University of Nottingham
UK | CHINA | MALAYSIA

ROLE PROFILE

Job Title: Research Associate/Fellow

School: School Pharmacy

Job family and level: Research and Teaching Level 4

Hours of Work: Full-time, 36.25 hours per week

Contract Status: Fixed-term contract for a period of 36 months

Location: School of Pharmacy, University Park

Reporting to: Professor Dave Barrett and Dr Dong-Hyun Kim

Purpose of the Role:

The role holder will perform mass spectrometry-based metabolic flux analysis and computational modelling of metabolic pathways for the Green Chemicals Beacon of Excellence (BoE) within the Centre for Analytical Bioscience (CAB) facility, School of Pharmacy. The role will include experimental design for mass spectrometry-based flux analysis and data collection, and integration of fluxomics data with metabolic pathway and data visualisation methods. The main area of application will be in bacterial metabolic engineering and use of stable isotope assisted metabolomics/fluxomics methods to generate mathematical models of metabolic flux.

	Main Responsibilities
1.	**Operation of Equipment and Laboratory Experiments:** • Safely and efficiently operate a range of mass spectrometry and related analytical instrumentation that may include (but is not limited to): -High resolution mass spectrometry (LC/GC, orbital trap or similar) -Quantitative analysis (triple quadrupole) LC-MS/MS -Ion trap mass spectrometry -UHPLC, HPLC and GC • Establish LC or GC HRMS-based methods for metabolic flux analysis (fluxomics) in a range of microorganisms • Supervision of one research technician • Perform sample preparation with a variety of microorganisms for metabolomics studies and stable isotope assisted LC-MS analysis for flux measurements. • Work closely with Green Chemicals BoE staff to provide operational support and analysis for academics, post-doctoral researchers and postgraduate students, including method development.
2.	**Data Analysis:** • Analyse a range of mass spectrometry-based data (including flux measurements and pathway profiling data) from relevant analytical instrumentation mentioned above. • Plan and conduct specialist and standardised data analysis for research purposes using appropriate techniques. • Build up a comprehensive interface between the generation/pre-processing of analytical/metabolomics data and the production of useful biological information based on metabolic flux, pathways and network analysis.
2.	**Research Output and Reporting:** • Write-up findings and prepare scientific reports, presentations and publications where appropriate.

	• Contribute to records of experimental plans and results. • Regularly brief and report on progress and results to Green Chemicals BoE management staff. • Attend regular scientific meetings within the analytical facility, research division and school.
3.	**Research Operations and General Duties:** • Integrate the analytical facility with Green Chemicals BoE operations. • Engage with research staffs at all development stages. • Meet research objectives of multiple projects within deadlines and resource constraints. • Build relationships with academic contacts in order to exchange knowledge and expertise and provide analytical and bioinformatic support. • Identify opportunities and assist in writing bids for research grant applications. • Prepare proposals and applications to both external and/or internal bodies. • Assist in the supervision of undergraduate and/or postgraduate student projects, as appropriate.
4.	• Any other duties appropriate to the role and level.

Knowledge, Skills, Qualifications & Experience

	Essential	**Desirable**
Qualifications/ Education	• PhD submitted or awarded in analytical science, mass spectrometry or a related area.	
Skills/Training	• Hand-on skills in operating a range of mass spectrometry instrumentation including high resolution MS and quantitative MS. • Hand-on expertise in sample preparation and metabolomics analysis of microorganisms. • Proven skills in the analysis, interpretation and presentation of research data in a format suitable for publication. • Ability to creatively apply relevant research approaches/models/ techniques/methods. • Excellent oral and written communication skills including the ability to communicate complex information with clarity and write to a publishable standard.	• Willingness to learn and apply a broad range of bioinformatics and modelling skills to complex biological systems. • Flexible, proactive and dedicated approach.
Experience	• Familiarity with/understanding of mass spectrometry and analytical science. • Extensive experience in metabolic modelling, flux analysis with stable isotope assisted methods and integration of multi-omics data. • Familiarity with bioinformatics analysis of fluxomics data, including knowledge of programming language or experience of working with mathematical modellers.	• Experience with multiple mass spectrometry characterisation techniques and instrumentation. • Experience in building databases. • Considerable experience of working in an analytical science environment.

	• Experience of solving problems and working to, and achieving, targets and deadlines. • Making a substantial contribution to the authorship of peer-reviewed papers with a publication record appropriate to career stage.	

Due to the requirements of the UK Border and Immigration Agency, applicants who are not UK or EEA nationals and whose immigration status entitles them to work without restriction in the UK will be considered on an equal basis with UK and EEA nationals. Other non-UK or non-EEA nationals whose employment will require permission to work subject to a resident labour market test may only be considered if there are no suitable UK or EEA national candidates for the post. Please visit http://www.ukba.homeoffice.gov.uk/ for more information.

Informal enquiries may be addressed to Professor Dave Barrett (*david.barrett@nottingham.ac.uk*) or Dr Dong-Hyun Kim (*dong-hyun.kim@nottingham.ac.uk*). Please note that applications sent directly to these email addresses will not be accepted.

We pride ourselves on the collegial and supportive culture created by our staff. We are dedicated to creating an environment which enables both our staff to thrive and achieve their potential. Our commitment to Equality and Diversity has been recognised in the awarding of an Athena SWAN Bronze Award.