THE UNIVERSITY OF MANCHESTER

PARTICULARS OF APPOINTMENT

FACULTY OF BIOLOGY, MEDICINE & HEALTH

SCHOOL OF MEDICAL SCIENCES

DIVISION OF CARDIOVASCULAR SCIENCES

RESEARCH ASSOCIATE / RESEARCH FELLOW BIOINFORMATICIAN

VACANCY REF: BMH-020724

Salary:	Research Associate grade 6 £35,308 to £43,155 per annum depending on experience. Research Fellow grade 7 £44,414 to £54,421 per annum, depending on relevant experience.
Hours:	Full time
Duration:	Fixed term for up to 36 months
Location:	Oxford Road, Manchester

Enquiries about the vacancy, shortlisting and interviews:
Manager: Maciej Tomaszewski
Email: maciej.tomaszewski@manchester.ac.uk

Faculty of Biology, Medicine and Health

Introduction to the University of Manchester and the Faculty of Biology, Medicine and Health

The University of Manchester is the largest single-site university in the UK with around 38,000 students and more than 11,000 staff. We are committed to delivering an outstanding teaching and learning experience; contributing to the social and economic success of local, national and international communities; producing the highest calibre graduates; and developing our staff to be amongst the very best of their peers.

To achieve our ambitious goals we aim to attract and retain the very best people to work across a range of academic disciplines and support functions.

The Faculty of Biology, Medicine and Health (FBMH)
The Faculty of Biology, Medicine and Health was created on 1 August 2016 when the Faculty of Life Sciences and the Faculty of Medical and Human Sciences will be brought together in a new, integrated structure to deliver a truly translational approach to the life sciences, ensuring smooth research pathways - from pure discovery science through to clinical application and patient care.

With a total annual income of over £300 million, and over 3,000 members of staff, the new Faculty is comparable in size to a medium-sized UK university. Thirty undergraduate and 90 postgraduate programmes offer our 11,000 students opportunities to develop the skills and knowledge they need for a successful career.

The Faculty's matrix structure facilitates interdisciplinary working and enables us to learn from each other and share best practice; and our eight, strategic Research Domains help to articulate our research strengths, drive large-scale, collaborative research activities and strengthen relationships with our research and healthcare partners.

The integration of discovery biology, clinical application and patient care within a single Faculty, particularly in a region with notable health inequality, provides us with a real opportunity to have a very significant and positive impact on people's lives.

Our strategic partnerships
The new Faculty inherited a number of key strategic partnerships that underpin its ambitions to develop ground-breaking research.

Working alongside six local NHS Trusts, the Faculty is a key member of the Manchester Academic Health Science Centre (MAHSC) - a federation of equal partners that unites leading healthcare providers with world-class academics and researchers. It aims to be a global centre for the delivery of applied health research and education and provide leadership for our local and regional health systems.

The Faculty also play a leading role in Health Innovation Manchester (HInM), which was launched in September 2015, as part of the UK Government's decision to devolve health and social care responsibilities to Greater Manchester. HInM offers a unique opportunity to bring together health and social care, academic and life science related business resources across the region to deliver an innovative health ecosystem that can help accelerate innovation into our local health and social care systems, enhance our global scientific standing and act as a magnet for inward investment.

Key partnerships in the charitable sector include Cancer Research UK; Diabetes UK; and the Wellcome Trust; and the Faculty will also have research and funding links to a number of commercial organisations including Unilever, AstraZeneca, GlaxoSmithKline and Boots, who will help us to bring new drugs and products to the market.

Working for the University of Manchester
The University of Manchester strives to make our community a welcoming, caring and enthusiastic one, fuelling ambition with opportunities and support to help us all achieve our personal and professional goals.

Our diverse job opportunities include an attractive benefits package with family-friendly policies that provide for flexible working. We care deeply about career and personal development, offering a structured induction programme for new staff, an annual performance and development review, staff training for all career stages and mentoring opportunities to support your career development.

We have a genuine commitment to equality of opportunity for our staff and students, and are proud to employ a workforce that reflects the diverse community we serve.

As a global institution, situated at the heart of a lively, culturally diverse city, we welcome applicants of all nationalities. To help international job applicants plan for life in the UK, we have put together some useful information on passports and visas, travel to the UK, accommodation and a number of other practical considerations.

Division of Cardiovascular Sciences

The Division of Cardiovascular Sciences comprises over 30 principal investigators - clinicians and basic scientists with national and international reputations in their respective fields. Together we work to translate our understanding of the cellular, molecular and genetic processes underlying cardiovascular disease into improved clinical treatments and patient care.

Our key drivers are:

- To produce world-leading research outputs that lead to patient benefit – with major focus on cardiac physiology and heart failure; hypertension and its complications; human genetics of cardiovascular disease.

- To provide the highest quality research training and teaching for postgraduate and undergraduate students, to develop the next generation of basic and clinical scientists and equip them with the skills to conduct integrative research.

The scale and success of our research can be seen in:

- Current major personal awards and grant funding from the British Heart Foundation, NIHR, Stroke Association, MRC, Department of Health, BBSRC and Kidney Research UK.

