



Clearing corneas and restoring vision

The eye's cornea depends on stem cells to help maintain transparency. If disease or trauma depletes stem cell reservoirs, a rapid and painful loss of vision soon follows.

Professor Stephanie Watson and Professor Nick Di Girolamo have used stem cells to repair their patients' vision. It's the culmination of a 15-year collaboration to restore sight in Australians with corneal disease.

Stephanie is an international leader in research and innovation with the University of Sydney and a practising corneal surgeon. She met Nick as an early career scientist through a research group at the University of New South Wales and they discovered their shared interest. Nick is now a Director with the School of Medical Sciences at UNSW.

Working together, Stephanie and Nick's teams have transplanted healthy stem cells into patients' damaged eyes. In initial trials the cornea was restored in six out of ten patients and 80 per cent also experienced better vision. They are now improving the treatment and developing protocols so that the procedure can be offered to more patients.

Stephanie sees collaboration as crucial to helping more patients than just the ones she treats as a surgeon.

"Fifteen years ago, I was seeing lots of patients with corneal scarring and stem cell deficiency and I didn't have a way to help them. I was very lucky to receive an NHMRC Research Fellowship, which gave me the opportunity to work with Nick," she says.

"I've always hated having to say to patients 'Medicine can't help you at the moment.'"

"I can identify what patients need and Nick brings the technical laboratory skills and deep understanding of stem cells. We have complementary skills but a shared vision."

Stephanie has worked with colleagues at Stem Cells Australia, the Ophthalmic Research Institute of Australia, the Royal Australian and New Zealand College of Ophthalmologists, and patient groups to raise awareness of the potential of stem cells and to determine funding priorities relevant to patients.

"We want treatments that have real benefits to patients and to make sure that whatever we do is about achieving outcomes patients care about," she says.

While they have achieved profound results, Stephanie says that the funding environment in Australia is challenging. There are also clinics offering stem cell treatments that are risky and not clinically proven.

"With stem cells there's a lot of hope but there are also hoaxes. It's important that people considering treatments can easily find credible information to make sure they're part of legitimate trials and are not paying for unproven stem cell treatments," she said.

"We have to collaborate at multiple levels—from doctors and scientists to governments who regulate, to patients and the community as a whole—to really take advantage of what stem cell medicine can offer in its best form," she says.

