FUTURENEURO PhD POSITIONS

FutureNeuro is a new national research centre focused on chronic and rare neurological diseases, funded by Science Foundation Ireland and based at the Royal College of Surgeons in Ireland. FutureNeuro brings together multidisciplinary scientific teams with clinicians and industry to deliver advances in diagnostic medicine, personalized and network therapeutics, cross-linked by a national e-Health infrastructure platform that is disease-focused.

Under the programme there will be an initial intake of three PhD projects focused on molecular mechanisms, biomarkers and therapeutics for the neurological disease epilepsy. Aside from the core laboratory research project, your career development will be further supported under the Centre with training in entrepreneurship and science communication. In addition, you will be encouraged to gain industry experience by undertaking a three month industry placement during your PhD programme.

SUPERVISOR NAME & CONTACT DETAILS:
Professor David C. Henshall
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DEPARTMENT:
Physiology & Medical Physics
Molecular & Cellular Therapeutics

FUNDING AGENCY:
Science Foundation Ireland (Research Centre)

STUDENTSHIP DETAILS:
Stipend of €18,000/year (plus fees) up to a maximum of 4 years (please verify that this is correct)

START DATE:
September 2017

SUBJECT AREA:
Biomedical science – genetics, molecular biology, neuroscience, pharmacology

RCSI DEVELOPING HEALTHCARE LEADERS WHO MAKE A DIFFERENCE WORLDWIDE

RCSI

THE PhD PROJECTS ARE:

1) EXPLORING NOVEL ROLES FOR NONCODING RNAS AS DRUG TARGETS AND BIOMARKERS OF EPILEPSIES

Research by the Henshall laboratory and collaborators has identified important roles for small noncoding RNAs called microRNAs in the development of epilepsy and suggested they may have therapeutic and diagnostic potential. This project will characterize novel noncoding RNAs within biofluids and brain samples in patients with epilepsy. The project will involve close collaboration with clinicians and experimental techniques including sequencing and bioinformatics analysis of small noncoding RNAs as well as cell and molecular assays to determine their molecular functions and mechanisms.

2). NEURON-GLIA CROSS-TALK VIA PURINERGIC SIGNALING IN EPILEPSY

ATP is released by neurons and glia to function in modulating synaptic strength and neuroinflammatory responses to brain injury. This project will use genetic tools including viral vectors and transgenic reporter mice to define the mechanisms involved in neuron-glia neuroinflammatory signaling mediated by purines in epilepsy. The research will also test pharmacologic and genetic manipulations of this transmitter system in models of epilepsy and human neurons.

3). NOVEL MOLECULAR MEDIATORS OF THE ANTI-CONVULSANT ACTIONS OF CANNABINOIDS

Cannabinoids have recently emerged as novel therapeutics for certain devastating epilepsies of childhood including Dravet syndrome. This project will focus on exploring the molecular mechanisms underlying these effects. The research will feature a strong focus on pharmacology, cell and electrophysiological assays of neuronal network behaviour and in vitro and in vivo models of epilepsy.

Examples of recent relevant publications by the RCSI teams and their collaborators:

Rajman et al. A microRNA-129-5p-Rbfox cross-talk coordinates homeostatic down-scaling of excitatory synapses. EMBO Journal (2017) doi: 10.15252/embj.201695748

Reschke et al. Potent anti-seizure effects of locked nucleic acid antagomirs targeting miR-134 in multiple mouse and rat models of epilepsy. Mol Thera Nucleic Acids 6, 45 – 56 (2017)

Jimenez-Pacheco et al. Transient P2X7 receptor antagonism produces lasting reductions in spontaneous seizures and gliosis in experimental temporal lobe epilepsy. Journal of Neuroscience 36, 5920-5932 (2016)

PERSON SPECIFICATION

The successful candidate should be able to demonstrate the following:

Essential:
- » An Honours Bachelor degree (grade 2.1 or above) in a relevant discipline such as neuroscience, biochemistry, molecular biology, pharmacology, computer science, bioinformatics, statistics or genetics
- » Good communication skills
- » Strong organisational and administrative skills
- » Ability to work on one's own initiative as well as in a multidisciplinary, team environment
- » Willingness to undertake training and career development
- » English language requirements for candidates who do not speak English as their first language: an IELTS score of 6.5 or above

Desirable:
- » Previous laboratory research experience

APPLICATION PROCESS

Please apply with an up-to-date CV, a 500-word statement outlining your suitability for the position and preferred project, and contact details of two referees to FN@rcsi.ie

Application Deadline: Friday 30th June 2017 at 5 p.m.
Interview date: July/August 2017
Start date: Late September 2017