- A £1 million BHF award to accelerate our interdisciplinary science to world-leading status through the BHF Research Accelerator in Integrative Physiology.

- Highly successful and prestigious BHF 4-year PhD programme.

- An established Masters programme in Cardiovascular Health and Disease.

- BHF infrastructure award for an MRI scanner central to the BHF Manchester Centre for Heart and Lung Magnetic Resonance.

Our basic science research labs are based on the main university campus in our core facilities, known as the Biomedical Corridor, which comprises the Core Technology Facility (CTF), AV Hill and Smith Buildings.

Our clinical research and practice is conducted at the adjacent Manchester NHS Foundation Trust (MFT), the University Hospital of South Manchester and Salford Royal NHS Foundation Trust. These close connections with our hospital bases provide an integrated and stimulating research environment. With a population of 3.5 million people in the catchment area of the city's major cardiac centre at MFT, and with the Greater Manchester population suffering disproportionately from heart and circulatory disease, Manchester is an ideal and essential place to conduct cardiovascular research including large scale patient-based investigations.

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The University of Manchester

RESEARCH FELLOW/ BIOINFORMATICIAN

Background

The National Institute of Health and Care Research (NIHR) funds Biomedical Research Centres (BRCs) as experimental medicine centres of excellence via competitive application every five years. Manchester Biomedical Research Centre (BRC) has recently been renewed over five years to provide experimental medicine infrastructure funding across Greater Manchester, Lancashire and South Cumbria. Contracted by the NIHR, Manchester University NHS Foundation Trust (MFT) host the BRC in partnership with the University of Manchester and also with The Christie NHS Foundation Trust, Northern Care Alliance NHS Foundation Trust, Greater Manchester Mental Health NHS Foundation Trust, Blackpool Teaching Hospitals NHS Foundation Trust and Lancashire Teaching Hospitals NHS Foundation Trust. Manchester BRC drives forward experimental medicine across a range of research themes which are grouped into four clusters: Inflammation, Cancer, High Burden Under Researched Conditions and Disease Complexity as areas where the region has demonstrable strength and which will work collaboratively to improve patient outcomes and embed, build and accelerate personalised health and care for all.

This is a 36-month full time post to work within the recently awarded NIHR funded Manchester Biomedical Research Centre Integrative Cardiovascular Theme.

The post-holder will be based in the Division of Cardiovascular Sciences within the School of Medical Sciences at the University of Manchester.

We seek a highly motivated Research Fellow/Bioinformatician to work within the Cardiovascular and Kidney Genetics group led by Professor Maciej Tomaszewski – co-lead for Integrative Cardiovascular Theme within Manchester BRC. You will contribute to the delivery of Hypertension Programme within Integrative Cardiovascular Theme of the BRC through analysis of large-scale discovery experiments in hypertension involving whole-exome and whole-genome sequencing, kidney and urinary cells RNA-sequencing, and microarray analyses. The programme of work will involve the use of the UK Biobank and 100,000 Genomes datasets, together with publicly available and in-house ‘omics datasets.

The programme will generate large and complex ‘omics outputs, you will lead the analyses of these datasets and their integration with the aim of identifying causative genes, pathways and mechanisms and potential interventions in hypertension and its complications. You will have the opportunity to develop novel tools and approaches that bear on these problems, implement and deploy new and existing bioinformatics applications, and contribute to grant applications and publications.

The group currently comprises a lecturer, several postdoctoral and visiting fellows, both scientists and clinicians and three PhD Students, and we regularly publish in the top general and specialty journals. This post offers an outstanding opportunity for the successful applicant to make discoveries that will facilitate the development of novel treatments for patients with hypertension, through understanding the new biology revealed by human genomic studies.

The genetics community in Manchester is very strong, benefiting from multidisciplinary collaborations between basic scientists, and clinicians accessing a population catchment of over 1.5 million people. Group leader Professor Tomaszewski contributes to Hypertension service at Manchester University Foundation Trust.

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Overall Purpose of the Job:
This is an appointment for a Research Fellow / Bioinformatician to support the delivery of kidney "multi-omics" within Hypertension Programme of Integrative Cardiovascular Theme. The post holder will work under supervision of Professor Maciej Tomaszewski – lead for Hypertension Programme of Integrative Cardiovascular Theme. This post is funded fixed term for up to 3 years in the first instance.

Key Responsibilities, Accountabilities or Duties:

- Responsible for large-scale datasets including whole-genome sequencing data, transcriptomics, proteomics.
- To develop productive national and international research collaborations.
- Present research at national / international meetings.
- To publish results and findings of research in high quality peer-reviewed journals
- Identify sources of funding and contribute to the process of securing funds.
- Work collaboratively across the BRC infrastructure to support the delivery of the BRC objectives and strategic plan in accordance with the NIHR contract.
- To analyse and interpret data produced by the group's genetic and multi-omics experiments.
- To maintain and enhance where applicable existing bioinformatics applications; implement, test and deploy new applications.
- To provide guidance and training to PhD students.
- Contribute to the teaching and learning programmes in the Division / School.
- To manage clinical and genomic data through development and curation of an appropriate pipeline.
- To act as the group's liaison to system administrators designing and deploying computer hardware; implement robust backup solutions; maintain core software requirement and computer performance.
- To produce reports and documentation surrounding processes, applications, and databases.
- To produce results in tabular and figure format that are clearly interpretable and of publication quality.
- To collaborate with research partners in Manchester, the UK and internationally
- To support the research activities of the research group led by Professor Tomaszewski

