



# CASE STUDY

## *Moorfields Eye Hospital*

### *£250,000 to help find a cure for glaucoma*

Moorfields Eye Hospital was awarded a grant of £250,000 by The Freemasons' Grand Charity in 2009 to support a research programme that will further develop new anti-scarring therapies. Scarring plays a part in many eye diseases including glaucoma and it is hoped that this research programme will improve outcomes for glaucoma patients who need surgery to save their sight. If successful, the new therapies could be applied to patients with other blinding diseases.

The most effective surgical technique to relieve pressure in the eye for glaucoma patients is trabeculectomy. When medical treatment (usually eye drops) can no longer reduce the pressure caused by fluid build up in the eye, the surgeon creates a new channel to allow the fluid to drain away. This very successfully reduces the pressure which may be destroying the optic nerve. If left untreated, this would lead to further sight loss. However, the body's natural response is to form a scar to heal the new hole made in the eye, blocking the channel and causing the pressure to rise again. For the patient this means repeated operations to remove scar tissue and frequent hospital visits to monitor the pressure. It is not uncommon for patients to undergo many operations and to still have an uncertain future.

Currently, surgeons inject anti-scarring agents at the time of surgery but these only remain active for a short time and so are only partially effective. Prof Peng Tee Khaw (Moorfields Eye Hospital and UCL Institute of Ophthalmology) and his colleague Prof Steve Brocchini (The School of Pharmacy in London) are conducting research into a 'tissue tablet' which could be administered at the time of surgery and would slowly release an anti-scarring drug over a prolonged period giving much better scarring control and improving the patient's chances of maintaining their remaining sight. In addition, Professors Khaw, Brocchini and their colleagues are aiming to develop adult stem cell transplantation to regenerate a damaged optic nerve.

At present, trabeculectomy can only stop further loss of vision; it cannot reverse damage and restore vision. Combining research into improving anti-scarring techniques with stem cell transplantation for regeneration of the optic nerve is significant because it provides hope that it will be possible to restore some sight to patients in the future. The funding received from The Freemasons' Grand Charity is being used to employ two researchers over three years to work with Professors Khaw and Brocchini to develop these research areas.



*Look at the size! Tissue tablet compared to a £1 coin*



*Research Scientist hard at work at Moorfields Eye Hospital*



*Left to right: Russell Race, London Metropolitan Grand Master; Rudy Markham, Chairman of Moorfields Eye Hospital; Laura Chapman, Chief Executive of The Freemasons' Grand Charity and Grahame Elliott, President of the Grand Charity*

