.

The research — which will be presented at the International Conference in Animal Breeding in Brazil in August — is supported by leading technologies in high-throughput genotyping, SNP arrays, computational biology, genomics, molecular genetics, and bioinformatics. ■



Speaker biographical

Professor Jennifer Ann Thomson

Jennifer Ann Thomson is Professor of Microbiology in the Department of Molecular and Cell Biology at the University of Cape Town.

Her research involves the development of genetically modified maize resistant to the African endemic Maize streak virus and tolerant to drought. She received an Honorary doctorate from the Sorbonne University, Paris in 2005 and the UNESCO/L'Oréal award for Women in Science in 2004.

Professor Thompson is Chair of the Board of the African Agricultural Technology Foundation based in Nairobi, Kenya.

1 NRE Evaluation Report Series – Evaluation Report 5, December 2002

The ABIC Foundation



ABIC 2006 in Melbourne, Australia marks the tenth anniversary of the ABIC Conference series. In these ten years, biotech crop acreage has grown significantly around the world. In 1996, only six countries were growing biotech crops. In 2006, the number has grown to twenty-one. Farmers worldwide have adopted biotech crops for reasons ranging from increased productivity and resistance to environmental stresses, such as weeds, pests, or drought; to the enhancement of nutrition provided by these crops.

In the next ten years, the commercialization of global biotech crops is predicted to continue to increase. The use of renewable crop resources to replace non-renewable energy resources, such as oil, will move the industry beyond traditional food, feed and fiber. Also, consumers seeking healthier, nutritious food at reasonable costs are leading farmers to explore new agricultural production opportunities. As more products enter the market place, the increased regulatory requirements of

various countries will bring additional complexities to the forefront.

A key mandate of the ABIC Foundation is supporting continuous learning in agricultural biotechnology. The ABIC Conference series will continue its rotation between Asia Pacific; North America and Europe to ensure opportunities for participants to learn about recent trends and future directions of the industry. As the next decade unfolds, the Foundation will be there to deliver current and relevant conferences.

The ABIC Foundation is managed by Ag-West Bio Inc., located in Saskatoon, Saskatchewan, Canada. More information on ABIC is available on the website at www.abic.ca or by sending an email to abicfoundation@abic.ca ■

Dr. Ashley O'Sullivan
Chair, ABIC Foundation Inc.
Saskatoon, Saskatchewan, Canada

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Session synopsis

Each issue, the ABIC 2006 newsletter features a session held at the conference

Tuesday 8th August 2006, 2:00pm – 3:30pm

New wave technologies and applications

AgBio tech has generally not been at the forefront of technology advances.

Many of the key technologies that are now used in agricultural biotechnology owe their origins to medical research targets; for example, the target of sequencing of the human genome led to advances in high throughput sequencing that has now resulted in full sequences of several plant and animal genomes and a large array of important microbial genomes.

Similarly techniques for diagnostics at the DNA and protein level have moved from medical to agricultural applications. However agricultural applications offer several advantages for technology development that are not possible in human research. This is clearly the case where ethical constraints limit human experimentation.

This session will provide three diverse examples of where AgBio tech has been able to lead the way in technology development. The presentations will show the application of high throughput phenotyping to enhancing gene discovery, the development of methods for modulating gene expression and applications of screening methods in improving wine production.

The session will show how the continual advances in technologies offer huge opportunities for the well informed and practically minded. Identifying and grasping such opportunities is a major challenge in AgBio tech researchers.

Speakers for this session

Dr. Johann Cardoen (Crop Design, Belgium)
Dr. Peter Waterhouse (CSIRO, Australia)
Professor Sakkie Pretorius (Australian Wine Research Institute)