



## Job Description

<b>College</b>	UCD College of Health and Agricultural Sciences
<b>School</b>	Systems Biology Ireland, UCD School of Medicine
<b>Post Title</b>	UCD Post-doctoral Research Fellow Level 2
<b>Project</b>	SmartNanoTox Project
<b>Post Duration</b>	Up to 31st Oct 2017 in the first instance (this may be renewed to bring appointment to a maximum of 3 years)
<b>Reports to</b>	Prof Boris Kholodenko
<b>HR Reference No.</b>	008435-PD2
<b>HR Administrator</b>	Sinead Gillen

### Position Summary

Systems Biology Ireland (SBI; <http://www.ucd.ie/sbi/>) focuses on principles of the design and function of biological signal transduction networks and applying this knowledge to important questions in biology and systems medicine. To accomplish these goals, SBI uses mathematical and computational modelling approaches in combination with cutting edge experimental technologies in proteomics, genomics, imaging and flow cytometry, as well as biochemical, cell biology and molecular biology methods.

SBI is now expanding the research capacity into the analysis of effects of nanoparticles on human health. Our goal is to enable predictive nanotoxicology by quantitative understanding of interactions at nanoparticles with cells and tissues and determining specific toxicity pathways downstream of these interactions in the framework of the EU Horizon 2020 project "SmartNanoTox. Development of Smart Tools for Gauging Nanodangers". For this purpose we are looking for a Post-doctoral Research Fellow with excellent knowledge of bioinformatics and statistics and the background in physics, chemical/control engineering or biophysics.

He/she will analyze transcriptomic data using existing software packages to identify differentially expressed genes in in vitro and in vivo cells, exposed to different nanoparticles. This analysis will lead to a set of in vivo and in vitro toxicity markers for each nanomaterial particles. He/she will then integrate existing knowledge with transcriptomic data generated in the consortium to reconstruct the transcription regulatory programs of the in vivo and in vitro toxicity markers for each nanoparticle. The analysis of proteomic and lipidomics data will use Bayesian algorithms to analyze proteomic data and reconstruct signaling pathways leading to nanoparticle induced transcriptional programs in in-vivo and in-vitro models. Statistical models will need to be developed to integrate the structural properties of the nanoparticles with their downstream pathway activities inferred in the project. The model will use Bayesian/regression based approaches to simulate and predict the effects of different nanoparticles on downstream pathway activities.

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: €38,155 - €42,394 per annum**

Appointment on the above range will be dependent on qualifications and experience

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## 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 Biophysics, Chemical or Control Engineering, or Statistics.
- Primary research experience in the analysis of ~omics data.
- Expertise in a broad range of computational methods for the analysis of transcriptomics and proteomics datasets.
- 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

- 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
- Experience in computational modelling signal transduction pathways.
- Advanced knowledge of signal transduction.
- Experience in setting own research agenda

## Further Information for Candidates

### Supplementary information

The University:	<a href="http://www.ucd.ie/aboutucd.htm">http://www.ucd.ie/aboutucd.htm</a>
The College of Health & Agricultural Sciences:	<a href="http://www.ucd.ie/chas/">http://www.ucd.ie/chas/</a>
The School of Medicine:	<a href="http://www.ucd.ie/medicine/">http://www.ucd.ie/medicine/</a>
Systems Biology Ireland:	<a href="http://www.ucd.ie/sbi/">http://www.ucd.ie/sbi/</a>

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>

### Garda Vetting required:

- NO**
- YES** – Garda Vetting will be conducted for the recommended candidate(s) as part of the selection process for the post in accordance with the UCD Garda Vetting Policy - [http://www.ucd.ie/hr/t4cms/Garda\\_Vetting\\_Policy.pdf](http://www.ucd.ie/hr/t4cms/Garda_Vetting_Policy.pdf)

### Informal Enquiries ONLY to:

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Title:	Deputy Director, Systems Biology Ireland and UCD Conway Institute
Email address:	<a href="mailto:boris.kholodenko@ucd.ie">boris.kholodenko@ucd.ie</a>
Telephone:	Enquiries by email only

### Eligibility to compete and certain restrictions on eligibility (Relevant only to those with previous Irish Public Sector experience)

#### Incentivised Scheme for Early Retirement (ISER)

It is a condition of the Incentivised Scheme for Early Retirement (ISER) as set out in Department of Finance Circular 12/09 that retirees, under that Scheme, are debarred from applying for another position in the same employment or the same sector. Therefore, such retirees may not apply for this position.

#### Department of Health and Children Circular (7/2010)

The Department of Health Circular 7/2010 dated 1 November 2010 introduced a Targeted Voluntary Early Retirement (VER) Scheme and Voluntary Redundancy Schemes (VRS). It is a condition of the VER scheme that persons availing of the scheme will not be eligible for re-employment in the public health sector or in the wider public service or in a body wholly or mainly funded from public moneys. The same prohibition on re-employment applies under the VRS, except that the prohibition is for a period of 7 years, after which time any re-employment will require the approval of the Minister for Public

Expenditure and Reform. People who availed of either of these schemes are not eligible to compete in this competition.

