



CASE STUDY

A new frontier in HIV/AIDS vaccine research

HIV, or human immunodeficiency virus, remains a global epidemic with millions of people infected worldwide. An estimated 27,000 people in Australia and 1.9 million in India are living with the disease.

Research has led to many advances in treatment, which have improved and extended peoples' lives, but an effective vaccine and cure remain elusive.

That may change with the help of 'Elite Controllers', people infected with HIV who are

able to naturally control the infection in their blood with Antibody-Dependent Cellular Cytotoxicity (ADCC) antibodies. These specialised antibodies are a normal part of the

body's immune system. They identify and destroy infected cells by bonding to specific markers on a cell wall, then signal for the body's immune system to attack.

However, Elite Controllers' ADCC antibodies seem to be able to identify and destroy HIV-infected cells where most peoples' ADCC antibodies cannot. Researchers hope that a better understanding of Elite Controllers' ADCC antibodies and the chemical markers of HIV that they target will lead to immunotherapies capable of curing HIV and fast-track the development of an effective vaccine.



Image: Prof Stephen Kent (far right), Dr Madhuri Thakar (centre), and colleagues at the India HIV congress

Australia-India Strategic Research Fund

Australia and India both have world-class scientists studying Elite Controllers' ADCC antibodies, looking for a game-changing discovery in the fight against HIV. By collaborating, these scientists are able to pool their resources, technologies and ideas to make advances that neither could readily achieve alone.

With the support of the Australia-India Strategic Research Fund, Australian researchers at the University of Melbourne, led by Professor Stephen Kent, are teaming up with their Indian counterparts at the National AIDS Research Institute (NARI) in Pune, India, to study Elite Controllers and their ADCC antibodies.

Australian Team Leader:

Professor Stephen Kent
University of Melbourne

Indian Team Leader:

Dr Madhuri Thakar
National AIDS Research Institute

Professor Kent and his team have been working with 22 Elite Controllers in Melbourne and Sydney to identify which ADCC antibodies are most potent. Their colleagues at NARI have also been working with HIV-infected people who naturally control HIV.

Together, the two research teams are identifying the specific B cells in the immune system that make these ADCC antibodies. Once the B cells are identified, the researchers will be able to synthesise these potent antibodies. This will be an important step towards new therapies being developed and the realisation of a cure for HIV. Both teams are hopeful that, as their research progresses, it will create knowledge that will have a real impact on HIV worldwide.

Find out more

For more information on the Australia-India Strategic Research Fund, visit www.science.gov.au/aisrf.