

THE UNIVERSITY OF MANCHESTER
PARTICULARS OF APPOINTMENT
FACULTY OF BIOLOGY, MEDICINE AND HEALTH
SCHOOL OF BIOLOGICAL SCIENCES
DIVISION OF EVOLUTION AND GENOMIC SCIENCES
RESEARCH ASSOCIATE IN EVOLUTIONARY BIOLOGY
VACANCY REF: BMH-016397

Salary: £32,816 to £33,797 per annum depending on relevant experience
Hours: 1 FTE
Duration: Fixed term from 3 May 2021 until 2 May 2024
Location: Oxford Road, Manchester
Responsible to: Professor Michael Brockhurst

Enquiries about the vacancy, shortlisting and interviews:

Name: Prof. Michael Brockhurst

Email: michael.brockhurst@manchester.ac.uk

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 over 40,000 students and more than 12,000 staff.

We aim to become one of the top 25 research universities in the world and are committed to: delivering an outstanding teaching and learning experience for our students; 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 professional services.

The Faculty of Biology, Medicine and Health (FBMH)

The Faculty of Biology, Medicine and Health has an 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 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 interact, learn from each other and share best practice. 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 inherits 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.

It also plays 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 also has 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.

[Brockhurst Lab / Microbial Evolution Research Manchester Group \(MERMan\)](#)

The postdoctoral researcher will be based in the Brockhurst Lab led by Prof. Michael Brockhurst. They will be part of a dynamic team comprising postdoctoral researchers, research fellows, technicians and PhD students (group size approx. 6-10 people). All are working on related research topics in microbial evolution, providing a supportive and vibrant research environment. The Brockhurst lab is based in a newly-equipped state-of-the-art microbiology lab facility with access to a range of cutting-edge analytical instruments and robotic automation. We hold weekly lab meetings, journal clubs, and reading groups focused around developing skills in statistics and bioinformatics.

The Brockhurst Lab is part of a wider collective of evolutionary microbiology labs forming the [Microbial Evolution Research Manchester \(MERMan\)](#) grouping.

MERMan is one of the largest groups of evolutionary microbiologists in the UK, comprising 8 group leaders and >25 research staff all working on microbial ecology and evolution projects. Research topics include, antimicrobial resistance evolution (Dr. Danna Gifford; Dr. Mato Lagator; Dr. Michael Bottery), horizontal gene transfer and symbiosis (Prof. Michael Brockhurst), mutation rate evolution (Dr. Chris Knight; Dr. Rok Krasovec), and the ecology and evolution of host-associated microbiomes (Dr. Kat Coyte; Dr. Sophie Nixon). The group is co-located within shared laboratories and write-up spaces forming an exciting and cohesive community of likeminded scientists. We hold a weekly MERMan group meeting and a monthly external Zoom seminar.

[Overall Purpose of the Role](#)

The postdoctoral researcher position is funded by a 3-year Natural Environment Research Council Standard Grant led by Prof. Michael Brockhurst, together with collaborators at University of Sheffield: Prof. Duncan Cameron, Prof. Andrew Beckerman, Prof. Jon Slate, Dr. Pascal-Antoine Cristin, and Dr. Jagroop Pandhal.

Overall, the project is aimed at understanding the ecological drivers of the evolution of symbiosis, focusing on the role of fitness trade-offs during evolutionary transitions from free-living to symbiosis (and vice versa).

Building on our recent research, we will study the microbial symbiosis between the unicellular eukaryote host *Paramecium* and the algal symbiont *Chlorella*, which form an experimentally

tractable and environmentally widespread symbiosis (doi.org/10.1016/j.cub.2015.11.052; doi.org/10.1016/j.cub.2019.11.053). The new project will combine field sampling with experimental evolution, and use an exciting combination of comparative genomics and metabolomics to discover the genomic architecture and metabolic mechanisms underlying evolutionary transitions between the free-living and symbiotic lifestyles.

