Ref: **MI/24/10**

Job Title: **Senior Bioinformatician**

1. The Institute invites applications for the above post.

2. Salary will be within the range £34,000 - £40,000 per annum, dependent upon experience.

3. Informal enquiries can be made to Dr Florent Mouliere, Dr Alex Clipson or Dr Steven Hill via email: florent.mouliere@cruk.manchester.ac.uk, alexandra.clipson@cruk.manchester.ac.uk or steven.hill@cruk.manchester.ac.uk

4. The Institute will endeavour to contact shortlisted candidates promptly; however there may be occasions where a high volume of applications are received therefore applicant's patience is appreciated.

COPY OF THE ADVERTISEMENT

The University will actively foster a culture of inclusion and diversity and will seek to achieve true equality of opportunity for all members of its community.

Senior Bioinformatician

- Salary within the range of £34,000 - £40,000 per annum (depending upon experience)
- Job Ref: MI/24/10
- Duration of post: Fixed term until 31st March 2027

About the role:

The goal of the CRUK National Biomarker Centre (NBC), is to develop, validate, and implement biomarkers that facilitate the optimisation of cancer patient treatment. In this regard, the NBC is an acknowledged world leader in the study of minimally invasive biomarkers, or liquid biopsies, for improving cancer management. Our biomarker research integrates clinical, molecular and computational science into a highly convergent programme. Advanced computational biology is critical to the biomarker agenda.

An exciting opportunity has arisen for a Bioinformatician to join the NBC. You will work alongside a multidisciplinary team of clinicians, biologists, engineers, and computational scientists to analyse genomic, epigenomic and transcriptomic data arising from patient blood samples; including cfDNA, cfRNA and circulating tumour cells. The primary focus will be to develop and apply a wide range of computational tools to sequencing data from liquid biopsy to develop and validate novel biomarkers that help better characterise patient tumours.

About you:

You will have a Degree in computational biology/bioinformatics, or related discipline (or equivalent relevant experience) plus significant data analysis experience. Alternatively, you will have a postgraduate degree related to cancer biology with demonstrable data analysis experience.

You will have relevant experience in data analysis (preferably with R/Bioconductor and/or Python), be able to work comfortably on the Linux command line and have a grasp of the statistical approaches used to analyse genome-wide datasets. An understanding of liquid biopsies, cancer genomics, and/or cancer biology are desirable, as is an understanding of bioinformatics pipelines (e.g. Nextflow). You will have strong communication

skills and a desire to work collaboratively with scientists from other disciplines. Experience of multidisciplinary teamwork would be beneficial.

This role would be suitable for a specialist in data analysis wishing to expand upon their cancer related knowledge, or a cancer bench scientist transitioning into a career in computational analysis.

Why choose the CRUK Cancer Biomarker Centre?

We are an internationally leading biomarker centre aligned to the world leading Cancer Research UK Manchester Institute (www.cruk.manchester.ac.uk), an Institute of The University of Manchester (www.manchester.ac.uk), The Biomarker Centre and Manchester Institute are core funded by Cancer Research UK (www.cancerresearchuk.org), the largest independent cancer research organisation in the world.

The Cancer Biomarker Centre is located in the New Paterson Building, a £150 million flagship purpose-built biomedical research facility directly attached to The Christie NHS Foundation Trust in South Manchester. Situated on the third floor, the Cancer Biomarker Centre offers world-class research facilities with bespoke, purpose-built suite of laboratories in close proximity to discovery science collaborators and the Christie Hospital's clinical trialists.

Our Centre's aim is to discover, develop, validate and qualify biomarkers that support optimised treatment of patients with cancer. Our advanced research programmes span a spectrum of cancer research, from the molecular and cellular basis of cancer through to translational research and biomarker driven clinical trials.

For any informal enquiries about this post, please contact Dr Florent Mouliere, Dr Alex Clipson or Dr Steven Hill via email:
florent.mouliere@cruk.manchester.ac.uk,
alexandra.clipson@cruk.manchester.ac.uk or
steven.hill@cruk.manchester.ac.uk

CANCER RESEARCH UK NATIONAL BIOMARKER CENTRE
JOB DESCRIPTION

JOB DETAILS

Job Title: Senior Bioinformatician

Grade: Informatician 3 / CRUK MI3

Department: Nucleic Acids Biomarker (NAB)

Division: CRUK National Biomarker Centre (NBC)

