

Fish eyes could help solve cornea shortage

May 16 2016, by Anne Beston

Research at the University of Auckland aimed at developing human corneal replacements by using proteins found in fish eyes has been awarded an Emerging Researcher First Grant from the Health Research Council of New Zealand.

There is a worldwide shortage of human donor corneas, the clear protective layer at the front of the eye, which has led to increasing interest in developing artificial replacements.

School of Biological Sciences Research Fellow Laura Domigan receives \$69,000 for her study involving recycling proteins from the eye lenses of New Zealand hoki fish to create new biomaterials for corneal tissue engineering.

"Tissue engineering involves the combination of a biomaterial scaffold with cells to create an implant that supports host tissue regeneration," Dr Domigan says.

"This work offers the opportunity for long-term tissue repair, as opposed to non-degradable artificial corneas which may result in host rejection and post-operative complications."

More than 250 corneal transplants are performed each year in New Zealand. Worldwide, around 10 million people have corneal blindness but only 100,000 transplants are performed annually because of a lack of donor corneas. The popularity of laser eye surgery also decreases the number of donor corneas suitable for transplant because it disqualifies

them from use.

Also awarded funding from the Health Research Council is Exercise Sciences lecturer Dr Graeme Carrick-Ranson who receives \$149,931 to study the consequences of type 2 diabetes on the cardiovascular effects of aging.

Dr Carrick-Ranson's research will examine the changes in cardiovascular structure and function in response to type 2 diabetes and aging and how these adaptations influence exercise capacity.

The benefits of exercise when started later in life on cardiac (heart) function will also be investigated in adults aged 65 years and over with and without type 2 diabetes.

"Cardiovascular disease is a leading cause of mortality in adults with type 2 diabetes; therefore we hope that this research will be an important step forward to reducing the adverse effects of type 2 diabetes on the cardiovascular system," Dr Carrick-Ranson says.

Provided by University of Auckland

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