



Professor Andrew Dick

B.Sc., M.B.B.S.(Lond.), M.D.(Aberd.), M.R.C.P.(UK), F.R.C.S.(Lond.), F.R.C.S.(Edin.), F.R.C.P.(Edin.), F.R.C.Ophth, FMedSci

Professor of Ophthalmology

Area of research

Immune mechanisms of autoimmune disorders of the eye

Ophthalmology,
Bristol Eye Hospital, Lower Maudlin Street BS1 2LX
([See a map](#))

+44 (0) 117 342 4854
a.dick@bristol.ac.uk

Summary

Group: [Inflammatory Eye Disease Group](#)

My group's work and that of others in ophthalmology focuses on how the retina responds to injury, inflammation and degeneration. This covers areas which include:

1. The control of immune responses in the retina which includes for example the interaction with microglia and inhibitory signals mediated by neuronal CD200 expression
2. Autoimmune responses within the eye and brain, by studying both T cell and macrophage responses within the tissue during experimental retinal and CNS autoimmunity
3. Microglial and macrophage behaviour during retinal degeneration by studying experimental models of photoreceptor degeneration
4. Retinal remodelling by studying the interaction of microglia, Muller cells and retinal progenitor cells
5. Role of macrophages in retinal and choroidal angiogenesis
6. Development of immunomodulatory agents for the treatment of uveitis, investigated in the experimental model of uveitis

Clinically we are undertaking significant advances in human ocular immunology through both our lead of Inflammation and immunotherapeutics of Biomedical Research Centre at Moorfields Eye Hospital and UCL-Institute of Ophthalmology. This includes:

- (i) proof of concept early phase trials of immunotherapeutics.
- (ii) Understanding of immune responses via live in vivo imaging of leukocytes through the retinal and choroidal vasculature in man.
- (iii) progressing with development of gene therapy for treatment of uveitis

Present collaborators

- [Dr Lindsay Nicholson](#), School of Cellular and Molecular Medicine
- Dr Richard Lee, School of Clinical Sciences
- Dr Denize Atan, School of Clinical Sciences
- Dr Bob Nussenblatt, National Eye Institute, USA
- Professor R Ali, Institute of Ophthalmology and Institute of Child Health, UCL
- Professor John Forrester, University of Aberdeen
- Professor Jim Bainbridge, Institute of Ophthalmology, UCL
- Professor Mike Boulton, Indiana University School of Medicine

Activities / Findings

- Role of neuronal CD200 in control of myeloid activity within retina
- Progenitor cell differentiation in adult human retina
- Mechanisms of microglial-mediated immune regulation
- Role of Microglia during retinal degeneration
- Mechanism of macrophage-induced retinal damage during inflammation

Teaching

[MSc project](#)

Keywords

- autoimmunity
- macrophages
- microglia
- progenitor cells

Skills

- Uveitis
- Retinitis pigmentosa
- diabetes
- retinal detachment

Processes and functions

- Autoimmunity
- angiogenesis
- tissue repair

Methodologies

- Cell culture
- Western
- PCR
- FACS
- immunohistochemistry
- ELISA

Expertise

Immune mechanisms of autoimmune disorders of the eye. The ophthalmic-immunology group's work focuses on how the retina responds to injury, inflammation and degeneration. This covers areas which include: -The control of immune responses in the retina which includes the interaction with microglia and inhibitory signals mediated by neuronal CD200 expression and matrix (TSP). -The myeloid cell control of angiogenesis during wound healing and chronic inflammation. -Autoimmune responses within the eye and brain, by studying both T cell and macrophage responses within the tissue during experimental retinal and CNS autoimmunity. -Microglial and macrophage behaviour during retinal degeneration by studying experimental models of photoreceptor degeneration. -Retinal remodelling by studying the interaction of microglia, Muller cells and retinal progenitor cells. -Development of immunomodulatory agents for the treatment of uveitis, investigated in the experimental model of uveitis. - Clinical trials for inflammatory eye disease and retinal diseases such as Age related macular degeneration

- autoimmunity
- retinal neural progenitor cell research
- graft rejection
- macrophages
- microglia
- uveitis
- Retinal disease

Memberships

Organisations

[Bristol Medical School \(THS\)](#)

Other sites

- [Infection-immunity](#)
- [Medical-school](#)
- [Neuroscience](#)

Academic staff

- [School of Clinical Sciences Academic Staff](#)

Research groupings

- [Ophthalmology](#)

