

Candidate Information

Position:	Research Fellow (Molecular Stratification)
School/Department:	Patrick G Johnston Centre for Cancer Research
Reference:	21/108895
Closing Date:	Friday 16 July 2021
Salary:	£33,797 - £40,322 per annum
Anticipated Interview Date:	Wednesday 28 July 2021
Duration:	2 Years

Job Purpose:

A post-doctoral researcher post is available immediately to work as part a new CRUK-funded Early Detection project within the colorectal cancer (CRC) Molecular Pathology Research Group (www.dunne-lab.com). In collaboration with our international partners, this project aims to utilise a novel multiomics dataset to uncover the molecular signalling that underpins early dissemination in CRC.

The Research Fellow will become an integral member of a dynamic, collaborative and well-equipped research group that puts a strong focus on interdisciplinary data-driven research. Our group provides a stimulating research environment where collaboration and development of new ideas is strongly encouraged, alongside support for career development for emerging talents. The overarching goals of this research group are to develop a greater understanding of disease to improve survival rates for patients with CRC, through precise dissection of the signalling pathways underpinning initiation, invasion and metastasis.

Our group is primarily focussed on biological discovery, identification of molecular signalling and/or phenotypes that will enable improved understanding of disease and translation of potential therapeutic options. The post-holder will work within an established interdisciplinary team and will be required to have a strong understanding of the biology underpinning signalling cascades in cancer that emerge from data analysis. The successful candidate will utilise the unique data from our human tissue samples and mouse tumour models to develop new, and refine existing, molecular subtypes in CRC through a combination of translational bioinformatics and molecular biology.

Overall, this project aims to unveil the interplay between the epithelial tumour and surrounding immune/stromal cells to ultimately improving our understanding of CRC.

What we expect:

- A PhD in molecular cancer biology or in cancer bioinformatics analysis
- Experience with state-of-the-art molecular stratification using transcriptomic and mutational data
- Strong analytical skills, a problem-solving and a result-oriented attitude
- Creative, collaborative and innovative thinking and a high degree of independence

MAJOR DUTIES:

1. To design, develop and execute molecular stratification studies related to the project in order to obtain reliable data, then evaluate and interpret the results using methodologies and techniques appropriate to the area of the research
2. Carry out analyses, critical evaluations, and interpretations using methodologies and other techniques appropriate to area of research.
3. To interrogate the biological relevance of the data being analysed and regularly present results to the research group.
4. Initiate and maintain collaborative links with various project partners.
5. To write up results in a timely manner and take a leadership role in writing research manuscripts.
6. To present regular progress reports on research to members of the research group and to external audiences to disseminate and publicise research findings.
7. To formulate, write and submit grants for fellowship awards, project and travel support.
8. To attend and present new experimental data at national and international meetings.
9. Assist grant holder in the preparation of funding proposals and applications to external bodies.

10. Carry out postgraduate student supervision within the post holder's area of expertise and under the guidance of a member of academic staff.
11. Assists with the supervision of summer students on mini-projects, which will help develop their own supervisory skills.
12. Carry out routine administrative tasks associated with the research project/s to ensure that project/s are completed on time and within budget. These might include organisation of project meetings and documentation, financial control, risk assessment of research activities.
13. Read academic papers, journals and textbooks to keep abreast of developments in own specialism and related disciplines.
14. Any other reasonable duties within the general ambit of the post.

Planning and Organising:

1. Plan for specific aspects of research programmes. Timescales range from 1-6 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.
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.
3. Take shared responsibility for the upkeep of lab equipment.
4. Support the development and training of support staff and students.

Internal and External Relationships:

1. Communicate openly with lab colleagues the latest research findings/results.
2. Develop contacts with other labs within the research community at Queen's and look to identify potential cross-discipline collaborations.
3. Build internal contacts and participate in internal networks for the exchange of information and to form relationships for future collaboration.
4. Join external networks and societies to share information and ideas.
5. Contribute to the School's outreach programme by establishing links with local community groups, industries etc.

Essential Criteria:

1. Hold (or about to obtain) a PhD in molecular cancer biology, bioinformatics or a related discipline.
2. At least three years relevant research experience with molecular interrogation of cancer datasets (including PhD experience).
3. Experience with transcriptional data analysis (microarray, RNA-seq, etc.) and/or bioinformatics.
4. Experience and understanding of biological signalling cascades involved in cancer progression.
5. Publication record commensurate with stage of career.
6. Ability to contribute to broader project management and administrative processes.
7. Sufficient breadth and depth of specialist knowledge in the discipline and of research methods and techniques to work within established research programmes.
8. Ability to communicate complex information clearly.
9. Ability to build contacts and participate in internal and external networks.
10. Demonstrable interdisciplinary skillset related to translational cancer research.
11. Understanding of limitations with methodologies regularly used in molecular data analysis.

Desirable Criteria:

1. 1st Class or 2.1 undergraduate degree.
2. Postdoctoral track record of national/international collaboration.
3. Single-cell data analysis.
4. Programming experience.
5. Publication of peer-reviewed papers that include a large component of bioinformatics analysis and molecular interrogation.
6. Evidence of student supervision roles.
7. Evidence of involvement in successful programmes and grant applications.

8. Presentations at national/international meetings.

Additional Information:

Recent advances by in molecular profiling analysis have identified molecular subtypes in CRC, based on previously defined histological subtypes (Consensus Molecular Subtypes; CMS) and neoplastic epithelial biology (ColoRectal Intrinsic Subtypes; CRIS). This molecular subtyping involves a combination of molecular biology, computational analysis and pathological assessment, enabling an integrated evaluation of multiple layers of molecular information.

In addition to the novel Early Detection multiomics cohort, which will be the basis of this project, our lab has unparalleled access to molecular data from the tumour datasets used to develop both CMS and CRIS, as part of the S:CORT programme (www.scort.org.uk) and emerging molecular profiles from state-of-the-art pre-clinical models, including organoids and mouse models (PDX and GEMM), as part of our leading role in the ACRCelerate programme (<http://www.beatson.gla.ac.uk/ACRCelerate/teams.html>).