



## Candidate Information

<b>Position:</b>	Senior Research Fellow (Lead Bioinformatician)
<b>School/Department:</b>	Patrick G Johnston Centre for Cancer Research
<b>Reference:</b>	22/109500
<b>Closing Date:</b>	Monday 7 February 2022
<b>Salary:</b>	£42,149 - £47,419 per annum
<b>Anticipated Interview Date:</b>	Monday 28 February 2022
<b>Duration:</b>	Available until 31/08/2023

### Job Purpose:

To lead and manage the bioinformatics section of the Precision Medicine Centre of Excellence (PMC). To develop, validate and maintain analytical tools, data analysis pipelines and algorithms to analyse genomic information from cancer specimens, in the context of clinical studies and clinical trials.

To oversee and supervise the analysis and interpretation of vast amounts of biological, clinical and scientific data, including genomics, transcriptomics and digital pathology imaging and providing timely and accurate feedback. To correlate biological findings with clinical outcomes and integration with other datasets such to develop new diagnostic, prognostic and predictive tools.

The post-holder will perform data analysis in large cohorts of samples and will require providing statistical analysis as appropriate.

To contribute significantly in report, manuscript and grant preparation and writing. The successful candidate will be responsible for providing support for generation and implementation of data analysis pipelines, data management strategies, as well as generation of clinical, genomics and imaging databases. They will be expected to integrate into a multidisciplinary environment provided on site, and to interact with key clinical and scientific stakeholders.

### MAJOR DUTIES:

1. To lead and manage the bioinformatics section of the PMC.
2. To plan and lead genomic data analysis for the PMC, including evaluation and planning of incoming projects and advise on resources needed and timescales.
3. Generate novel analytical tools and develop innovative ways of interacting with project teams to maximise the use of complex datasets.
4. To lead and develop pipelines for the processing and analysis of raw data from next generation sequencing, calling of variants including structural aberrations and other clinically relevant genomic alterations using the state-of-the-art high performance computing facilities on site.
5. Update and maintain databases and the tools required for the analysis, storage and reporting of genomic and clinical data, as well as ensuring that the department complies with legal and professional requirements in regards to storage and transmission of patient's genetic and sensitive data.
6. To influence the capability and delivery of the Centre by designing and implementing new computation workflows for large cancer sequencing projects.
7. To supervise, providing support and direction to other bioinformaticians in the section.
8. To integrate with the genomics and the digital pathology sections and work closely with their leads to deliver on the projects carried out by the Centre.
9. To work collaboratively with other computational biologists / bioinformaticians to enhance develop and enhance University wide activities in this area.
10. To identify and troubleshoot problems, working collaboratively with colleagues to overcome issues.
11. To develop new scientific hypothesis and lead in grant writing and grant reporting for the section.
12. Oversee the development and management of bespoke database framework with connections to pertinent public databases.
13. To curate, warehouse and backup data as they are generated in a timely manner.

14. To provide analytical outputs in defined and acceptable formats from sequencing experiments that can be interrogated by research and clinical scientists as required.
15. To write complex bioinformatics analyses for presentation and publication in a timely fashion.
16. To oversee and support end-users to ensure data is interrogated appropriately and meets all standards for peer-reviewed publications.
17. To oversee and maintain valid records of bioinformatics activities and organise corrective action as appropriate. To perform routine data checking/cleaning.
18. To assist supervising and providing support and mentorship to junior and technical members of staff, post graduate students and PhD students.
19. To routinely communicate complex and conceptual ideas to those with limited knowledge and understanding as well as to peers using high level skills and a range of media.
20. To prepare scientific manuscripts and presentations for peer review and publication.
21. To present progress reports to the team and supervisor regularly as well as external audiences.
22. To keep abreast of the field by reading scientific literature and attending relevant meetings when possible.
23. Any other reasonable duties within the general scope of the post and competence of post-holder.

#### **Planning and Organising:**

1. To plan and deliver the specific goals of the PMC programme and contribute to clinical research and group planning.
2. To develop and deliver courses to ensure users are kept up-to-date with new developments in the field.
3. To organise and provide teaching and associated tasks within the areas of expertise for postgraduate students and staff.
4. To plan for the use of research resources, data resources and workshops where appropriate.
5. To plan own day-to day activity within framework of the agreed research programme.
6. To coordinate and liaise with other members of the research group over work progress.

#### **Resource Management Responsibilities:**

1. Responsible for managing all the informatics equipment in the PMC. Manage service contracts to ensure that all equipment is covered and maintained according to relevant international standards and guidelines.
2. To ensure research resources are used in an effective and efficient manner.
3. To contribute to informatics hardware and software maintenance and troubleshooting.
4. To provide guidance as required to support staff and any students who may be assisting with research.

#### **Internal and External Relationships:**

1. To liaise with other Informatics and Bioinformatics teams, in particular the CTU, HPC and scientific computing and HSC IT department.
2. Participate in and develop external networks, identify sources of funding, and build relationships for that contribute to the PMC.
3. To liaise on a regular basis with colleagues, students and clinical teams.
4. To build internal and external contacts and participate in networks for the exchange of information and to form relationships for future collaboration.
5. To contribute to the School's outreach programme by establishing links with local community groups, industries etc.

#### **ESSENTIAL CRITERIA:**

1. Have obtained a PhD in computational biology, bioinformatics, biostatistics, mathematics or related discipline.
2. Substantial relevant research or clinical experience in human/cancer genomics, leading to publications in high-impact factor journals.
3. Experience of working with Linux/UNIX environments.
4. Significant experience managing and analysing NGS data and other big data.
5. Experience of direct managing of projects and small teams.
6. Significant experience using and managing and curating internal and external databases (clinical and genomics).
7. Proficiency with perl, python, bash and/or equivalent languages.
8. Significant experience creating, querying and maintaining databases, particularly MySQL or PostgreSQL.
9. Experience with suitable analysis and plotting languages, particularly R or Matlab.
10. Publication record in a relevant field commensurate to experience.
11. Knowledge of high performance computing systems and job scheduling.
12. Good knowledge of biostatistics.

13. Excellent verbal and written communicational skills.
14. Excellent organisational and inter-personal skills.
15. Excellent project management skills.
16. Ability to plan, organise & prioritise work and meet deadlines.
17. Excellent attention to detail.
18. Ability to communicate complex information clearly and efficiently.
19. Team worker, highly motivated, supportive of colleagues within the group.
20. Ability to show initiative and work independently when required.
21. Ability to work with clinical specimens and in a clinical environment, conforming to regulatory requirements.

**Desirable Criteria:**

1. 1st Class or 2.1 undergraduate degree.
2. Understanding of cancer datasets.
3. Experience in digital pathology.
4. Experience in a clinical bioinformatics environment.
5. Experience in translational cancer research.
6. Experience of working in cancer genetics.
7. Track record of publications in cancer including first authored publications in high-impact journals.
8. Experience contributing to applications for peer reviewed research funding from national or international granting bodies.
9. Outstanding IT skills.
10. Experience of delivering lectures/tutorials on informatics or NGS based approaches.