Recent publications

- , Chua, SYL, Thomas, D, Allen, N, Lotery, A, Desai, P, Patel, P, Muthy, Z, Sudlow, C, Peto, T, Khaw, PT, Foster, PJ, Zheng, Y, Aslam, T, Barman, SA, Barrett, JH, Bishop, P, Blows, P, Bunce, C, Carare, RO, Chakravarthy, U, Chan, M, Crabb, DP, Cumberland, PM, Day, A, Dhillon, B, Dick, AD, Egan, C, Ennis, S, Fruttiger, M, Gallacher, JE, Garway-Heath, DF, Gibson, J, Gore, D, Guggenheim, JA, Hammond, CJ, Hardcastle, A, Harding, SP, Hogg, RE, Hysi, P & others 2019, '[Cohort profile: Design and methods in the eye and vision consortium of UK Biobank](#)'. *BMJ Open*, vol 9.
- Ou, K, Mertsch, S, Theodoropoulou, S, Wu, J, Liu, J, Copland, D, Scott, L, Dick, A, Schrader, S & Liu, L, 2019, '[Müller Cells Stabilize Microvasculature through Hypoxic Preconditioning](#)'. *Cellular Physiology and Biochemistry*, vol 52., pp. 668-680
- Solebo, AL, Rahi, JS, Dick, A, Ramanan, A, Ashworth, J, Edelsten, C & , 2019, '[Areas of agreement in the management of childhood non-infectious chronic anterior uveitis in the UK](#)'. *British Journal of Ophthalmology*.
- Hu, X, Schewitz-Bowers, L, Lait, P, Copland, D, Stimpson, M, Li, JJ, Liu, Y, Dick, A, Lee, R & Wei, L, 2019, '[The Bromodomain and Extra-Terminal Protein Inhibitor OTX015 Suppresses T Helper Cell Proliferation and Differentiation](#)'. *Current Molecular Medicine*, vol 18., pp. 594-601
- Carreno, E, Clench, T, Steeples, LR, Salvatore, S, Lee, RWJ, Dick, AD & Pawade, J, 2019, '[Clinical spectrum of vitreoretinal lymphoma and its association with MyD88 L265P mutation](#)'. *Acta Ophthalmologica*, vol 97., pp. e138-e139
- Ou, K, Mertsch, S, Theodoropoulou, S, Wu, J, Liu, J, Copland, DA, Schrader, S, Liu, L & Dick, AD, 2019, '[Corrigendum to "Restoring retinal neurovascular health via substance P" \[Exp. Cell Res. \(2019\)\]](#)'. *Experimental Cell Research*.
- Wu, J, Sebastian, RT, Chu, CJ, McGregor, F, Dick, AD & Liu, L, 2019, '[Reduced Macular Vessel Density and Capillary Perfusion in Glaucoma Detected Using OCT Angiography](#)'. *Current Eye Research*, vol 44., pp. 533-540
- Ou, K, Mertsch, S, Theodoropoulou, S, Wu, J, Liu, J, Copland, D, Schrader, S, Liu, L & Dick, A, 2019, '[Restoring retinal neurovascular health via substance P](#)'. *Experimental Cell Research*, vol 380., pp. 115-123
- Armitage, WJ, Winton, HL, Jones, MN, Crewe, JM, Rogers, CA, Tole, DM & Dick, AD, 2019, '[Corneal transplant follow-up study II \(CTFS II\): A prospective clinical trial to determine the influence of HLA class II matching on corneal transplant rejection: Baseline donor and recipient characteristics](#)'. *British Journal of Ophthalmology*, vol 103., pp. 132-136
- Horton, S, Jones, AP, Guly, C, Hardwick, B, Beresford, MW, Lee, R, Dick, A & Ramanan, A, 2019, '[Adalimumab in Juvenile Idiopathic Arthritis-Associated Uveitis: 5-Year Follow-up of the Bristol Participants of the SYCAMORE Trial](#)'. *American Journal of Ophthalmology*, vol 207., pp. 170-174

[View complete publications list](#) in the University of Bristol publications system

Networks & contacts

- Professor R Ali
- Institute of Ophthalmology and Institute of Child Health
- UCL
Dr Jon Sedgwick
- DNAX
- California
- USA
Professor John Forrester
- University of Aberdeen
Dr Neil Williams
- Department of Pathology and Microbiology
- Bristol
Professor David Wraith
- Department of Pathology and Microbiology
- Bristol
Professor John Isaacs
- University of Newcastle
Professor Dave Shima
- UCL