

**THE UNIVERSITY OF MANCHESTER**

**PARTICULARS OF APPOINTMENT**

**FACULTY OF BIOLOGY, MEDICINE & HEALTH**

**SCHOOL OF BIOLOGICAL SCIENCES**

**DIVISION OF EVOLUTION, INFECTION & GENOMICS**

**RESEARCH ASSOCIATE**

**VACANCY REF: BMH-028938**

<b>Salary:</b>	Grade 6, £37,174 to £45,413 per annum, depending on relevant experience
<b>Hours:</b>	1 FTE
<b>Duration:</b>	Fixed term available from mid July 2025 for 3 years
<b>Location:</b>	Oxford Road, Manchester

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**Enquiries about the vacancy, shortlisting and interviews:**

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**BACKGROUND**

The successful applicant will play a key role in a Medical Research Council (MRC)-funded inherited eye disease research programme based at the University of Manchester. The overarching project aim is to contribute to the discovery of potential therapeutic targets through the investigation of biological mechanisms underlying disease pathogenesis. To achieve this, the team employs advanced genomics technologies, including long-read sequencing, alongside bioinformatics, functional genomics, and a range of molecular and cell biology approaches and functional models. This research has the potential to directly inform clinical diagnostic pipelines and therapeutic strategies for patients with inherited eye disease, the commonest cause of visual impairment in working age adults.

The appointed Research Associate will join a collaborative, interdisciplinary team with expertise spanning clinical, computational, and experimental science. The role is embedded within a well-established eye genetics research environment at the University of Manchester, with a long-standing track record in delivering internationally recognised research. The successful candidate will work alongside clinicians and scientists with extensive experience in genomic testing, variant interpretation, and translational research. The team is closely aligned with one of the UK's first dedicated ophthalmic gene therapy units, providing opportunities to contribute to cutting-edge research that informs emerging therapeutic approaches. The post offers excellent scope for collaboration with national and international partners and benefits from the supportive infrastructure of the NIHR Manchester

Biomedical Research Centre and associated clinical research networks.

### **Overall Purpose of the Job**

The Research Associate will take a leading role in delivering the experimental components of a translational research programme focused on inherited eye disease. The postholder will be responsible for independently designing, performing and optimising a range of genomic, molecular and cell biology experiments to investigate the functional impact of genetic variants and explore disease mechanisms.

In addition to laboratory-based work, the role will involve contributing to experimental design, troubleshooting protocols, maintaining accurate records, and supporting the analysis and interpretation of results, including collaboration on bioinformatics pipelines. The Research Associate will work closely with the Principal Investigator and research partners across clinical, academic, and technical teams, and will contribute to supervision and training of students and junior researchers, and disseminating findings through publications and presentations.

This is a key role within an interdisciplinary and collaborative research programme, offering the opportunity to apply and develop advanced experimental skills in a dynamic and impactful area of genomic medicine.

### **Key Responsibilities, Accountabilities or Duties**

#### **Research and experimental work**

- Design, plan, and carry out a range of molecular, cellular and functional biology experiments to investigate genetic variants and biological pathways relevant to disease mechanisms in inherited eye disease. Techniques will include:
  - DNA and RNA extraction, cDNA synthesis, RT-PCR and quantitative PCR
  - Long-read sequencing using platforms including Oxford Nanopore Technologies and PacBio
  - In vitro functional assays, such as luciferase reporter assays, nonsense-mediated decay (NMD) inhibition and investigation of cryptic splice alterations and Western blotting/protein assays
  - Cloning, vector design, and mammalian cell culture and transfection
- We are particularly interested in candidates with broader biological expertise relevant to modelling disease mechanisms, particularly where this supports understanding of biological pathways and contributes to therapeutic development. Relevant experience may include, but is not limited to, the use of cell-based systems, tissue models, or in vivo approaches to study disease-relevant biological pathways
- Optimise laboratory protocols and workflows to ensure consistency, reproducibility, and high-quality data generation.
- Maintain clear and accurate laboratory records, monitor experimental progress, and support robust data collection, sample tracking, and documentation for reporting and publication.
- Support the development and application of bioinformatics workflows for variant annotation and interpretation.
- Support the analysis and interpretation of sequencing results in collaboration with computational team members.
- Collaborate with national and international partners, contributing to the development and harmonisation of shared experimental and bioinformatic protocols.
- Integrate experimental and analytical findings to advance the project's scientific objectives and inform future research directions.

