

Novel drug to slow cataracts on their path to causing blindness

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The innovators behind commercialising a world-first drug to slow cataract growth and to delay cataracts forming, have been named as one of five finalists in The University of Queensland (UQ) Business School's \$100,000 Enterprize business plan competition.

The drug being commercially developed by Adelaide-based Calpain Therapeutics targets a protein in the eye's tissue.

This [protein](#), when activated by various triggers, including those associated with the body's ageing, causes the clouding of the eye's lens, known as a [cataract](#).

Severe cataracts are the leading cause of blindness around the world.

Although most cataracts develop as people get older, they can also be caused by diabetes, eye injury, exposure to [ultraviolet light](#) from sunlight, long-term use of steroid medication, smoking and heavy drinking.

The International Agency for the Prevention of Blindness estimates that almost 18 million people are blind from cataracts.

Many of those are in the world's poorer regions.

Currently there are no drops or medications to prevent or reverse cataracts.

The only treatment is to have the cloudy lens surgically removed and replaced with a synthetic lens.

More than 200,000 cataract surgeries are performed in Australia each year and about 3.4 million a year in the United States.

There are often long waiting lists in public hospitals for the surgery.

Testing of the lead drug compound being advanced by Calpain Therapeutics has shown that it significantly slows cataract progression.

“Our drug could be either drops or a cream that you put in your eyes each night before you go to sleep,” says Calpain Therapeutics founding CEO and Managing Director, Dr. Tim Lovell.

“Through a routine eye exam, optometrists and ophthalmologists can see the early stages of a cataract forming, likely before the person has any idea they have it.

"Once it's detected, then you could start to use the drug to slow its progress.

“And because we know that if you have a cataract in one eye you will most likely get one in the other eye, you could start to apply the drug to both eyes, delaying the onset of a cataract in one while slowing the growth of the cataract that has been diagnosed.

“We see it as akin to brushing your teeth each day.

"You do that to prevent cavities. This would be a drop each day to prevent cataracts."

A large team is behind the development of the drug.

The lead inventor is Professor Andrew Abell, Professor of Chemistry at Adelaide University, who has been working for the past decade on the class of compounds involved.

Dr. Tim Lovell has previously worked on drug design and development with global pharmaceutical company AstraZeneca and was most recently a business development manager at Bio Innovation SA in Adelaide.

He says winning the UQ Business School's Enterprize competition \$100,000 prize would enable Calpain Therapeutics to do crucial clinical experiments.

“We have ophthalmologists on our advisory team who get very excited about what we are doing, because they haven't seen anything in their careers like this to delay the forming of cataracts, and which also has a possible secondary effect in protecting against other eye diseases,” Dr. Lovell says.

Since its inception in 2000, the Enterprize competition has assisted many successful businesses, including Fusion Sport, Codesion (formerly CVSDude), BakBalls, last year's winner Southern Innovation and finalist last year Vaxxas (which is pioneering the Nanopatch needle-free vaccine delivery system).

Provided by University of Queensland

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