ORGANISATIONAL ARRANGEMENTS

Accountable to:
1. NBC NAB Deputy Team Lead
2. NBC NAB Team Lead

JOB PURPOSE

The CRUK National Biomarker Centre (NBC) aims to develop biomarkers that improve cancer detection, aid prognosis, predict and monitor patient responses to therapy with an overall goal to facilitate cancer precision medicine. Working in the Nucleic Acids Biomarker (NAB) Team within NBC, the post holder will undertake computational data analyses for the detection of tumour signal in cell-free DNA (cfDNA) from next generation sequencing data. This role will focus on the application and further development of cfDNA methylation analysis pipelines and tools for the detection and molecular characterisation of cancer. The post holder will assess solutions for improving detection sensitivity by integrating additional "omic" data including genomic, fragmentomic and transcriptomic data.

The post-holder will apply their own analysis expertise, leverage local expertise and work collaboratively to:

1. Analyse data sets from a range of experimental studies with a focus on cfDNA methylation data.
2. Validate existing pipelines and develop novel methods to enable multi-omic analysis of cfDNA for improving cancer detection.

In addition, you will:

- Interact with a wide range of scientists, both within the NAB team and across NBC to develop and implement analysis approaches for methylation data arising from cfDNA, circulating tumour DNA (ctDNA), as well as primary tumour biopsies from matched clinical samples.
- Identify and implement methylation analysis pipelines for methylation data generated by alternative approaches such as EM-seq and/or Nanopore sequencing.
- Keep abreast of current developments in computational biology/bioinformatics to implement new techniques as and when necessary.
- Develop working knowledge in the field of cancer biomarkers.
- Communicate effectively with cross-disciplinary teams within the NBC.
- Discuss work-plans and results with collaborators.

DUTIES AND RESPONSIBILITIES

Using established pipelines and software tools, and with appropriate training where required, the post holder will plan and execute their own work after discussion with the NAB Team Lead and in collaboration with the Bioinformatics and Biostatistics (BBS) team. The post holder will also, with sufficient in-house training as required:

- Perform high quality data analyses using software tools and pipelines. All analysis will conform to the best practices of reproducible research.
- Work on translational research projects with collaborators from the clinic and pharma.
- Keep comprehensive and up-to-date records of the data analyses of all designated projects in the format agreed and provide these periodically to the NAB Deputy Team Lead, NAB Team Lead or collaborators as required.
- Working within a multidisciplinary team to deliver and interpret data analysis with the researchers involved in data generation.
- Manage time efficiently to bring multiple concurrent projects to completion according to the agreed deadlines.
- Summarise results and contribute to the preparation of manuscripts for scientific publications.

- Attend regular group meetings and where appropriate present results/progress to other team members and collaborators.
- Provide specialist advice and guidance to colleagues in NBC and collaborators.
- Share knowledge of techniques and procedures for the benefit of others within the collaboration framework.
- Keep abreast of current developments in computational biology/technology and implement new technologies or techniques as and when necessary, after discussion with NAB Team Lead and Deputy Team Lead.
- Perform other functions consistent with the position, nature of the post and as determined by the team leaders.
- Understand the confidential nature of the research associated the collaborations and act in accordance with the legally binding research contract stipulations on confidentiality.

STANDARDS OF PERFORMANCE

- Work efficiently, cost-effectively and in a flexible manner
- To meet objectives within pre-determined timescales
- Effective communications to be maintained with staff at all levels
- Strict adherence to protocols and Institute policies.
- To comply with Health & Safety requirements, including having an awareness of personal responsibilities to maintain a safe working environment.
- To maintain confidentiality of information in line with data protection requirements and University policy.
- Manage and prioritise own workload to meet deadlines.
- To contribute to the University's agenda for social responsibility, including sustainability.
- Familiarise themselves with the University's Equality and Diversity policies and to actively support these wherever possible.
- Be a team player.
- To strive to accomplish high quality of work.

PERSON SPECIFICATION

The person specification should set out the qualifications, experience, skills, knowledge, personal competencies and other requirements which the post holder requires to perform the job to a satisfactory level.

