

Sir Mark Oliphant Conferences 2008: Frontiers of Science &
Technology

Vaccine and Immunotherapy Technologies

The Shine Dome, Canberra, Australia | 9–11 April 2008

MEDIA RELEASE

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NEW WAYS TO TACKLE HIV

The immune system can be primed to attack the HIV virus more strongly, making it fitter to fight off the incidental infections and immune breakdown that lead to AIDS.

Promising indications that immunotherapy can be used to reduce levels of immunodeficiency virus in the body have emerged from research at the University of Melbourne using an animal model.

Professor Stephen Kent will describe new research findings at the Sir Mark Oliphant Conference on Vaccine and Immunotherapy Technologies in Canberra tomorrow, suggesting that immunotherapy offers a worthwhile avenue to explore while other scientists continue to grapple with the difficulties of developing a workable AIDS vaccine.

“We infuse fresh blood cells which have been mixed with peptides – or short proteins – spanning the virus. We have found these induce a very strong immune response, enabling the body to fight off both the immunodeficiency virus and other opportunistic infections in laboratory models,” Prof. Kent says.

“We take the whole viral sequence, or parts of it, and make a series of overlapping peptides based on it. These trigger the body’s immune cells, the T cells, to recognise the presence of a virus like HIV much more clearly - and to attack it more effectively, reducing levels of the virus and preventing the destruction of the immune system.

“This in turn frees up more of the immune system to deal with other infections.”

Prof. Kent says that immunotherapy can potentially be used in conjunction with anti-retroviral drugs, but has several advantages in that it is simple, easier to deliver and should have fewer side-effects.

“They are just proteins we are delivering. There should be no toxic side-effects,” he says.

These features also make immunotherapy a promising approach for use in Third World countries where modern drug treatment is difficult and expensive to deliver and administer.

A possible challenge for immunotherapy is HIV's innate ability to change itself to counter measures taken against it, he says.

“However we have found this comes at a fitness cost to the virus. Every time it mutates to deal with a new threat, it weakens itself a little. This may mean that a patient's HIV could gradually become weaker and weaker over time, which will also help them in fighting off the infection and slow the progression to AIDS.”

Another line of research is exploring the scope to ‘trap’ the HIV virus into a permanently weakened state, where it can do no harm.

Insights into the behaviour and weaknesses of the immunodeficiency viruses gained through research into immunotherapies may also help in the global quest to develop an HIV vaccine, he adds.

The Sir Mark Oliphant Conference on Vaccine and Immunotherapy Technologies is being held at the Shine Dome, Canberra from April 9-11, 2008.

The Conference is hosted by Australian Academy of Science (AAS) and the Australian Academy of Technological Sciences and Engineering (ATSE) and sponsored by the Department of Innovation, Industry, Science and Research (DIISR).

Media are welcome to attend and interview participants.

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