

| Job Details | | |
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| Job Title: | Postdoctoral Research Assistant | |
| School/Dept/Institute & Centre: | Barts Cancer Institute, Centre for Genomics and Computational Biology | |
| Principal Investigator | Prof. Trevor Graham | |
| Grade: | 4 | Full Time |
| Career Family: | Academic & Education - Research | |
| Appointment period: | 3 years | |
| Current Location: | Charterhouse Square | |

Job Context

The Barts Cancer Institute (BCI) is a Cancer Research UK Centre of Excellence whose work aims to transform the lives of those with and at risk of cancer through innovative research in the laboratory, in patients and in populations. BCI is internationally renowned in many areas of cancer research and it combines ground-breaking basic research with the expertise of clinicians and clinician scientists from the Centre for Experimental Cancer Medicine and the Barts NHS Trust to achieve improvements in cancer patient care. BCI is also a partner in the CRUK City of London Major Centre (together with UCL, Kings and the Francis Crick Institute) which is a Centre of Excellence in Biotherapeutics. BCI is committed in supporting and developing future cancer researchers through its extensive postgraduate training. It is one of six institutes within The School of Medicine and Dentistry (SMD).

The research positions are associated with a Wellcome Trust funded project called “Evolutionary Predictions in Colorectal Cancer (EPICC)”, which is collecting multi-region multi-omic data from colorectal cancers, and interpreting these data within an mathematical evolutionary framework, in order to understand and predict the evolutionary trajectory of disease development. The project is jointly led by Prof. Trevor Graham (BCI, QMUL) and Prof. Andrea Sottoriva (Institute of Cancer Research).

Job Purpose

- To undertake research investigations in collaboration with and under the supervision of the Principal Investigator (PI) in order to realise the objectives and development of the research programme.
- To contribute to the overall scientific endeavour of the Centre, and possibly to take responsibility for areas of other projects, as demand requires.
- To work as part of the Institute’s research team, being mutually supportive and covering duties as necessary during colleagues’ absences and at times of additional pressure, as directed.

Main Duties & Responsibilities

Research:

- To perform research into the evolution of human cancers. This will involve the bioinformatics analysis (Data Science) of multi-omic datasets (i.e. genomics, transcriptomics, epigenetic data, single cell data, histological imaging data etc), mathematical and computational modelling of the ecological and evolutionary processes of cancer development, and statistical inference.
- Design and implement new studies, including the development of new technologies, assays and statistical methods, as required, to reveal the natural history of human tumour development, and the response of these tumours to treatment.
- Analyse data from mouse models and other experimental models as appropriate.
- Open to engage in wet-lab experimentation in a way appropriate for the goals of the project

Specific Duties:

- The principal duty of the post will be to undertake 'dry-lab' laboratory research, developing the assigned project (see above), in a timely and resource efficient manner, as appropriate for the research area.
- To work towards a publication record of the kind that will enhance the Centre's research reputation at national and international level and that will clearly demonstrate originality and scholarship.
- To attend and participate in Centre's academic activities, e.g. Laboratory and journal club meetings, research group meetings and weekly seminars.
- To make research initiatives an original contributions to the research programme wherever possible and to contribute freely to the team research environment in a manner conducive to the success of the research project as a whole.

General Duties:

- To perform bioinformatic and statistical analysis of data
- To perform mathematical modelling
- To collect and analyse data.
- To maintain appropriate databases, keeping accurate written and computerised records and to ensure that these records are stored in a secure place and to maintain confidentiality of all electronically stored personal data in line with the provisions of the Data Protection Act.
- To prepare reports and scientific publications to disseminate results from the programme of research.
- To keep up to date with specific, clinical and professional issues, in particular developments in the specific subject area.
- To undertake literature searches to explore potential research projects and to be able to interpret and present the findings of the literature searches and advise the research teams appropriately regarding potential projects.
- To supervise and train where necessary new members of the research team.
- To assist in drafting budgets and applications for potential research projects and grants.
- Undertake such other duties as may be reasonably expected by the line manager or Head of Department.

The above list of responsibilities is not exhaustive and the jobholder may be required to undertake other duties commensurate with the level of the role, as reasonable requested by their line manager.

This job description sets out the duties of the post at the time it was drawn up. Such duties may vary from time to time without changing the general character of the duties or level of the responsibility entailed. Such variations are a common occurrence and cannot in themselves justify a reconsideration of the grading of the post.

This table lists the essential and desirable requirements needed in order to perform the job effectively. Candidates will be shortlisted based on the extent to which they meet these requirements.

| | Requirements | Essential / Desirable |
|--|--|--------------------------------|
| Qualifications | PhD in a relevant quantitative or biological subject | E |
| | Undergraduate degree in a quantitative or biological subject | E |
| Knowledge, | Significant research experience in bioinformatics, mathematical modelling of biological systems or statistical inference | E |
| | Experience of stochastic process modelling | D |
| Skills and Experience | Cancer biology experience | D |
| | Appropriate publication record | D |
| | Knowledge of evolutionary biology, particularly population genetics | D |
| | Knowledge of somatic evolution and/or cancer evolution | D |
| | Proven ability to maintain accurate and up to date records | E |
| | Understanding of the research process | E |
| | Ability to organise and prioritise own work and organise research within the project timetable | E |
| | Ability to interpret the scientific literature and incorporate this into the project | E |
| | Computer literacy | E |
| | Effective team working | E |
| | Good communication skills | E |
| | Good Analytical skills | E |
| | Strong statistical skills | E |
| | Flexible and co-operative | E |
| | Attitude and Disposition | Self-motivated and hardworking |
| Willingness to learn new skills | | E |
| Willingness to work flexibly in order to achieve project demands | | E |
| Other | | |

E – Essential: Requirements without which the job could not be done.

D – Desirable: Requirements that would enable the candidate to perform the job well.