

OUR vision is  
your VISION



## Professor Sue Lightman

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### Summary of current research interests

Main areas of interest are in inflammatory and infective eye disease –both the investigation of how they affect vision but also in novel methods of treatment. Inflammation within the eye has many non-infectious causes and

we are particularly interested in how cytokines orchestrate these processes. This work has extended into looking at cytokine polymorphisms. My group has particular expertise in running clinical trials for inflammatory and infective disease.

### Key achievements

- Introduction of novel and effective therapeutic agents for the management of sight threatening uveitis
- Identification of key cytokine gene polymorphisms in the development of sight threatening complications of uveitis
- In vitro immunosuppressive effects of statins and comparison of these with conventional agents
- Identification of a Th1 T-cell response in atopic keratoconjunctivitis which led to the successful introduction of topical cyclosporin for this
- Introduction of intraocular triamcinolone for the management of refractory macular oedema in patients with uveitis

### Research Projects

Patients with uveitis can require high doses of steroids and immunosuppressive agents for many years. Despite the use of these drugs, many will still lose vision. Current projects and clinical trials include

- The use of interferon alpha in inducing long term disease remission in patients with Behcet's Disease
- The control of uveitis with intraocular posurdex – this is a steroid gel which slowly releases the steroid within in the eye for up to 6 months
- Use of long acting intraocular steroid in the long term control of sight threatening uveitis
- The use of topical prostaglandins in the management of raised intraocular pressures in patients with uveitis
- Management of uveitis in children and the role of intraocular steroids

In the laboratory a variety of investigative programmes are underway

- Can we predict which patients will develop complications of uveitis by detection of key cytokine polymorphisms so that early more aggressive treatment may be given to prevent this?

- Does interferon alpha induce regulatory T-cells as the mechanism by which disease remission is induced?
- How is the immunosuppressive effect of statins achieved and is it comparable to immunosuppressive agents in current use such as cyclosporin and mycophenolate?

- Does the use of topical prostaglandins in patients with uveitis increase the inflammatory markers in the conjunctiva? Could this lead to an increased risk of failure of trabeculectomy on the future?

In patients with intraocular infection, better protocols are being devised and tested to try and reduce the high visual loss in this group.

- The use of antibiotics such as moxifloxacin has been introduced into clinical practice after extensive investigation of ocular isolates in the laboratory.
- Intraocular injection of voriconazole for patients with resistant fungal infection is being given and other new anti-fungal agents tested.
- Patients with HIV infection who are started on anti-retroviral therapy remain susceptible to TB but have a markedly reduced incidence of CMV retinitis. The mechanism of this is being investigated and the use of ELISPOT in patients with latent TB further explored.

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

Kok H, Lau C, Maycock N, McCluskey P, Lightman S. Outcome of intravitreal triamcinolone in uveitis. *Ophthalmology*. 2005 Nov;112(11):1916.

Kuo NW, Lympny PA, Menezo V, Lagan AL, John S, Yeo TK, Liyanage S, du Bois RM, Welsh KI, Lightman S. TNF-857T, a genetic risk marker for acute anterior uveitis. *Invest Ophthalmol Vis Sci*. 2005 May;46(5):1565-71.

Hill T, Galatowicz G, Akerele T, Lau CH, Calder V, Lightman S. Intracellular T lymphocyte cytokine profiles in the aqueous humour of patients with uveitis and correlation with clinical phenotype. *Clin Exp Immunol*. 2005 Jan;139(1):132-7. Erratum in: *Clin Exp Immunol*. 2005 Apr;140(1):192-3.

Lynn WA, Lightman S. The eye in systemic infection. *Lancet*. 2004 Oct 16-22;364(9443):1439-50. Review

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