### **Research Development and Communication**

- Develop research objectives and contribute to individual and collaborative research projects.
- Participate in data analysis, interpretation, and the preparation of scientific outputs, including figures, presentations, reports, and peer-reviewed publications.
- Present research findings at internal meetings, national/international conferences, and stakeholder events.
- Translate knowledge of advances in the field into experimental strategy and research outputs.
- Contribute to funding applications and proposals to external bodies where appropriate.

### **Collaboration and Training**

- Liaise effectively with colleagues, collaborators, and students within the research group and wider academic networks.
- Assist with supervision, mentorship, and training of junior researchers and students, including supporting the development of their experimental skills.
- Be involved in the assessment of student knowledge and supervision of research projects where appropriate.
- Build internal and external collaborative relationships to support the research programme and promote future opportunities.

### **General Responsibilities and Professional Development**

- Manage own research and administrative activities with appropriate levels of guidance and initiative.
- Ensure compliance with Health and Safety regulations, risk assessments, and good laboratory practice.
- Make effective use of laboratory facilities and resources, ensuring responsible and safe working practices.
- Engage in continuous professional development, maintaining up-to-date knowledge of relevant methodologies, technologies, and research developments.
- Participate in relevant departmental and project-related meetings and contribute to collaborative decision-making.

## **PERSON SPECIFICATION**

### **Essential Knowledge, Skills and Experience**

- Hold, or be about to obtain, a PhD (or equivalent) in molecular biology, genetics, genomics, or a closely related discipline
- Background in genomics and molecular biology, with hands-on experience in relevant experimental and/or analysis techniques.
- Proficiency in core molecular biology techniques, including:
  - DNA and RNA extraction from human samples, cDNA synthesis, RT-PCR, and quantitative PCR
  - Cloning, plasmid preparation and vector design
  - Mammalian cell culture and transfection
  - Protein functional assays (eg. Western Blotting)
  - Functional assays related to splicing or gene regulation (e.g. Luciferase reporter assays, mini-/midi-gene constructs, nonsense-mediated decay inhibition)
- Broader biological expertise relevant to modelling disease mechanisms or exploring therapeutic approaches, which may include experience with stem cell-derived systems (e.g. iPSC models), in vivo models (e.g. zebrafish or mouse), or tissue models that recapitulate disease-relevant cellular environments. Candidates should demonstrate the ability to apply such systems to study disease-

relevant biology, or have a strong foundation in molecular and cellular biology with the interest and capability to develop expertise in this area.

- Experience in interpreting molecular data and contributing to experimental design and optimisation.
- Basic understanding of bioinformatics tools and workflows, including sequence alignment, exome/genome variant interrogation, and data visualisation.
- Ability to troubleshoot, optimise and adapt experimental protocols independently
- Experience contributing to the generation of scientific outputs, such as peer-reviewed publications and conference presentations
- Excellent organisational and time-management skills, with the ability to prioritise and manage multiple tasks effectively
- Strong written and verbal communication skills, including the ability to present complex scientific concepts clearly and confidently.
- Demonstrated ability to work independently while also contributing effectively to interdisciplinary and collaborative team environments.
- High level of accuracy and attention to detail, with a strong commitment to maintaining clear, comprehensive and complete laboratory records.
- Awareness of health and safety requirements in laboratory settings and adherence to good laboratory practice.
- Commitment to equality, diversity, and inclusion in both research and the workplace.

#### **Desirable Knowledge, Skills and Experience**

- Practical experience with long-read sequencing platforms such as Oxford Nanopore Technologies or PacBio.
- Previous research experience in rare disease genomics, with a particular focus on inherited eye diseases.
- Proven ability to work effectively within collaborative, multi-institutional research environments
- Experience in supervising or mentoring students or junior researchers