Breakthrough on glaucoma near

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A breakthrough therapy for glaucoma is less than a decade away thanks to genetic advancements in the field, says a renowned eye specialist.

Treatment for the debilitating eye disease traditionally has focused on lowering the pressure in the eye to slow the death of nerve cells.

But United States glaucoma expert Harry Quigley, from the Wilmer Eye Institute at Johns Hopkins University, says genetic research is where the real advancements are being made.

Professor Quigley said it was likely within a decade "we'll have a measurable, new therapy that significantly impacts a very large number of glaucoma patients. These are very exciting times".

Speaking at the Royal Australian and New Zealand College of Ophthalmologists Congress in Sydney, the specialist outlined the areas showing most promise for beating the condition, which causes nerve fibres linking the eyeball to the brain to die.

Researchers have had success with gene therapy, working out how to use a virus to insert genes into the eyes of rats with glaucoma to slow down cell death.

Gene therapy has proved to be dangerous, with several people dying or developing disease brought on by the virus in initial trials.

But Professor Quigley believes the eye, as a controlled environment, will be one of the first places to successfully do such therapy if it ever advances.

Research into stem cells, the so-called building blocks of all human tissue, is the other area showing greatest promise.

But the scientist says stem cells extracted from adults, not the controversial embryonic form being debated in Australia, hold the best chance of a glaucoma cure.

"Using stem cells from an embryo is a bit like playing golf with a gorilla. They're impossible to control," he said.

Adult cells are much more manageable and scientists already have worked out how to remove and safely multiply them in a test tube as a potential replacement for dying cells.

"These cells could be engineered to produce the chemicals we want, so when we put them back inside a living eye they produce a drug for you."

Another idea was to transform them into new nerve cells which could, one day at least, partly restore lost vision in people with advanced eye disease.

"This is very much pie in the sky at the moment but we're part way there. We just have to finish it off."