

MEDIA RELEASE

New information about the cornea to assist in treating and preventing blindness

Researchers at Sydney's Centenary Institute have discovered new information about the cornea which could lead to vital new treatments aimed at repairing vision impairment and blindness.

Published today in the prestigious journal Nature Communications, this research reveals crucial new information about the way the cornea responds to damage.

The research led by Dr Guy Lyons identifies that damaged cells in the centre of the cornea are shed into the tear fluid. New cells are then made at the edge of the cornea and later migrate to the centre to replace the shed cells. The research has shown that the mechanism that drives this migration to the centre is very simple, not requiring interactions with other cells in the eye.

Dr Lyons said this research could assist in designing new treatments to repair eye damage that the body would otherwise be unable to.

"If we can understand what makes the healthy cells migrate and proliferate to replenish the damaged tissue, we might be able to design treatments to repair the damage," said Dr Lyons.

"As a result of this study, we now have a better understanding of how some clinical eye conditions develop. This information will assist in the future prevention and treatment of these conditions. It will also assist with the development of replacement corneas engineered in the laboratory."

Corneal damage accounts for 5.7 million cases of serious visual impairment worldwide, including 2.8 million cases of blindness. In Australia alone visual impairment that cannot be corrected by spectacles affects around 180,000 Australians.

The cornea is the first part of the eye which light must pass through during the process of vision, therefore maintaining its clarity and geometrical structure is essential for high quality vision.

Dr Lyons said that due to its exposed location, the cornea is susceptible to frequent damage by infection, chemicals and radiation, all of which can cause permanent damage to it.

"We also found that very low levels of UV, similar to what would be experienced from spending a few hours outdoors in sunlight, are sufficient to damage the corneal cells," he said.

"Everyone can take something away from this research – the importance of wearing sunglasses, preferably wrap-around, whenever outdoors. Even if we can't see it or feel it, it doesn't take much for the sun to do its damage!"

The Centenary Institute is continuing to work towards better understanding the mechanisms of the cornea. The next steps of this research include an increased focus on improving corneal transplants and recovery from injury and infections.

To find out more about the Centenary Institute's Immune Imaging Program visit www.centenary.org.au

Media contact: Ashleigh Mullaly - Uptown Communications, 0418 274 428