

## Dr Steve Publicover BSc PhD

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### About

Dr Steve Publicover is an internationally-recognised expert on sperm physiology and signalling events in sperm initiated by sperm-egg interaction.

### Qualifications

BSc (University of Liverpool)

PhD (University of Liverpool)

### Biography

I obtained my BSc and PhD at Liverpool. I have worked on ion channels and cell signalling (primarily  $\text{Ca}^{2+}$ ) in the physiology and pathology of a number of cell types. Initially this work was focussed on synaptic transmission, synaptic plasticity and  $\text{Ca}^{2+}$ -mediated cell death in excitable cells. After moving to Birmingham, I worked on signalling in mammalian bone, particularly the putative glutamatergic signalling network. My laboratory now concentrates on human sperm physiology and sperm-egg signalling. We are studying signalling events (primarily  $[\text{Ca}^{2+}]_i$  signalling and ion channel regulation) evoked by interaction of sperm with the oocyte-cumulus complex and the female tract.

### Teaching

Areas of teaching include neurobiology and nervous systems (taught to all three undergraduate years), cellular physiology and reproductive biology. I have a background in zoology and also contribute to teaching on animal diversity.

### Postgraduate supervision

For a list of possible PhD projects offered by Dr Publicover [www.findaphd.com/search/customlink.asp?inst=birm-Biol&supersurname=Publicover](http://www.findaphd.com/search/customlink.asp?inst=birm-Biol&supersurname=Publicover)  
(<http://www.findaphd.com/search/customlink.asp?inst=birm-Biol&supersurname=Publicover>)

### Research

Research Theme within School of Biosciences: **[Molecular and Cell Biology \(/research/activity/cellbiology/index.aspx\)](/research/activity/cellbiology/index.aspx)**

**Lab website address:** <http://www.biosciences-labs.bham.ac.uk/publicover/> (<http://www.biosciences-labs.bham.ac.uk/publicover/>)

#### **$\text{Ca}^{2+}$ signalling and regulation of function in human sperm.**

I have worked on ion channels and cell signalling (primarily  $\text{Ca}^{2+}$ ) in the physiology and pathology of a number of cell types. Initially this work was focussed on synaptic transmission, synaptic plasticity and  $\text{Ca}^{2+}$ -mediated cell death in excitable cells. After moving to Birmingham, I worked on signalling in mammalian bone, particularly the putative glutamatergic signalling network.

My laboratory now concentrates on human sperm physiology and sperm-egg signalling. We are studying signalling events (primarily  $[\text{Ca}^{2+}]_i$  signalling and ion channel regulation) evoked by interaction of sperm with the oocyte-cumulus complex and the female tract. Our primary area of interest is the role(s) of  $\text{Ca}^{2+}$  signalling and post-translational protein modification in regulation of the activities of human spermatozoa (particularly motility) in response to factors encountered by the sperm in the female tract, both from the tract itself and from the oocyte and its surrounding cumulus cells. We are using ion-imaging, electrophysiological and molecular techniques, together with standard techniques for assessment of motility, to study signal transduction and downstream responses in human sperm.

### Publications

Mansell, S.A., Publicover, S.J, Barratt, C.L.R., Wilson, S.A. (2014) Patch clamp studies of human sperm under physiological ionic conditions reveal two functionally and pharmacologically distinct cation channels. Human Reproduction (in press)

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