



Candidate Information

Position:	Research Fellow in Quantitative Interaction Proteomics
School/Department:	Biological Sciences
Reference:	21/109331
Closing Date:	Tuesday 21 December 2021
Salary:	£34,304 - £40,927 per annum.
Anticipated Interview Date:	January 2022
Duration:	24 months

JOB PURPOSE:

An experienced and motivated postdoctoral scientist is sought to join the Collins Quantitative Proteomics group in the School of Biological Sciences at Queen's University Belfast. The successful candidate will undertake a senior role in the planning and delivery of research activity focused on quantitative interaction proteomics and data independent acquisition (DIA) mass spectrometry. Our research group focuses on 3 primary areas (i) development of new methodology in DIA mass spectrometry^{1,2}, (ii) methods to characterize dynamic reorganization of protein complexes/interactions using both targeted and global approaches^{3,4}, and most recently (iii) the application of these methods to problems in host-pathogen interactions and innate immunity. This role will focus on the development and application of strategies to quantify protein complex reorganization in signalling systems. The successful candidate will have a demonstrated track record in mass spectrometry-based proteomics research with an excellent PhD degree awarded and strong publication record. The successful applicants will have responsibilities in independent research, supervision, planning, day-to-day lab management, collaborations and outreach.

References: 1 Meier, F. et al. Nature Methods 17, 1229 (2020) 2 Collins, B. C. et al. Nature Communications 8, 291 (2017) 3 Collins, B. C. et al. Nat Meth 10, 1246 (2013) 4 Heusel, M. et al. Cell Systems 10, 133 (2020).

MAJOR DUTIES:

1. Develop, plan, and deliver research in the area of quantitative interaction proteomics using both targeted (affinity purification based) and global (co-fractionation based) strategies applied to cellular signalling systems.
2. Assist in method development and maintenance of advanced liquid chromatography mass spectrometry instrumentation (primarily diaPASEF measurements using Bruker timsTOF Pro).
3. Participate in method development in the area of protein complex separations, affinity purification, sample preparation, and automation (OpenTrons OT-2).
4. Contribute research effort to support selected collaborations with various research groups within and outside of QUB in the area of quantitative proteomics.
5. Present regular progress reports on research to members of the research group or to external audiences to disseminate and publicise research findings.
6. Contribute to the supervision and training of post-graduate/undergraduate students and visiting researchers.
7. Prepare, in consultation with supervisors, material for publication in scientific journals and presentations at national and international conferences.
8. Assist grant holder in the preparation of funding proposals and applications to external bodies.
9. Carry out routine administrative tasks associated with the research projects/group to ensure that projects are completed on time and within budget and that the group functions efficiently. These might include organisation of project/group meetings and documentation, financial control, stock management/procurement, risk assessment of research activities and development of SOPs. Carry out routine administrative tasks associated with the day-to-day running of the research group in a communal lab setting.
10. Read academic papers, journals and textbooks to keep abreast of developments in own specialism and related disciplines.

Planning and Organising:

1. Plan for specific aspects of research programmes. Timescales range from 1-12 months in advance and contribute to research group planning.
2. Plan for the use of research resources, laboratories and workshops where appropriate.
3. Plan own day-to day activity within framework of the agreed research programme.
4. Plan to meet deadlines for journal publications and to prepare presentations and papers for conferences.
5. Coordinate and liaise with other members of the research group over work progress.

Resource Management Responsibilities:

1. Ensure research resources are used in an effective and efficient manner.
2. Provide guidance as required to support staff and any students who may be assisting with research.

Internal and External Relationships:

1. Liaise on a regular basis with colleagues and students.
2. Build internal contacts and participate in internal networks for the exchange of information and to form relationships for future collaboration.
3. Join external networks to share information and ideas.
4. Contribute to the School's outreach programme by establishing links with local community groups, industries etc.

ESSENTIAL CRITERIA:

1. Have or about to obtain a PhD in quantitative proteomics, mass spectrometry, or a related discipline.
2. At least 3 years recent relevant research experience in developing and applying mass spectrometry-based quantitative proteomics methods.
3. Peer reviewed publications or preprints in the area of mass spectrometry-based proteomics.
4. Experience in the general maintenance and technical troubleshooting of mass spectrometry instruments.
5. Experience in sample preparation and separations for mass spectrometry-based proteomics.
6. Practical experience in processing, recording and handling data sets, and performing statistical analysis.
7. Experience with data analysis using scripting (e.g. R, python, unix).
8. Ability to contribute to broader management and administrative processes.
9. Methodical approach to project management and meticulous in regard to experimental procedures and record keeping.
10. Sufficient breadth and depth of specialist knowledge in the discipline and of research methods and techniques to work within established research programmes.
11. Competent in giving effective and informative oral and poster presentations.
12. Ability to communicate complex information clearly.
13. Ability to build contacts and participate in internal and external networks.
14. Strong ability to work from own initiative and to work independently within the context of a research team.
15. Commitment to high quality research.
16. Demonstrable intellectual ability.
17. Ability to assess and organise resources.
18. Irregular hours including evening, weekend and other out-of-hours work may be a component of the research at times.
19. Must be willing to travel to national and international meetings and collaborative laboratories as required on an ad-hoc basis.

DESIRABLE CRITERIA:

1. Experience studying protein-protein interactions or cellular signalling using mass spectrometry.
2. Experience study post translational modifications using mass spectrometry.
3. Experience with cell culture.
4. Experience with standard cloning techniques and generation of stable cell lines expressing fusion proteins.
5. Experience without robotic sample preparation.
6. Strong publication record in peer reviewed journals.
7. Evidence of having presented at conferences (poster and/or oral presentations).