

THE UNIVERSITY OF MANCHESTER
PARTICULARS OF APPOINTMENT
SCIENCE AND ENGINEERING
SCHOOL OF NATURAL SCIENCES
DEPARTMENT OF CHEMISTRY
RESEARCH ASSOCIATE IN ORGANIC SYNTHESIS
VACANCY REF: SAE-032736

Salary: £38,448 - £46,970 per annum depending on experience

Hours: Full time (1 FTE)

Duration: Fixed term for 12 months

Location: Manchester Institute of Biotechnology

Enquiries About The Vacancy, Shortlisting And Interviews:

Name: Prof. Gavin Miller

Email: gavin.miller@manchester.ac.uk

Project Title: Reprogramming Sugar Scaffolds Through Skeletal Editing

We seek to appoint an outstanding and ambitious early career scientist as a Research Associate in Organic Synthesis, working on carbohydrate skeletal editing. You should hold a PhD in organic chemistry focused on organic synthesis and/or synthetic methodology development, with a proven track record in molecular synthesis and characterisation, as evidenced through peer-reviewed publications. Prior experience in carbohydrate chemistry is not essential. The post is tenable for 12 months from 1 January 2027, with the possibility of extension for a further two years. The successful candidate will join Prof. Miller's research team in the Manchester Institute of Biotechnology (MIB) and the Department of Chemistry at the University of Manchester.

The project will involve developing new approaches for the skeletal editing of sugars, an emerging frontier in synthetic chemistry, and will pioneer strategies to directly reconfigure carbohydrate frameworks, providing rapid access to novel carbohydrate-derived chemical space. The researcher will develop the synthetic methodology and investigate reaction mechanisms, regioselectivity and stereochemical control. This curiosity-driven, high-risk/high-reward project offers substantial intellectual freedom and the opportunity to establish new concepts at the interface of synthetic organic and carbohydrate chemistry. You should be capable of working under your own initiative and collaborating with other researchers, so excellent communication and organisational skills are also required. As an equal opportunity employer, we welcome applicants from all sections of the community regardless of age, sex, gender (or gender identity), ethnicity, disability, sexual orientation and transgender status. All appointments will be made on merit.

Overall Purpose Of The Role

The purpose of this role is to develop new synthetic methodologies for the skeletal editing of sugars, enabling the direct reconfiguration of carbohydrate frameworks and access to novel carbohydrate-derived chemical space. You will design and optimise organic transformations and investigate reaction mechanisms, regioselectivity and stereochemical control. The role requires a PhD in organic chemistry focused on organic synthesis and/or synthetic methodology development; prior experience in carbohydrate chemistry is not essential.

We are looking for someone with new insights, fresh perspectives and the research experience to advance this curiosity-driven project within the Miller research group, working independently and collaboratively with other researchers. In this role, you will be encouraged to develop your research and professional skills to support your career development (e.g. towards an independent career in academia or industry). As a member of an interdisciplinary research team, you will have strong interpersonal skills and a collaborative approach to teamwork.

Key Responsibilities, Accountabilities Or Duties

You will apply your expertise in organic synthesis and synthetic methodology development, working within the Miller research group at the MIB. Prior experience in carbohydrate chemistry is not essential; the role requires strong synthetic skills and a willingness to apply these to sugar scaffolds.

Main Responsibilities:

As a Research Associate, you will:

- Design, plan and carry out high-quality research in organic synthesis and methodology development, establishing new transformations for the skeletal editing of sugar scaffolds.
- Ensure timely delivery of research outputs.

- Develop and optimise synthetic transformations, investigate reaction scope and limitations, and isolate and fully characterise reaction products using appropriate analytical and spectroscopic techniques.
- Work as part of our diverse research team and collaborate accordingly.
- Use your initiative to manage your time and work independently towards timely research dissemination through publication in high-quality academic journals (contributing experimental data, writing and reviewing manuscripts) and presentations at conferences and seminars.
- Help develop collaborations through participating in internal/external networks to exchange information and explore research ideas.
- Provide technical training and support to fellow researchers and students in the MIB.
- Be responsible for project management, including report writing.