### **Collective Agreement: Redundancy Payments to Public Servants**

The Department of Public Expenditure and Reform letter dated 28th June 2012 to Personnel Officers introduced, with effect from 1st June 2012, a Collective Agreement which had been reached between the Department of Public Expenditure and Reform and the Public Services Committee of the ICTU in relation to ex-gratia Redundancy Payments to Public Servants. It is a condition of the Collective Agreement that persons availing of the agreement will not be eligible for re-employment in the public service by any public service body (as defined by the Financial Emergency Measures in the Public Interest Acts 2009 – 2011) for a period of 2 years from termination of the employment. Thereafter the consent of the Minister for Public Expenditure and Reform will be required prior to re-employment. People who availed of this scheme and who may be successful in this competition will have to prove their eligibility (expiry of period of non-eligibility) and the Minister's consent will have to be secured prior to employment by any public service body.

### **Declaration**

Applicants will be required to a Pre-Employment Declaration to confirm whether they have previously availed of a public service scheme of incentivised early retirement and/or the collective agreement outlined above. The above represents the main schemes and agreements restricting a candidate's right to be re-employed in the public service. However it is not intended to be an exhaustive list and candidates should declare details of any other exit mechanism they have availed of which restricts their right to be re-employed in the public service. Applicants will also be required to declare any entitlements to a Public Service pension benefit (in payment or preserved) from any other Public Service employment and/or where they have received a payment-in-lieu in respect of service in any Public Service employment.

### **Superannuation and Retirement**

The successful candidate will be offered the appropriate superannuation terms and conditions as prevailing in the University, at the time of being offered an appointment. In general, and except for candidates who have worked in a pensionable (non-single scheme terms) public service job in the 26 weeks prior to appointment (see paragraph d below), this means being offered appointment based on membership of the Single Public Service Pension Scheme ("Single Scheme"). Key provisions attaching to membership of the Single Scheme are as follows:

a. Pensionable Age

The minimum age at which pension is payable is 66 (rising to 67 and 68) in line with State Pension age changes.

b. Retirement Age:

Scheme members must retire at the age of 70.

c. Pension Abatement

If the appointee was previously employed in the Civil Service or in the Public Service please note that the Public Service Pensions (Single Scheme and Other Provisions) Act 2012 includes a provision which extends abatement of pension for all Civil and Public Servants who are re-employed where a Public Service pension is in payment. This provision to apply abatement across the wider public service came into effect on 1 November 2012. This may have pension implications for any person appointed to this position who is currently in receipt of a Civil or Public Service pension or has a preserved Civil or Public Service pension which will come into payment during his/her employment in this position.

Department of Education and Skills Early Retirement Scheme for Teachers Circular 102/2007

The Department of Education and Skills introduced an Early Retirement Scheme for Teachers. It is a condition of the Early Retirement Scheme that with the exception of the situations set out in paragraphs 10.2 and 10.3 of the relevant circular documentation, and with those exceptions only, if a teacher accepts early retirement under Strands 1, 2 or 3 of this scheme and is subsequently employed in any capacity in any area of the public sector, payment of pension to that person under the scheme

will immediately cease. Pension payments will, however, be resumed on the ceasing of such employment or on the person's 60th birthday, whichever is the later, but on resumption, the pension will be based on the person's actual reckonable service as a teacher (i.e. the added years previously granted will not be taken into account in the calculation of the pension payment).

#### Ill-Health-Retirement

Please note that where an individual has retired from a Civil/Public Service body on the grounds of ill-health his/her pension from that employment may be subject to review in accordance with the rules of ill-health retirement within the pension scheme of that employment.

#### d. Prior Public Servants

While the default pension terms, as set out in the preceding paragraphs, consist of Single Scheme membership, this may not apply to certain appointees. Full details of the conditions governing whether or not a public servant is a Single Scheme member are given in the Public Service Pensions (Single Scheme and other Provisions) Act 2012. However the key exception case (in the context of this competition and generally) is that a successful candidate who has worked in a pensionable (non-single scheme terms) capacity in the public service within 26 weeks of taking up appointment, would in general not become a member of the Single Scheme. In this case such a candidate would instead be offered membership of the UCD Pension Scheme. This would mean that the abatement provisions at (c) above would apply, and in addition there are implications in respect of pension accrual as outlined below:

#### e. Pension Accrual

A 40-year limit on total service that can be counted towards pension where a person has been a member of more than one existing public service pension scheme would apply. This 40-year limit, which is provided for in the Public Service Pensions (Single Scheme and other Provisions) Act 2012 came into effect on 28 July 2012. This may have implications for any appointee who has acquired pension rights in a previous public service employment.

#### f. Pension-Related Deduction

This appointment is subject to the pension-related deduction in accordance with the Financial Emergency Measure in the Public Interest Act 2009.

For further information in relation to the Single Public Service Pension Scheme for Public Servants please see the following website: <http://www.per.gov.ie/pensions>.