



## New light-adjustable cataract lens

**Cataract surgery, the most common surgical operation performed on the planet, is about to become even more sophisticated following the recent approval by European and American regulatory authorities of a new type of lens.**

The new light-adjustable lens, which should soon be widely available, can be adjusted with laser beams within 2 weeks of surgery, allowing most patients to fine-tune the focus before locking it into the lens permanently.

It was during the Battle of Britain in 1940 that an ophthalmologist in London, Dr Harold Ridley, made a remarkable observation. The eyes of several Spitfire pilots had been impaled by small splinters of cockpit Perspex, yet the eyes tolerated this material and recovered well.

Dr Ridley deduced that an optical focusing lens made of the same material could be implanted inside the eye, replacing the cataract lens in the middle of the eye and eliminating the need for thick, heavy spectacles.

Precise improvements in optical instruments and better surgical methods now allow eye surgeons to select acrylic lenses that accurately compensate for pre-existing focus problems such as impaired reading vision, and in many cases youthful vision is restored.

The new light-adjustable lens will, once again, forever change the way that eye surgeons perform lens replacement surgery, and bring us a step closer to the Holy Grail of spectacle-free vision at any age.

### **Brisbane Eye Clinic**

Office Hours

8:00 am – 5:00 pm, Mon – Fri

### **After Hours Eye Emergencies**

An Ophthalmologist is on call for urgent cases and can be contacted by your GP, Optometrist or the Hospital.

### **Dr Erwin Groeneveld**

Vitreous and Retina Surgeon with expertise in Age Related Macular Disease, Retinal Vascular Disease, Glaucoma and Cataract Surgery

### **Dr Fiona Chan**

Cataract Surgeon, with a special interest in Medical Retina and Glaucoma

### **Dr John Ambler**

Diseases & Surgery of the Retina, Vitreous & Macula, Glaucoma and Cataract surgery



## New drug promises to halve injection frequency for macular degeneration

The need for frequent injections, along with the associated cost and travel time, is a big challenge for people with neovascular age-related macular degeneration, their caregivers and their ophthalmologists.

A new drug that extends the interval between injections has been found to meet safety standards and efficacy targets, and should be available in Australia in late 2018 or mid-2019.

The first human trial results for the drug, which is called brolocuzumab, showed a median extension of 30 days between injections. This virtually doubles the safe treatment intervals required for currently available treatments.

The drug also reduces the thickness of the central macula fluid.

With age-related macular degeneration, a chemical known as vascular endothelial growth factor, or VEGF, causes abnormal blood vessels to grow under the retina. Current treatments, known as anti-VEGF drugs, block this chemical, slowing the loss of vision.

Brolucizumab is the smallest of the anti-VEGF antibodies. A single injection can deliver 6 mg—this is 12 times more than aflibercept (Eylea®) and 22 times more than ranibizumab (Lucentis®).

The treatment cycle needs to be customised for each patient. We will learn more once the drug is released.

## Glaucoma and the ageing optic nerve

Like a fibre-optic TV cable in which the bandwidth determines the signal transmission speed and the image quality, the human eye has its own cable—the optic nerve—which connects the back of our eye (retina) to the visual cortex at the back of our brain.



Accelerated ageing in the optic nerve is a disease which we call glaucoma, or optic neuropathy. It's a common condition that can start at any age, leading to loss of bandwidth and premature degradation of the image quality.

The optic nerve is formed during pregnancy by biological connector cells which we call 'ganglion cells'. These cells grow long tails called 'axons' which combine to form the optic nerve. A normal optic nerve has about 1.2 million axons—it is living neural tissue which requires a blood supply, an energy source and nutrients.

As we grow older, the number of axons declines, affecting the composition of fibres and the complex links to the eye's rods and cones. We progressively lose our peripheral vision before the ability to read is compromised.

Detecting glaucoma in its early stages is both difficult and critical for effective treatment.

To be able to judge the difference between normal and abnormal, an eye specialist requires extensive training and many years of clinical experience. Repeat testing is often necessary.

We check for glaucoma by testing the pressure inside your eye (a process called tonometry) and by assessing your optic nerve function with visual field tests. With powerful detection algorithms, new imaging devices and improving technological innovation, we can measure the thickness of the ganglion cell layer in the retina, the neural rim in the optic nerve head, and the nerve fibres. This provides critical data.

Fortunately, in most cases we can slow down the rate of progressive ageing of the optic nerve. With eye drops, laser treatments or drainage surgery, we can reduce the pressure inside the eye by opening outflow channels or reducing production of eye fluid.