PhD position in Organic and Biological Chemistry at Trinity College Dublin:
New probes for Deubiquitinating enzymes

Overview:
A fully funded studentship is available with Dr Joanna McGouran at Trinity College Dublin (http://chemistry.tcd.ie/staff/academic/jmcgoura). The project is in the field of chemical biology focusing on the synthesis of and testing of new tools to study deubiquitinating enzymes in a cellular context.

Background:
Activity based probes-which mimic an enzyme substrate or protein binding partner but contain a chemical trap are powerful tools in biological research. Such probes can facilitate: Discovery of novel enzymatic activities, Inhibitor screening, Biomarker discovery & Localisation studies.
Modification of proteins with ubiquitin controls many cellular processes including stability, activity and translocation of the target protein. Deubiqtinating enzymes (DUBs), therefore play a key regulatory role in the cell. This project will generate new probes for deubiquitinating enzymes (DUBs), specifically targeting elusive subclasses of DUBs.

Project:
Building on experience within the laboratory this project will involve synthesis and testing a panel of activity-based probes to assay the activity of specific deubiquitnating enzymes in a cellular environment. Generating the probes will involve a mix of organic synthesis and biochemical techniques followed by biochemical and biological evaluation of the probes tested. As such this multidisciplinary project will provide excellent opportunities for the successful candidate to gain expertise in protein modification, organic chemistry, biochemical assays and proteomics techniques.

Research environment:
The successful candidate will be based in the Department of Chemistry, working within the Trinity Biosciences Institute, a dynamic, multidisciplinary research environment. The successful candidate will join a vibrant research community and be given the opportunity to interact with complementary research groups and attend national and international conferences.

Requirements:
Good university degree (1st or 2:1) in the field of Chemistry, Biochemistry or a related subject. Preference will be given to candidates possessing an MSc degree and/or significant lab experience. The candidate must be highly motivated and able to work both independently and as part of a team. Good knowledge of organic chemistry and an interest in research at the interface with biochemistry/molecular physiology is required. Knowledge of microbiological techniques and protein purification advantageous but not necessary as full training will be given. The position will be part of the Dublin Chemistry Graduate Programme. The position will begin in September 2016, applications will be accepted until the position is filled.

For further information or to apply please email a PDF copy of a brief cover letter and CV, including names and contact details for 2-3 referees, to jmcgoura@tcd.ie.

Background reading:
McGouran, J.F., Gaertner, S.R., Altun, M., Kramer, H.B., and Kessler, B.M.: Deubiquitinating enzyme specificity for ubiquitin chain topology profiled by di-ubiquitin activity probes. *Chemistry & biology,* 2013, 20, 1447-1455.
McGouran, J.F., Kramer, H.B., Mackeen, M.M., di Gleria, K., Altun, M., and Kessler, B.M.: Fluorescence-based active site probes for profiling deubiquitinating enzymes. *Organic & biomolecular chemistry,* 2012, 10, 3379-3383.
Willems, L.I., Overkleeft, H.S. and van Kasteren, S.I.: Current developments in activity-based protein profiling. *Bioconjugate Chemistry,* 2014, 25, 1181-91.