Job Description

Management Unit	UCD Research
Unit	Systems Biology Ireland
Post Title	**UCD Post-doctoral Research Fellow Level 2**
Project	SysVasc Project TBC
Post Duration	Up to 31st Jan 2018
Reports to	Prof Walter Kolch
HR Reference No.	006824 – PD2
HR Administrator	Gosia Wojnicka

Position Summary

Systems Biology Ireland (SBI; http://www.ucd.ie/sbi/) focuses on elucidating the design principles of regulatory networks in mammalian cells and applying this knowledge to important questions in biology and biomedicine, such as cell fate decisions. A main aim of SBI's research is to develop and apply computational models based on biological and biomedical data to open new avenues for the understanding and treatment of human diseases. In particular, we are interested in developing approaches to personalised medicine and using computational modelling for improving the diagnostic stratification of patients and the design of more individualised therapies.

This post is part of an international collaboration in the EU funded FP7 SysVasc Project. SysVasc aims to improve the early diagnosis of cardiovascular disease (CVD), which is a leading cause of morbidity and mortality in industrialised countries. Asymptomatic vascular damage accumulates for years before patients are identified and subjected to therapeutic measures. The limited knowledge on early vascular disease pathophysiology is reflected in the lack of therapeutic options. SysVasc aims to overcome this limitation by mounting a comprehensive systems medicine approach to elucidate pathological mechanisms, which will yield molecular targets for therapeutic intervention. The consortium is based on established multidisciplinary European research networks, including specialists in pre-clinical and clinical research, omics technologies, and systems biology from research intensive SMEs and academia; partners synergistically provide access to an extensive number of selected population-based cohorts and associated datasets, cutting edge modelling and simulation methods, and established CVD animal models and patient cohorts. The coordinated application of these tools and know-how will identify pathophysiological mechanisms and key molecules responsible for onset and progression of CVD and validate their potential to serve as molecular targets for therapeutic intervention. To this end, the consortium will also use unique resources to evaluate molecular homology between the available model systems and human disease, which will yield reliable essential preclinical research tools to explore proof of concepts for therapeutic intervention studies and ultimately translate relevant results into novel therapeutic approaches. Collectively, SysVasc will identify and validate novel biology-driven key molecular targets for CVD treatment.

SBI participates in the modelling aspects of SysVasc. For this, SBI are seeking a computational scientist, who has a background in statistical machine learning. The expected outcome of this project is a statistical analysis pipeline that will allow for identification of patients with CVD from a cohort of patients with extensive heterogeneous-omics profiling. The post-holder will use existing statistical tools such as Principal Component Analysis, Multivariate Regression, Clustering, Classification, Variable Selection, Proportional Hazard Models to model the relationship between biomedical patient data and the corresponding response variable in order to identify factors that are critical for treatment outcome. The post-holder will also design, develop and implement novel statistical algorithms in order to meet existing and emerging challenges in the field of "big data" analysis (e.g. experimental bias, model unidentifiability, "curse of dimensionality" etc.). In addition to the above, the post-holder will be expected to provide input into experimental standard operating procedures (SOPs) by assessing the statistical power of the study.

The successful applicant will perform computational work, but closely collaborate with experimentalists at the interface between mathematics, engineering and biology in a multi-disciplinary research community within the SysVasc consortium and at SBI. This presents a unique opportunity for creative individuals who want to work at the cutting-edge of systems biology and systems medicine.

This is an advanced research focused role, building on your prior experience as a post-doctoral fellow, where you will conduct a specified programme of research supported by research training under the supervision and direction of a Principal Investigator.
The primary purpose of the role is to develop new or advanced research skills and competences, on the processes of publication in peer-reviewed academic publications and scholarly dissemination, the development of funding proposals, and the supervision and mentorship of graduate students along with the opportunity to develop your skills in research led teaching.

Salary: €33,975 - €46,255 per annum
Appointment on the above range will be dependent on qualifications and experience

Principal Duties and Responsibilities

- Conduct a specified programme of research and scholarship under the supervision and direction of your Principal Investigator.
- Engage in appropriate training and professional development opportunities as required by your Principal Investigator, your School or Institute, or the University.
- Support your Principal Investigator and research group in the design and development of the research programme.
- Support if required, the development of proposals for research funding.
- Engage in the dissemination of the results of the research in which you are engaged as directed by and with the support of and under the supervision of your Principal Investigator.
- Engage in the wider research and scholarly activities of your research group, School and Institute.
- Take responsibility as requested for day-to-day advice and support of graduate research students associated with your research group.
- Mentor and assist, as appropriate and as directed, the research graduate students in your group, School and Institute.
- Carry out administrative and management work associated with your programme of research.

Selection Criteria

Selection criteria outline the qualifications, skills, knowledge and/or experience that the successful candidate would need to demonstrate for successful discharge of the responsibilities of the post. Applications will be assessed on the basis of how well candidates satisfy these criteria.

Mandatory

- PhD in computing science, statistics, or related discipline
- > 2 years postdoctoral research experience
- Applied statistics training relevant for health research environment
- Basic knowledge and/or keen interest in biomedical research.
- Demonstrated understanding of operational requirements for a successful research project and managing resources
- Knowledge and application of the principles underpinning successful grant application
- Ability to identify and fulfil the academic writing requirements for target publications
- Proven record of working with team members and PhD students to help build their research skill and knowledge and to support and guide their professional development
- Generates new ideas and links and builds upon existing ideas to generate unique concepts

and solutions

The PD2 post is intended for researchers that have completed PD1. As with the PD1, if you have already completed your PD2 stage in UCD or will soon complete a PD2, or your total Postdoctoral experience, inclusive of the duration of the advertised post, would exceed 6 years, you should not apply and should refer to Research Fellow posts instead.

Desirable

- Experience in working with experimental scientists, biomedical researchers or clinicians
- Knowledge of and experience in methods for regression and cluster analysis
- Knowledge of and experience in machine learning and inference methods
- Demonstrated understanding of the value of academic and commercial information e.g. Non-disclosure agreements
- Knowledge of IP processes and knows how to protect findings

Further Information for Candidates

Supplementary information

The University:	http://ww.ucd.ie/aboutucd.htm
UCD Research:	http://www.ucd.ie/research/
Systems Biology Ireland:	http://www.ucd.ie/sbi
SysVASC:	http://www.sysvasc.eu/

UCD offers a comprehensive **Research Careers Framework** in line with the Advisory Science Council Report '*Towards a Framework for Researcher Careers*'. This model provides a structured and supportive **Career and Skills Development** system designed to ensure that Post-docs in UCD are able to plan their careers and prepare for future opportunities in academia, industry or the public sector. For more information, please click here

Relocation Expenses

■ Will not apply

☐ Will be applied in accordance with the UCD policy
http://www.ucd.ie/hr/policies/#d.en.31150

Informal Enquiries ONLY to:

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