

Postdoctoral Position Bioinformatics – Regulation of neuronal excitability by miRNA:

Project title: Computational and systems-level investigation of miRNAs in neuronal excitability, epileptogenesis and epilepsy

Location: Centre for Systems Medicine (CSM) and Department of Physiology and Medical Physics, Royal College of Surgeons in Ireland (RCSI, Dublin, Ireland)

Supervisors: Prof Jochen Prehn, Director, RCSI Centre for Systems Medicine

The EU-funded, €13M EpimiRNA consortium (www.epimirna.eu) focuses on identifying microRNA (miRNA) implicated in epilepsy. The consortium has generated RNA Seq data in preclinical models of epilepsy and interrogated clinical samples, and through this has identified the 'miRNAome' of epilepsy. A postdoctoral position is now available in the Centre for Systems Medicine (CSM) and Department of Physiology and Medical Physics, Royal College of Surgeons in Ireland, to apply computational and systems biology techniques to investigate the role of these newly identified miRNAs in neuronal excitability, epileptogenesis and epilepsy. The laboratory is located in the heart of Dublin.

Project Background & Description:

Epilepsy is a spectrum of chronic neurological disorders characterised by recurring seizures, with many patients refractory to medication. miRNAs are short stretches of non-coding DNA involved in the post-transcriptional regulation of gene expression. miRNAs have been extensively linked to neuronal development, excitability and epilepsy. The EU-funded EpimiRNA consortium (www.epimirna.eu) was established to systematically investigate the effects of miRNA dysregulation in epilepsy, with the aim to develop novel miRNA-based techniques and therapies to improve the diagnosis and treatment of epilepsy.

This project will involve the development and analysis of miRNA-mRNA and miRNA-protein network interaction maps specific to neuronal membrane excitability and other epilepsy-related signalling mechanisms, to identify proteins and signalling pathways critically regulated by epilepsy-associated miRNA signalling alterations.

The integration of computational approaches will allow thorough investigation of how miRNA changes predict and/or promote dysregulation of neuron excitability and epileptogenesis, and facilitate the identification and validation of biomarkers and therapeutic strategies for epilepsy patients.

Working as part of the EpimiRNA consortium, the postdoc will also benefit from collaborating with European and international experts in the fields of epilepsy and miRNAs through the dissemination of high quality data and knowledge.

Person Specification:

We are looking for a highly motivated, passionate postdoc with a background in bioinformatics or systems biology. Prior knowledge and expertise in the analysis of miRNA, and/or experience in neuroscience or biostatistics is of advantage.

Salary and duration of post: The successful candidate will receive a salary commensurate with level of experience and the IUA salary scale (€ 35,489 – 41,181 per annum). The position is offered immediately, however successful applicants should not commence later than January 2018.

Application procedure: Please send a CV and accompanying documentation (incl recommendations/references) to patsyconnolly@rcsi.ie

Closing date: Applications will be reviewed on an incoming basis, but should be received not later than Nov 30th, 2016.

Web: <http://www.systemsmedicineireland.ie/>

Relevant publications:

Jimenez-Mateos *et al.*, Silencing microRNA-134 produces neuroprotective and prolonged seizure-suppressive effects. *Nature Medicine* **18**:1087–1094 (2012). doi:10.1038/nm.2834