Job Title: Senior Bioinformatician **(Informatician 3)**

	ESSENTIAL The qualities without which a post holder could not be appointed	***DESIRABLE*** Extra qualities which can be used to choose between candidates who meet all the essential criteria	***METHOD OF ASSESSMENT***
QUALIFICATIONS	• Degree in Computational Biology/Bioinformatics or related discipline (or equivalent relevant experience), plus significant data analysis experience OR • postgraduate degree related to cancer biology with demonstratable data analysis experience		Application and Presentation of certificate
EXPERIENCE	• Familiarity with analysing NGS data • Demonstrable experience in writing reproducible bodies of code • Demonstrable experience in defining and solving research questions in relation to the project	• Fundamental understanding of experimental design and basic statistics • Proven ability to work effectively within a multidisciplinary team including clinicians to achieve timely and valued objectives • Familiarity with genomic, epigenomic or transcriptomic data analysis • Some project management experience	Application, references and interview

SKILLS	• Comfortable using the Linux command line • Demonstrable experience writing code in at least one of the following: R, Python, bash • Attention to detail with coding and annotation • Accurate comprehensive record-keeping and attention to detail • Effective organisational skills and ability to multi-task • Proven ability to work with other members of a team towards a common goal • Ability to work as part of an interdisciplinary team • Timely delivery of reports against multiple projects / timelines • Demonstrable ability to design and plan experiments and interpret results • Ability to work in a collaborative environment • Ability to work independently with minimal supervision • To set goals, respond to challenges and take the initiative • Excellent communication skills, written and verbal, including the ability to explain complex statistical/computational issues to a non-statistical/ computational audience	• Experience of cancer bioinformatic approaches • Experience analysing complex biological datasets arising, for example, from next generation sequencing • Comfortable in the use of high-performance computing clusters • Experience of revision control systems such as git • R: R notebooks, Bioconductor and tidyverse • Experience in NGS data processing and analysis • Experience in DNA methylation analysis • Experience of running nextflow workflows from nf-core • Ability to select and apply appropriate statistical or machine learning methodologies to complex data sets	Application, references, publications and interview

KNOWLEDGE	• Knowledge in the field of bioinformatics and computational biology as applied to cancer studies • A willingness to develop knowledge of cancer biology	• Some understanding of cancer biology and biomarkers • A working knowledge of liquid biopsies • A general knowledge of cancer • Some understanding of DNA methylation and analysis approaches	Application, references and interview Application, references and interview
OTHER	• Willingness to travel • Self-motivated • Meticulous • Interactive • Organised • Ability to work to strict deadlines • Ability to work well within a multidisciplinary team framework as well as on an individual project • Technically focused • Willingness to learn and implement new experimental techniques • To show commitment to equality and fairness and integrity in dealing with others • To be willing to work across organisational boundaries • To seek new knowledge and share ideas • To be open and responsive to change and innovation		***Interview*** Referees comments

THE CITY OF MANCHESTER AND THE REGION

Manchester is one of the great European cities and the Cancer Research UK Manchester Institute is located a short distance from the city centre and is serviced by regular public transport to the city centre. The city's architecture represents one of the high points of Victorian achievement. The modern city is a major centre of banking, commerce and manufacturing. It has a highly cosmopolitan atmosphere and its cultural life is internationally renowned.

There are three outstanding professional theatre companies, the halls of the Hallé and BBC Philharmonic orchestras, the Cornerhouse as well as other cinemas, and Europe's fastest-growing Chinatown. On the way into the city, there is perhaps the best stretch of road in the entire country for Indian and Pakistani food, known as the curry mile in Rusholme.

Amongst developments enriching the area's cultural life have been: the opening of the Lowry Centre and Media City at Salford Quays; the opening of the Bridgewater Concert Hall; the refurbishment of the City Art Gallery; the opening of Urbis in the centre of Manchester and of the Imperial War Museum North, designed by Daniel Libeskind, in Trafford.

Trafford, specifically Old Trafford, is known internationally for sport: it is a venue for Test cricket and the home of Manchester United FC. The Commonwealth Games were held in Manchester in 2002 and were highly acclaimed. The Commonwealth Stadium became the home of Manchester City FC in 2003.

Housing is varied, plentiful and the price ranges can start moderately priced and are as varied as the requirements.

Schooling ranges from world-famous private schools to excellent sixth-form colleges and comprehensives.

Manchester is well served by a major international airport, with direct scheduled flights to many destinations in Europe as well as North America and Asia.

Manchester Piccadilly railway station has been refurbished and is served by inter-city and other train services – with a direct link to Manchester Airport. The expanding network of Metrolink tram services offers an alternative mode of public transport from certain parts of the conurbation and is currently being

expanded to include connections near to the Institute. Some of the most beautiful countryside in Europe is just short of an hour's drive from the Institute in the Peak District National Park, while the Lake District and Snowdonia are also within easy reach.

