

our vision is
your VISION



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Summary of current research interests

Development of rapid system of translation of laboratory findings to models and clinical trials

New surgical techniques to improve surgery based on basic laboratory understanding of biological responses

The role of growth factors and inflammatory cytokines and their effect on

ocular scarring, and novel neutralising strategies

The cellular and molecular basis of cell motility and scarring including the therapeutic role of matrix metalloproteinases modulation (Cell motility group)

Ocular stem cells – basic biology and therapeutic use (Epithelial repair and retinal repair and regeneration groups) including prevention of scarring, tissue reconstruction and regeneration.

Key achievements

- MRC/Moorfields 5-Fluorouracil 'More Flow Study': Improvement in intraocular pressure control using the five minute 5-fluorouracil sponge treatment developed at Moorfields Eye Hospital and IOO. No glaucoma progression in the group, with minimal scarring.
- Description of the cellular action of MMP inhibitors on fibroblast mediated contraction and first report of prevention of scarring after glaucoma filtration surgery.
- Winner of Simfonec Business Plan competition by Icite team for new anti-scarring treatment.
- Reduction in bleb related complications following change in anti-metabolite application technique 8 years ago from 20% to 0%. If applied worldwide, could reduce incidence of blinding complications in many thousands of patients.
- With Vitreoretinal Unit at Moorfields Eye Hospital, using short, single doses of 5-fluorouracil and heparin showing for the first time in the world the prevention of post-operative blinding scarring in high risk patients.
- First human clinical trial of TGF- β 2 antibody to prevent ocular scarring.
- Accreditation by the MHRA (UK) of the new Cells from Sight human stem cell transplantation laboratory, headed by Dr Julie Daniels PhD. First accredited lab for ocular stem cell transplants in the UK.

Research Projects

Molecular mechanisms of cell responses to mechanical stress through modulation of actin dynamics

Physicochemical based design for the effective delivery of drugs for tissue engineering and regeneration

Ocular pharmacokinetic delivery of novel antiscarring molecules

Pharmacological delivery of contraction inhibitors

Characterisation of the corneal limbal epithelial stem cell niche

Stem cell differentiation and extracellular matrix control

Optimising conditions for stem cell grafting for restoration of sight

Programme of stem cell therapy

Muller Stem cells for the restoration of vision.

Reversing epithelial stem cell defects with gene therapy

Development of copun nanofibre porous membranes for the design of multilevel adult stem cell grafts for retinal reconstruction

Mechanisms, genetics and treatment of angle closure glaucoma

A population study of angle closure glaucoma

Follow up of a randomised controlled trial of screening for primary angle closure in Mongolia

Professor Peng Tee Khaw



Delivering practical glaucoma surgery and preventing trachoma scarring induced blindness in Africa

Publications [Click here for complete publications list](#)

Polyvalent dendrimer glucosamine conjugates prevent scar tissue formation.

Shaunak S Thomas S Gianasi E Godwin A Jones E Duncan R
Mireskandari K Luthert P Patterson S Khaw PT Brocchini S
Nature Biotechnology 2004; 22: 977-984

Long-term anti-scarring effects of Ilomastat following experimental glaucoma filtration surgery: a comparison with Mitomycin-C
Wong TTL Mead AM Khaw PT Invest Ophthalmol Vis Sci 2005; 46: 2018-2022

Adjuvant therapy with 5-fluorouracil and low molecular weight heparin prevents post operative proliferative retinopathy: results from a randomised controlled clinical trial
Asaria RHY Kon CH Bunce K Charteris D Wong D Khaw PT Aylward GW
Ophthalmology 2001; 108: 1179-1183

Anti-Transforming Growth Factor- β 2 antibody: a new post operative anti-scarring agent in glaucoma surgery
Mead AL Wong TTL Cordiero MF Anderson IK Khaw PT
Invest Ophthalmol Vis Sci 2003; 44: 3394-3401

Medical Research Council long term randomised prospective clinical trial of single dose 5-fluorouracil in glaucoma surgery: effect on surgical outcome and glaucoma progression
Khaw PT Minassian D Hitchings RA Fitzke FW Farewell V Salmon J O'Brien C Archer D and the More Flow study group

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- Desmond Foundation
- CBM

Collaborators:

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