Person Specification

Essential Knowledge, Skills And Experience

You must hold a PhD in organic chemistry with a research focus on organic synthesis and/or synthetic methodology development. Strong practical expertise in the design, execution and interpretation of synthetic organic chemistry experiments is essential. Prior research experience in carbohydrate chemistry is not required. We welcome applicants from diverse backgrounds and actively encourage individuals from under-represented groups to apply.

Experience

- A demonstrable record of research in organic synthesis and/or synthetic methodology development, gained during your PhD, with any subsequent academic or industrial research providing additional relevant experience. Practical expertise in synthetic route design, reaction optimisation, compound purification and structural characterisation is essential.
- Evidence of developing innovative synthetic methods or experimental protocols, including the ability to devise, optimise and troubleshoot organic reactions.
- An ability to work independently and collaboratively as part of a team, and a flexible approach to dealing with research problems as they arise.
- A wide interest in contemporary organic synthesis.

Research And Scholarship

- An ability to effectively plan and manage your research projects in collaboration with others.
- A willingness to collaborate with colleagues on areas of shared research interest.

- Interpersonal skills to attend and contribute to, and where appropriate lead, relevant research meetings.
- Ability to analyse and interpret research data creatively, draw conclusions from the outcomes, and evaluate and communicate complex data.
- Ability to translate knowledge of advances in the subject area into research activity.
- Skills to contribute to publications and disseminate research findings.

Communication

- Excellent interpersonal and communication skills (both written and oral).
- A willingness to speak at national and international conferences.
- Ability to communicate complex information and material of a specialist or highly technical nature, orally, in writing and electronically.
- Experience in communicating complex and conceptual ideas to diverse audiences, including those with limited scientific knowledge and understanding, as well as to peers, using a range of media.

Liaison And Networking

- Ability to demonstrate and evidence a heartfelt commitment to diversity and inclusion.
- Capability to manage competing research tasks and organise your workload within the project described above, working independently and collaboratively.
- Skills to actively collaborate within and outside the University to complete research tasks.
- Initiative to participate in and develop external networks, for example to identify sources of funding, or build relationships for future activities.
- Ability to bring your individuality and breadth of background experience and skills to make a positive contribution to our University.

Teaching And Learning Support

- Ability to support and train other researchers, including master's students, technicians and postgraduate research students.

Teamwork

- Responsibility for smaller research projects or identified parts of a large project.
- Ability to develop productive working relationships with other members of staff, understanding our commitment to creating a fully inclusive and flexible culture where everyone can realise their potential and make a positive contribution.
- Ability to co-ordinate the work of colleagues to ensure equitable access to resources and facilities.

Pastoral Care

- Ability to deal with standard problems and help colleagues resolve their concerns about progress in research.
- An open, collaborative ethos.

Initiative, Problem Solving And Decision Making

- Ability to assess, interpret and evaluate outcomes of research.
- Ability to resolve problems to meet research objectives and deadlines.
- Initiative to develop ideas for generating income, promoting research and applying research outcomes.
- Ability to develop new research programmes and methodologies, often in collaboration with colleagues.

Planning And Managing Resources

- Capability to plan, co-ordinate and implement research programmes.
- Ability to manage the use of research resources and ensure that effective use is made of them.
- Opportunities for scientific project management of industry-interfaced projects (working with academics and industrial partners).
- Opportunities to help to plan and implement commercial and consultancy activities.

Sensory, Physical And Emotional Demands

- Ability to balance the pressures of research and administrative demands and competing deadlines.
- Ability to engage and collaborate with our diverse team.

Work Environment

- Responsibility for conducting research-related risk assessments that contribute to the health and safety of others.
- Use your individual skills to help us develop a fully inclusive and flexible working environment.