- Ensure adherence to the terms and conditions of NIHR funding including robust financial management of BRC budgets and acknowledgement of funding on project outputs including publications.
- Support internal and external reporting requirements, including NIHR annual reports and data requests for BRC-related activity across the infrastructure.
- Work with BRC management team to provide information as required for reports across the BRC Governance Structure.
- Work with Vocal and PPIEP organisations to support delivery of the PPIE strategy
- Support capacity building by sharing expertise and training opportunities and providing relevant training across themes as appropriate.
- Work with the Partnerships team to support industry and charity collaborations.
- Identify and drive links with other NIHR infrastructure, including (but not limited to) other BRCs, the Manchester Clinical Research Facility (CRF), the Clinical Research Network (CRN), Translational Research Collaborations (TRCs) and the NIHR Bioresource.

Person Specification

Essential Knowledge, Skills and Experience*:*

- PhD in a relevant subject area (or equivalent).
- BSc or MSc qualification (or equivalent) in Computer Science, Bioinformatics, Statistics.
- Proven experience developing and implementing bioinformatics tools and pipelines.
- Experience developing and implementing algorithms for processing large biomedical datasets.
- High level analytical ability.
- Proficiency in appropriate operating systems and programming languages eg Linux, Python, Perl.
- Proficiency in design and curation of databases.
- Strong written and oral communication skills.
- Ability and willingness to learn new programming/analytical skills.

Desirable Knowledge, Skills, Experience and Qualifications:

- A BSc or MSc in Genetics (or equivalent) or other relevant life sciences subject together with relevant professional experience in Bioinformatics/Statistical genetics experience.

- Substantial experience analysing genomic data, which might include: GWAS data; high-throughput DNA sequencing data; or data from other NGS applications.
- Experience with electronic healthcare record research (as stated above, extensive experience in this area could substitute for genomics experience).

RESEARCH ASSOCIATE / BIOINFORMATICIAN

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Key Responsibilities, Accountabilities or Duties

- Be involved in creating large-scale datasets including whole-genome sequencing data, transcriptomics, proteomics.
- To develop productive national and international research collaborations
- Present research at national / international meetings
- To publish results and findings of research in high quality peer-reviewed journals
- Be involved in identifying sources of funding and contribute to the process of securing funds.
- Work collaboratively across the BRC infrastructure to support the delivery of the BRC objectives and strategic plan in accordance with the NIHR contract
- To analyse and interpret data produced by the group's genetic and multi-omics experiments.
- To maintain and enhance where applicable existing bioinformatics applications; implement, test and deploy new applications
- Liaise with colleagues and students
- To support in the managements of the clinical and genomic data through development and curation of an appropriate pipeline.
- To support the system administrators designing and deploying computer hardware; implement robust backup solutions; maintain core software requirement and computer performance.
- To produce reports and documentation surrounding processes, applications, and databases.
- To support the PI in producing results in tabular and figure format that are clearly interpretable and of publication quality.
- To collaborate with research partners in Manchester, the UK and internationally
- To support the research activities of the research group led by Professor Tomaszewski
- Ensure adherence to the terms and conditions of NIHR funding including robust financial management of BRC budgets and acknowledgement of funding on project outputs including publications
- Support internal and external reporting requirements, including NIHR annual reports and data requests for BRC-related activity across the infrastructure
- Work with BRC management team to provide information as required for reports across the BRC Governance Structure.
- Work with Vocal and PPIEP organisations to support delivery of the PPIE strategy

- Support capacity building by sharing expertise and training opportunities and providing relevant training across themes as appropriate
- Work with the Partnerships team to support industry and charity collaborations
- Identify and drive links with other NIHR infrastructure, including (but not limited to) other BRCs, the Manchester Clinical Research Facility (CRF), the Clinical Research Network (CRN), Translational Research Collaborations (TRCs) and the NIHR Bioresource.

Essential Knowledge, Skills, Experience and Qualifications

- PhD (or close to completion) in a relevant subject area.
- Previous experience developing and implementing bioinformatics tools and pipelines
- Experience developing and implementing algorithms for processing large biomedical datasets
- High level analytical ability
- Knowledge of appropriate operating systems and programming languages eg Linux, Python, Perl
- Knowledge of design and curation of databases.
- Excellent time management and organisational skills
- Ability to work independently and as part of a team
- Flexible approach to dealing with research problems as they arise
- Willingness to learn and develop
- Ability to present in both written and oral publications
- Ability to meet deadlines
- Strong (current) journal publication record.
- Strong written and oral communication skills
- Ability and willingness to learn new programming/analytical skills

Desirable Knowledge, Skills, Experience and Qualifications

- BSc or MSc qualification (or equivalent) in Computer Science, Bioinformatics, Statistics
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