



## **Dr Claire Hales**

### **PhD**

Research Associate

### **Area of research**

Investigating the neural circuits and molecular mechanisms which regulate emotional behaviour and affective bias

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### **Summary**

I am a Research Associate in the Robinson lab. I am working on a four year project funded by a BBSRC Industrial Partnership Award in collaboration with Boehringer Ingelheim. This work builds upon the research I conducted during my PhD as part of the Wellcome Trust Neural Dynamics programme investigating how emotions affect decision making using a rodent behavioural model in combination with computational modelling. Specifically, the project I am working on involves using a reward-based operant judgement bias task alongside techniques to target neural pathways thought to be important in the regulation of affective biases, as well as RNA sequencing to investigate the neural circuits and molecular mechanisms underlying the rapid onset antidepressant efficacy of ketamine.

### **Biography**

As an undergraduate I studied Natural Sciences at the University of Bath, majoring in Biology along with Psychology and Mathematics. As part of my degree, I spent a year at Yale University in Connecticut working in a Molecular Psychiatry laboratory within Yale School of Medicine led by Prof Marina Picciotto. My main project for the year was piloting and optimising two operant behavioural tasks, as well as optimising the lab's intravenous self-administration procedure, to establish a behavioural assay which could be used to assess the role of the nicotinic cholinergic system in impulsivity and drug addiction in a mouse model.

After finishing my BSc I spent a year working at the University of Cambridge as a Research Assistant in an Immunology laboratory headed by Prof Ken Smith that is part of Cambridge Institute for Medical Research at Addenbrooke's Hospital. My main project was identifying the kinetics and localisation of T follicular regulatory cells during germinal centre formation using a combination of immunofluorescence and flow cytometry. I was also responsible for breeding, genotyping and maintenance of a transgenic mouse colony.

I decided to pursue a career in Neuroscience research, and within the Neural Dynamics PhD programme I completed my PhD working on a project cosupervised by Dr Emma Robinson and Dr Conor Houghton investigating the impact of emotions on decision making. I developed a novel, reward-based operant judgement bias task and carried out pharmacological affective state manipulations to both validate the task and investigate the effect of delayed versus rapid onset antidepressants on decision making biases. Alongside this experimental work, I used modelling approaches to investigate the decision making processes underlying affective biases in this task.

I am currently working as a post-doc in the Robinson lab continuing with the research I began during my PhD as part of a four year Industrial Partnership Award in collaboration with Boehringer Ingelheim. The project is focused on investigating the neural circuits and molecular mechanism which regulate emotional behaviour and affective biases.

### **Teaching**

During my PhD I demonstrated in undergraduate practical classes, across areas including anatomy, physiology and animal handling skills. During my post-doc, I am continuing to demonstrate in undergraduate animal handling practicals.

### **Keywords**

- Behavioural neuroscience
- psychopharmacology
- translational neuroscience
- computational neuroscience
- cognitive modelling.

## Memberships

## Organisations

[School of Physiology, Pharmacology & Neuroscience](#)

## Recent publications

- Aylward, J, Hales, C, Robinson, E & Robinson, O, 2019, '[Translating a rodent measure of negative bias into humans: the impact of induced anxiety and unmedicated mood and anxiety disorders](#)'. *Psychological Medicine*.
- Slaney, CL, Hales, CA & Robinson, ES, 2018, '[Rat models of reward deficits in psychiatric disorders](#)'. *Current Opinion in Behavioral Sciences*, vol 22., pp. 136-142
- Hales, CA, Houghton, CJ & Robinson, ES, 2017, '[Behavioural and computational methods reveal differential effects for how delayed and rapid onset antidepressants effect decision making in rats](#)'. *European Neuropsychopharmacology*, vol 27., pp. 1268-1280
- Hales, CA, Robinson, ESJ & Houghton, CJ, 2016, '[Diffusion Modelling Reveals the Decision Making Processes Underlying Negative Judgement Bias in Rats: Modelling Decision Making during Negative Affect](#)'. *PLoS ONE*, vol 11.

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