



College Management Unit:	UCD College of Health and Agricultural Sciences
School Unit:	UCD School of Medicine/Systems Biology Ireland
Post Title & Subject Area (if relevant)	UCD Post-doctoral Research Fellow Level 1
Project:	The Role of Dynamic Protein-Protein Interaction Changes in Adaptive Drug Resistance - Proteomics
Post Duration:	Temporary Up Until 31 st July 2027
Line Manager	Walter Kolch
Competition Ref. N^o	017594
HR Administrator	Aline Burgos

Position Summary:

University College Dublin (UCD) is seeking applications for a Postdoctoral Research Fellow to work on the mapping of dynamic changes in protein complexes using modern MS-based proteomics methods.

Drug resistance is a major challenge in oncology. Increasing evidence highlights the importance of nongenetic mechanisms. Here, we investigate the role of protein-protein interactions (PPIs) in drug resistance. We study whether drug induced PPI changes can reorganize multi-protein complexes (MPCs) in signaling pathways, thereby leaving a 'memory' of drug exposure that facilitates successful adaptation and resistance. As result we expect to identify new targets for therapeutic interference that extend the current narrow range of molecular oncology targets. As use case we focus on neuroblastoma, a childhood cancer where new drug targets are needed to replace genotoxic chemotherapy with its severe long-term side effects. Based on our previous results that stress signaling is critical for chemotherapy response we analyze drug induced PPI changes in stress pathway MPCs using quantitative proteomics. This targeted approach is complemented by a global mapping of MPCs changes using thermal proximity coaggregation. Our preliminary evidence also suggests that RNA can function as scaffold for MPCs. Therefore, we will assess the role of such scaffolding RNA for re-modelling MPCs in drug resistance. To causally link MPC changes to drug resistance we will employ artificial dimerizer systems to control several PPIs simultaneously and test how this modulates drug resistance.

This project is teamwork combining molecular biology, proteomics, and bioinformatics. The successful applicant will perform the proteomics experiments in the team. To be successful in the role, the Fellow will have experience in MS based proteomics (interaction proteomics, phosphoproteomics and protein expression profiling) and protein biochemistry. An understanding of cancer signalling and protein-protein interaction networks is also required. The Fellow should be self-motivated and comfortable working with collaborators from different disciplines. This post will be part of a team and perform the proteomics analysis of the project.

The team will be part of Kolch Group at Systems Biology Ireland (SBI, <http://www.ucd.ie/sbi/>), a research centre based on the UCD Belfield Campus. SBI was established in 2009, and has successfully developed an integrated mathematical/computational modelling and experimental research programme focusing on the design of new therapeutic approaches to cancer, based on a systems level, mechanistic understanding of cellular signal transduction networks.

This is a research focused role, where you will conduct a specified programme of research supported by research training and development under the supervision and direction of a Principal Investigator.

The primary purpose of the role is to further develop your research skills and competences, including the processes of publication in peer-reviewed academic publications, the development of funding proposals, the mentorship of graduate students along with the opportunity to develop your skills in research led teaching.

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.
- 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.
- Mentor and assist, as appropriate and as directed, the research graduate students in your group, School and Institute.
- Carry out administrative work associated with your programme of research.

Salary Range: €44,347 - €50,805 Per Annum

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

Details on eligibility to compete and pension information is available at

<https://www.ucd.ie/hr/resourcing/eligibilitytocompete/>

UCD is committed to creating an inclusive environment where diversity is celebrated and everyone is afforded equality of opportunity. We welcome applications from everyone, including those who identify with any of the protected characteristics that are set out in our Equality, Diversity and Inclusion policy. Learn more about Diversity at

<https://www.ucd.ie/workatucd/diversity/>

Reasonable accommodations will be provided to any applicant during the interview process who discloses they have a disability or are neurodiverse.

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 Proteomics, Biochemistry, or other relevant discipline
- Proven experience and hands-on skills in MS based proteomics
- Experience in the application and development of new proteomics technologies
- A demonstrated commitment to research and publications
- An understanding of the operational requirements for a successful research project
- Evidence of research activity (publications, conference presentations, awards) and future scholarly output (working papers, research proposals, and ability to outline a research project).
- Excellent Communication Skills (Oral, Written, Presentation etc).
- Excellent Organisational and Administrative skills including a proven ability to work to deadlines.
- Candidates must demonstrate an awareness of equality, diversity and inclusion agenda.

The PD1 position is intended for early stage researchers, either just after completion of a PhD or for someone entering a new area for the first time. If you have already completed your PD1 stage in UCD or will soon complete a

PD1, or you are an external applicant whose total Postdoctoral experience, inclusive of the duration of the advertised post, would exceed 4 years, you should not apply and should refer to PD2 posts instead.

Desirable:

- Experience in the characterization of RNA-protein interactions
- Experience of closely working with bioinformaticians
- Knowledge of cancer biology and cancer signalling
- Experience in setting own research agenda

Supplementary information:

The University:	https://www.ucd.ie/
UCD Strategy 2020-2024: Rising to the Future	https://strategy.ucd.ie/
The College/Management Unit:	https://www.ucd.ie/chas/
The School/Programme Office/Unit:	https://www.ucd.ie/medicine/
Equality Diversity and Inclusion at UCD	https://www.ucd.ie/workatucd/diversity/

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](#)

Informal Enquiries ONLY to:

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