



Nottingham BBSRC DTP CASE Project



Project Title:
Insula and cingulate contributions to the control of tic-like movements and other behaviours relevant to Tourette’s syndrome: integrative neuroscience studies in rats
Research Cluster:
Biomaterials for Tissue Engineering and Drug Delivery (Bioscience for Human Health)
School:
School of Psychology
Partner Organisation:
Neupulse
Project Description:
<p>Human brain imaging studies have linked activity of the insula and mid-cingulate brain regions to action/movement control and motor tics – repetitive movements that resemble normal movements but are produced outside the normal context of these movements and are characteristic of Tourette’s. However, such studies cannot tell us if activity in these brain regions causes tics.</p> <p>In rats, the insula and cingulate cortex are similarly organised to humans, and we can study tic-like movements and other Tourette’s-related behaviours. Therefore, studies in rats, where we can combine experimental brain manipulations with behavioural and neurophysiological measurements, allow us to determine if changes in insula activity cause Tourette’s-related behavioural changes.</p> <p>In this project, the student will combine manipulations of insula or mid-cingulate neural activity in rats, using intracerebral drug micro infusions, with behavioural, electrophysiological and translational neuroimaging measurements in rats.</p> <p>The project will reveal insula and/or mid-cingulate contributions to movement control and other behaviours relevant to Tourette’s and inform the development of new treatments, including non-invasive neuromodulation approaches. The student will spend 3 months with Neupulse, a neurotechnology start-up focusing on neuromodulation devices, where they will learn about translating and commercialising research findings. The translational neuroimaging studies in rats will be completed with our collaborators at the Leibniz Institute of Neurobiology (Magdeburg, Germany).</p>
Lead Supervisor:
Tobias Bast
Please email the lead supervisor to find out more about this project.

Terms & Conditions:

Home and international students are welcome to apply for this opportunity. Funding is available for four years from October 2025. The award covers tuition fee (£4,712) at the home rate plus an annual stipend which was (£19,273) for 2024. This is set by the Research Councils.

Please note that successful international candidates will be put forward for a University Fees Difference Scholarship to cover the difference between the home and international fee.

<https://www.nottingham.ac.uk/bbdtb/apply/apply-online.aspx>

Closing Date:

12 noon (UK time) 31 January 2025