PhD Project Title: Regulation of metabolic processes by oncogenic signaling pathways in malignant melanoma.

A PhD position is now available in Systems Biology Ireland, University College Dublin, to investigate how cellular signaling pathways regulate metabolic processes in metastatic malignant melanoma.

Location: Systems Biology Ireland, University College Dublin, Dublin, Republic of Ireland

Supervisors: Prof. Walter Kolch and Dr. Jens Rauch

Project Background & Description:
Systems Biology Ireland (SBI, http://www.ucd.ie/sbi/) established in 2009 under SFI’s CSET initiative, 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. SBI’s expertise, particularly in the area of modelling in systems pharmacology and therapeutics, strategically position it at the crossroads between biology and medicine.

The purpose-built SBI facility, supported by the HEA’s PRTLIS programmes sits in the space between the UCD Conway Institute and the Health Sciences Centre (School of Medicine and Medical Sciences). It is 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 some 50 researchers including bioinformaticians, statisticians, computational scientists and modellers, engineers, biologists, biochemists and physicists.

This PhD student post will be part of a team working on overcoming drug resistance in metastatic malignant melanoma by personalizing treatment. This study is funded through the SFI Investigators Programme. The project will investigate how metastatic malignant melanoma cells regulate processes such glycolysis and energy metabolism through signaling pathways. Malignant melanomas are among the most aggressive cancers notorious for their low survival rate, frequent relapse, and multidrug resistance. The majority of the oncogenic mutations reside within the MAPK pathway, which regulates processes such as proliferation, differentiation, and apoptosis. In addition, the pathway is known to also regulate metabolic processes through signaling crosstalks. The
understanding of the protein complexes and mechanisms involved might open new avenues towards therapies for malignant melanomas. The student will gain valuable knowledge in the analysis of signal transduction networks and metabolism in cancer, protein analysis techniques, and standard methods used in molecular and cell biology.

**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:** The successful candidate will receive a tax-free stipend of €18,000 per annum. The position is funded for four years.

**Application procedure:** Please send a CV and accompanying documentation including references to Prof Walter Kolch (Director, Systems Biology Ireland). Email address: walter.kolch@ucd.ie

**Closing date:** Applications should be received by July 31st, 2016.

**Web:**
The University: http://www.ucd.ie/aboutucd.htm
The College of Health Sciences: http://www.ucd.ie/chs/
The School of Medicine and Medical Sciences: http://www.ucd.ie/medicine/
Systems Biology Ireland: http://www.ucd.ie/sbi/

**Relevant publications:**