Manchester offers extensive provision for research. Library facilities include the John Rylands University Library (the major library in the North West and the third largest in the country) and the Manchester Central Reference Library. Facilities for quantitative analysis are provided by Manchester Computing and the Computer Support Unit.

ADDITIONAL RECRUITMENT AND SELECTION PARTICULARS:

Shortlisted Candidates:

1. We will reimburse reasonable travel expenses. You need to retain all your receipts as you will need to submit these with your expense claim form. This form will be given to you when you attend your interview.

2. If candidates require accommodation the Institute can arrange this for you. Please notify the Institute's Human Resources Department as soon as possible so that this can be arranged on : +44 (0)161 200 8870 / 8866 or email: cruk.jobs@manchester.ac.uk. Please note that reimbursement for accommodation may **not** apply.

3. If candidates have any additional support needs to enable them to attend an interview they will be able to request/discuss this with the Institute's HR department when arranging the interview.

4. Shortlisted candidates may be expected to complete a presentation as part of the selection process. Information regarding the duration and title of the presentation will be provided in the invitation to interview correspondence. We supply both laptop and projector for presentations.

5. All dates and times stated in correspondence from the Institute refer to UK GMT (Greenwich Mean Time)

6. Candidates need to bring along their passport to interview, (a copy of which will be taken for our records) and where applicable, your visa, when you visit the Institute. If candidates have difficulty in producing their passport, please contact the Institute's Human Resources Department prior to the interview on via cruk.jobs@manchester.ac.uk Tel: +44 (0)161 200 8870 / 8866 who will be able to advise you.

7. **Zoom interview with or without presentation:**
   Instances may arise where we propose to hold a Zoom interview as a (first stage) selection process. If this is the preferred method of interview, you will be provided with a link and password to attend the interview at a specified time on a specified date. This link will redirect you to your Zoom interview. 24 hours prior to interview we will require:

- A contact telephone number emailed to cruk.jobs@manchester.ac.uk along with a scanned copy of passport for ID purposes

Please note:
You do not have to have a Zoom account to attend a Zoom interview. You will be prompted to download the software, once you have clicked on the link that you have been provided. You do however, need to have a working microphone and camera connected to your electronic device in order for this interview to go ahead.

The criteria will be consistent with all other candidates.

STANDARD CRUK MANCHESTER INSTITUTE TERMS AND CONDITIONS

The following is a basic summary of the standard terms and conditions applicable to the post you have applied for:

- The Senior Bioinformatician role is on a Cancer Research UK salary. It is an MI3 grade. Salary in the range: £34,000 - £40,000 per annum (dependent upon experience).

- Your employment will be with The University of Manchester appointed under The Cancer Research UK Manchester Institute terms and conditions.

- Salary is paid monthly.

- There are 32 days holiday per year plus Bank Holidays for England.

- The duration of the contract is: Fixed term until 31/03/2027

- 35 hours week.

- There is a probationary period attached to this post of 6 months. It's standard for many organisations now and consists of two 3-monthly reviews with your line manager.

- You are eligible to join the USS (https://www.uss.co.uk/) pension scheme.

- Any offer made by the Cancer Research UK Manchester Institute would require the successful candidate to undergo a medical clearance. This is arranged with Occupational Health department at The University of Manchester prior to starting employment and consists of a basic medical. This is to address and gain clearance for any potential hazards identified for the role on offer.

- Offer is subject to receipt of 2 satisfactory references and proof of your highest qualification.

- Offer is subject to documented evidence of your right to work in the UK under the Home Office UK Border Agency Regulations.

- Overseas candidates should determine, when applying for the position, the likelihood of obtaining a Certificate of Sponsorship (CoS) for the post by assessing their own circumstances against the criteria specified on the gov.uk website.

- Successful overseas candidates may be eligible to claim reimbursement of expenses to cover their visa and National Health Surcharge costs, if required. Overseas candidates will be required to meet the eligibility criteria as specified in the skilled worker points-based system. (NB; reimbursement does not extend to include family members, although a loan scheme is available).

- The successful candidate is required to complete a Rehabilitation of Offenders/ Criminal Records declaration form at the offer stage of the process. Please note: a criminal record will not necessarily be a bar to obtaining a position.

- The Institute is promoting a green travel plan and there are staff benefits promoting this including a cycle to work scheme and the use of public transport. There are strong links to bus routes and tram and train lines around the site. Annual interest free loans are also available to support the purchase of season travel tickets.

  Please note: there are car parking restrictions imposed around these sites.

- There are a range of staff benefits. If you require further information at this stage please contact Institute's HR department directly.