

## SEMINAR ANNOUNCEMENT

**Prof Pete Coffey and Prof Robin Ali, UCL Institute of Ophthalmology**  
19 January 2011, Wednesday  
4.00pm to 6.00pm, Aspiration theatre @ Matrix Level 2M

### Stemming Vision Loss Using Stem Cells - Seeing Is Believing

The London Project to Cure Blindness was launched at the UCL Institute of Ophthalmology in June 2007, and aims to make the most of human embryonic stem cells to prevent blindness and restore sight in patients with Age-related Macular Degeneration (AMD) by 2012. Our goal is to replace cells essential for “seeing” lost by disease at the back of the eye.

We aim to repair and regenerate the aged diseased eye using human embryonic stem cells which have been transformed into the cells affected in AMD: the support cells for the photoreceptors (retinal pigment epithelium) and the photoreceptors. The cells will be surgically implanted into a clinical population of AMD patients.

#### Biography

*Prof. Pete Coffey is internationally recognized as a leading expert in human embryonic stem cells and their potential use to cure blindness. In 1987 Pete joined the faculty at the University of Oxford on completing his doctoral studies. In 1989, he was awarded a personal Royal Society Research Fellowship at the same time moving to the University of Sheffield to establish a new laboratory for retinal transplantation. After 14 years at the University of Sheffield, Pete was appointed Professor in the newly built Henry Wellcome Building for Translational Eye Research at the Institute of Ophthalmology in London. Pete has many years experience in cellular therapies as applied to retinal transplantation and recently was the principal author and co-author of two landmark papers demonstrating that implanting human cells could prevent visual loss. As Professor and Head of Ocular Biology and Therapeutics (ORBIT), Pete has established The London Project to Cure Blindness. This project aims to deliver a human stem cell therapy for a blinding condition called age-related macular degeneration (AMD) by 2011. His university (UCL) recently signed an agreement with Pfizer who are going to support the clinical development of Pete’s work.*



**Prof Pete Coffey**  
Head of Ocular Biology  
& Therapeutics  
UCL Institute of Ophthalmology

### Cell transplantation strategies for repairing the retina

We have previously discovered that transplantation of rod precursor cells at a specific stage of development results in their integration and subsequent differentiation into rod photoreceptors that form synaptic connections and improve visual function in mouse models of retinal degeneration (MacLaren, et al Nature, 2006). Conversely, transplantation of progenitor or stem cells that are not at this precise ontogenic stage do not show this property and fail to integrate. These findings provide a strong basis for the development of a cell transplantation programme

for the treatment of retinal disease. We are also developing strategies to overcome barriers present in the degenerate neural retina in order to improve the efficiency of cell integration and are testing efficacy using electrophysiology and various behavioural assessments of vision. Recently it has been shown that it is possible to generate photoreceptor cells from embryonic stem cells (Lambda et al PNAS 2006, Osakada Nat Biotech 2008) and our current work is focused on using embryonic stem cells to generate rod progenitors cells for transplantation.

#### Biography

*Robin Ali is Professor of Human Molecular Genetics at UCL Institute of Ophthalmology, London where he is also Head of Department of Genetics. He also holds faculty positions at UCL Institute of Child Health and the Biomedical Research Centre for Ophthalmology, Moorfields Eye Hospital. The main focus of his research is the development of gene and cell therapy for the treatment of retinal disorders. Robin Ali and members of his team have received numerous prizes and awards for their work on developing new treatments for retinal degeneration including the Pfizer /ARVO Karl Camras Translational Award in 2010 and Alcon Research Institute Award in 2009. In 2007 he was elected to the UK Academy of Medical Sciences and in 2009 appointed Senior Investigator of The UK National Institute of Health Research. He serves on the advisory boards of a number of funding bodies including the UK Medical Research Council (Neurosciences and Mental Health Board and the Translational Stem Cell Research Committee) as well as the advisory boards of pharmaceutical and biotech companies, including Alcon Pharmaceuticals and ReGenX. He obtained his BSc (1988) and PhD in Genetics (1993) at University College London, continued by postdoctoral training at the MRC National Institute for Medical Research and UCL Institute of Ophthalmology and established his laboratory at UCL Institute of Ophthalmology in 1999.*



**Prof Robin Ali**  
Division of Molecular Therapy  
UCL Institute of Ophthalmology

Hosted by Dr Alan Colman, Singapore Stem Cell Consortium  
Email : [alan.colman@imb.a-star.edu.sg](mailto:alan.colman@imb.a-star.edu.sg)  
Reception will be hosted by SSCC after the seminar