University of Nottingham
UK | CHINA | MALAYSIA

Role profile

Job title	Senior Research Fellow in Electrophysiology Modelling	Job family and level	Research and Teaching Level 5
School/ Department	School of Mathematical Sciences	Location	University Park Campus, Nottingham, UK

Purpose of role

This senior postdoctoral position will have specific responsibility for developing models of cardiac ion channels and their interaction with drug compounds, working with Prof. Gary Mirams, on a £2M Wellcome-Trust funded project entitled “Developing cardiac electrophysiology models for drug safety studies”.

Aims: Mathematical models of cardiac electrophysiology are beginning to be used for safety testing of new pharmaceutical compounds, to identify potential for increased pro-arrhythmic risk as a drug side effect. There are substantial challenges in identifying the most appropriate models, parameterising them whilst considering uncertainty and variability, and designing experiments to do these tasks efficiently.

We are recruiting a Level 5 postdoctoral research assistant to work on this project. The grant will be developing and refining mathematical cardiac electrophysiology models for ion channels and cardiac cells for use in predicting pharmaceutical drug-induced changes to cardiac activity and subsequent risk in the clinic. We will be working closely with a number of experimental laboratories and industrial partners, and the post holders will undertake research visits to conduct their own experiments and collaborate with experimental electrophysiology groups, particularly in UMC Utrecht in the Netherlands and the Victor Chang Cardiac Research Institute in Sydney, Australia. As a result of the unique collaborative opportunities described above, applicants should have a very strong interest in interdisciplinary and team-based research.

We are looking for expertise in mathematical modelling of cardiac electrophysiology, involving development of simulation software and experience with fitting mechanistic models to data. The particular application is to develop methods and experiments to accurately characterise the kinetics of a number of important cardiac ion channels, and to develop techniques to tailor mathematical models of cellular electrophysiology (action potential models) to particular batches of stem-cell derived cardiomyocytes and other cell types.

	Main responsibilities (Primary accountabilities and responsibilities expected to fulfil the role)	**% time per year**
1	**Own Research** ▪ Undertake original research of international excellence in mathematical modelling of cardiac electrophysiology. ▪ Acquire, analyse, interpret and evaluate research findings using approaches, techniques, models and methods selected or developed for the purpose. ▪ Deliver research as part of a collaborative team and contribute to the achievement of specific research objectives.	50%
2	**Supervision of Research** ▪ Provide support, guidance and supervision to other staff within the research team, where appropriate in own area of expertise. ▪ Supervise undergraduate and/or masters students projects and placements, as appropriate. ▪ Co-supervision of projects at the PhD level.	20%
3	**Engagement, Communication and Dissemination** ▪ Assist in the co-ordination of the research and related administrative tasks, including liaising with external project collaborators in academia and industry. ▪ Publish results of research in internationally leading peer-reviewed journals. ▪ Establish your reputation nationally, by writing up research work for publication and contributing to the dissemination of findings at national/international conferences. ▪ Build relationships and collaborate actively with internal and external contacts, nationally and internationally, to complete research projects to advance the discipline and increase knowledge exchange.	20%
4	**Any other duties appropriate to the grade and role of the post holder**	10%

Person specification

	Essential	Desirable
Skills	▪ Ability to devise, advise on and manage a research programme. ▪ Ability to create and apply relevant research approaches, models, techniques and methods. ▪ Experience supervising research students. ▪ Excellent communication and organisational skills, including the ability to communicate with clarity on complex information. ▪ The ability to work independently and as part of a multidisciplinary and multicultural team.	▪ Potential to attract research funding.

Knowledge and experience	▪ Expert knowledge of
	  ○ Building ion channel models using a Hodgkin-Huxley or Markov model formulation.
	  ○ Model training and validation
	  ○ Development of software for these tasks (e.g. Myokit, OpenCOR, Chaste).
	▪ Proven track-record in publishing research work of international quality in electrophysiology modelling
		▪ Experience of working in interdisciplinary teams.

Qualifications, certification and training (relevant to role)	▪ PhD (or previous post at PhD or postdoctoral level) with experience in electrophysiology modelling.	

Athena SWAN Silver Award

The University of Nottingham is focused on embedding equality, diversity and inclusion in all that we do. As part of this, we welcome a diverse population to join our work force and therefore encourage applicants from all communities, particularly those with protected characteristics under the Equality Act 2010.

Expectations and behaviours

The University has developed a clear set of core expectations and behaviours that our people should be demonstrating in their work, and as ambassadors of the University's strategy, vision and values. The following are essential to the role:

Valuing people	Is always equitable and fair and works with integrity. Proactively looks for ways to develop the team and is comfortable providing clarity by explaining the rationale behind decisions.
Taking ownership	Is highly self-aware, looking for ways to improve, both taking on board and offering constructive feedback. Inspires others to take accountability for their own areas.
Forward thinking	Driven to question the status quo and explore new ideas, supporting the team to "lead the way" in terms of know-how and learning.
Professional pride	Sets the bar high with quality systems and control measures in place. Demands high standards of others identifying and addressing any gaps to enhance the overall performance.
Always inclusive	Ensures accessibility to the wider community, actively encouraging inclusion and seeking to involve others. Ensures others always consider the wider context when sharing information making full use of networks and connections.

Key relationships with others