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**PhD Project Title: Quantitative analysis of signal transduction network rewiring in (patho)physiologically relevant melanoma model systems.**

A PhD position is now available in the Charles Institute of Dermatology and Systems Biology Ireland, University College Dublin, to investigate how cellular signaling pathways are quantitatively rewired in melanoma.

**Location:** Charles Institute of Dermatology and Systems Biology Ireland, University College Dublin, Dublin, Republic of Ireland

**Supervisor:** Dr. Christina Kiel

**Project Background & Description:**

Launched in June 2008, **UCD Charles Institute of Dermatology** is Ireland's premier Institute in dermatology research and training. UCD Charles Institute actively partners with leading companies serving the skin health and care market to deliver specific research and innovation objectives, which will lead to improved patient care through the discovery of new treatments and therapies. Using a multidisciplinary, systems biology approach, the Institute research team are working to uncover key drivers of skin diseases

**Systems Biology Ireland (SBI)**, established in 2009, has successfully developed an integrated mathematical modelling and experimental research programme focusing on the design of new diagnostic and therapeutic approaches to diseases, primarily cancer, based on a systems level, mechanistic understanding of cellular signal transduction networks. To accomplish these goals, SBI uses mathematical and computational modelling approaches in combination with cutting edge experimental technologies in proteomics, genomics, advanced microscopy and flow cytometry as well as cell biology and molecular biology methods.

UCD Charles Institute of Dermatology and SBI sit in the space between the UCD Conway Institute and the Health Sciences Centre (School of Medicine and Medical Sciences). They are physically linked to both buildings, providing access to existing technology platforms, educational and conference facilities and ideally placed to train allied healthcare professionals. The facility houses a multidisciplinary team of > 50 researchers including bioinformaticians, statisticians, computational scientists and modellers, engineers, biologists, biochemists and physicists.

This PhD student post will be part of an interdisciplinary team working on the quantitative and systems analysis of signaling networks in cancer. The project will investigate how signalling and protein interaction networks are context-specific

quantitatively modulated in (patho)physiologically-relevant primary cells and in vivo-like 3D melanoma model systems. Specifically, we will study how protein interactions control cellular phenotypes by investigating (i) how they generate cell type specific vs. general functions; (ii) how NRAS and BRAF melanoma mutations affect these interactions and downstream signalling; and (iii) how signal flow changes can be validated by generating mutations that rewire networks in a designed fashion.

The student will gain valuable knowledge in the analysis of signal transduction networks in melanoma, protein analysis techniques, and standard methods used in molecular and cell biology. The student will also be involved in the computational aspects of the project through interaction with other researchers in the team.

**Person Specification:**

We are looking for a highly motivated, passionate PhD candidate with the ability to independently plan and conduct the research project while integrating into an interdisciplinary research environment. Applicants should have, or expect to obtain, a first or upper second class honours Bachelors or Masters degree in Biology, Biochemistry, Systems Biology, Chemistry or related fields. Excellent analytical and communication skills are preferable.

**Stipend & fees:** The successful candidate will receive a tax-free stipend of €18,500 per annum. €6,810 will be made available towards registration fees per annum. The position is funded for four years.

**Application procedure:** Please send a CV and accompanying documentation including references to Dr Christina Kiel. Email address: [christina.kiel@ucd.ie](mailto:christina.kiel@ucd.ie)

**Closing date:** Applications should be received by July 12, 2018.

**Web:**

The University: <http://www.ucd.ie/aboutucd.htm>

The School of Medicine and Medical Sciences: <http://www.ucd.ie/medicine/>

The Charles Institute of Dermatology: <http://www.ucd.ie/charles/>

Systems Biology Ireland: <http://www.ucd.ie/sbi/>

Kiel group: <http://www.ucd.ie/sbi/research/researchgroups/kielgroup/>