



MEDIA RELEASE

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YOUNG INVESTIGATOR AWARD TO SHOWCASE THREE STRIKINGLY DIFFERENT STUDIES

Herpes, binge drinking, and lysosomal storage disorders will all be explored at this year's Young Investigator Award on 2 November.

The Award, now in its sixth year rewards research excellence by young researchers and their ability to "sell" their science in lay language. It is an initiative of the Children, Youth and Women's Health Service and Faculty of Health Sciences at the University of Adelaide.

Three finalists will present their science at the Award event. They are enrolled in their PhDs through the University of Adelaide.

Adeline Lau, from the Women's and Children's Hospital's Lysosomal Diseases Research Unit, has researched whether a modified version of the dog "kennel cough" virus can direct a treatment protein into the brains of mice who suffer from a lysosomal storage disorder called MPS3A. These disorders are inherited and affect about 1 in 5000 babies. In the disorders, waste accumulates in the cells, affecting their functioning and leads to bone, heart and breathing problems and progressive brain disease, usually leading to death in childhood.

Patients with MPS3A lack a particular protein called sulphamidase with their brains, in particular, being affected. Adeline has modified the kennel cough virus to include sulphamidase in its structure. She has investigated whether this modified virus can restore the missing sulphamidase and reduce the build up of waste in human MPS3A cells grown in the laboratory. The modified virus has also been injected into MPS3A mice. Extensive behavioural testing will show its effect on affected and unaffected mice.

Brooke Summers, from Clinical Biochemistry at the IMVS and Hanson Institute, is exploring a controversial topic - whether zinc can protect fetuses against the effects of a mother's binge drinking. According to Brooke, damage caused to a mouse foetus through alcohol consumption is linked to a decrease in zinc in the mother's blood, which limits the supply of zinc to the foetus. Previous research has shown that, if an injection of zinc is given to a pregnant mouse at the time of a "binge", it prevents physical birth abnormalities caused by alcohol.

Brooke's research project looks at whether zinc treatment can also prevent cognitive impairments and if dietary zinc supplementation throughout pregnancy has any protective effects against alcohol toxicity. She has found that offspring of mice exposed to alcohol during early pregnancy display spatial memory impairments and giving zinc injections at the time of alcohol exposure prevents these impairments. In addition, dietary zinc supplementation prevents physical abnormalities and post natal death caused by prenatal ethanol exposure.

Branka Grubor-Bauk, from Infectious Diseases at the IMVS, is looking at how infections caused by herpes simplex virus type 1 are controlled by the immune system. Herpes is a common infection worldwide, affecting mainly the skin and nervous system. The virus lies dormant for the rest of the person's life and when reactivated, causes 'cold sores' which contain virus that can infect other people, usually young children. In western countries around 80% of children become infected with this virus. Although best known as a cause of cold sores, infections by this virus can get out of control in the very young or in people with compromised immune systems and cause brain damage and death. During pregnancy, maternal herpes simplex infection poses a considerable risk to the foetus.

Branka has used an infection in mice that mimics the human infection. She has discovered that mice lacking particular white blood cells called "natural killer" T cells are unable to control herpes simplex infections. These mice have more severe skin lesions, higher levels of virus, more spread to the nervous system and higher mortality. When natural killer T cells are replaced in these animals, the mice can once again fight the infection.

The 2005 Young Investigator Award will be held at the Art Gallery of South Australia from 6pm on 2 November.

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