The postdoctoral researcher will lead the genomic and metabolomic aspects of the research, working together closely with a full-time research technician also based at Manchester to design and perform the experiments, and will collaborate with a research impact technician based at the University of Sheffield who will engage with industrial collaborators.

Main Responsibilities

- To take initiatives in the planning of research.
- To plan and manage the day-to-day lab research.
- To design physiological and evolutionary experiments.
- To supervise the research technician to perform experiments.
- To identify and develop suitable techniques, and apparatus, for the collection and analysis of data.
- To conduct bioinformatic, phylogenetic, and population genetic analyses of genomic data.
- To conduct bioinformatic analyses of metabolomic data.
- To perform statistical analyses and data visualisation.
- To ensure the validity and reliability of data at all times.
- To maintain accurate and complete records of all findings.
- To ensure all data are securely stored and remotely backed-up.
- To prepare regular internal reports (as agreed).
- To contribute to reports for submission to research sponsors.
- To prepare material for presentation in oral and poster formats.
- To present findings to colleagues and at conferences.
- To draft publications and prepare them for submission to refereed journals.
- To submit publications to refereed journals.
- To submit datasets and associated metadata to repositories.
- To contribute to writing bids for research grants.
- To provide guidance to staff and students.
- To liaise with coinvestigators and researchers at other sites to coordinate research.
- To organise regular meetings of the collaborative research team.
- To undertake instruction of PhD students as agreed.
- To supervise practical work and advise students on techniques.
- To take responsibility for organising resources and effective decision making in support of research.
- To attend relevant workshops and conferences as necessary.
- To be an active team-member and set positive examples by showing a commitment to achieving results, encouraging and supporting junior members of the team and raising suggestions for continuous improvement.
- To work alongside the PI and other colleagues in a collegiate manner and build rapport within the team and the wider Faculty.

- To develop contacts and research collaborations within the Faculty and the wider community.
- To promote the reputation of the laboratory, Faculty and wider University.

Other Duties

- To undertake appropriate administration tasks.
- To contribute to the organisation of the MERMan group.
- To organise and attend relevant meetings (e.g. lab meetings).
- To undertake any necessary training and/or development.
- Actively read the scientific literature relating to (and around) the project.
- To maintain safe workplace practice and procedures in accordance with the requirements of Health and Safety legislation.
- To maintain an up-to-date knowledge of relevant statutory Health and Safety legislation and recommendations and attend safety training as required.
- Any other duties commensurate with the grade of the post as directed by PI / supervisor.

PERSON SPECIFICATION

Essential Skills, Knowledge and Experience

- Hold (or expect to hold shortly) a PhD or equivalent in Evolutionary Biology or Genetics
- BSc / BA (hons) in Biology (or related science subject).
- Extensive theoretical and practical knowledge in evolutionary biology and / or evolutionary genomics.
- Excellent technical skills in bioinformatic analysis of genomic and / or metabolomic data.
- Experience in experimental design and statistical analysis.
- Experience of population genetic and / or phylogenetic analysis.
- Experience of managing large datasets.
- Proven ability to use initiative to efficiently plan, optimise and progress project and communicate findings.
- Track record of peer-reviewed scientific publication(s).
- Track record of conference and / or workshop oral and / or poster presentation(s).
- Extensive IT skills, including experience with standard desktop software (e.g. office & graphics packages), research specific software (e.g. R stats, bioinformatics packages) and online databases (e.g. European Nucleotide Archive, NCBI).
- Excellent organisational skills and time management.
- Excellent interpersonal and communication skills and ability to work with colleagues at all levels.
- Excellent written and spoken English.
- Ability and willingness to contribute to the work of others by offering practical and intellectual help.
- Ability and willingness to liaise with infrastructure, technical and IT support teams.
- Ability and willingness to liaise with internal and external collaborators.

Desirable Skills, Knowledge and Experience

- Extensive and up-to-date theoretical and practical knowledge in symbiosis biology.
- Extensive and up-to-date theoretical and practical knowledge in algal biology.
- Extensive and up-to-date theoretical and practical knowledge in algal genomics.
- Excellent technical skills in algal microbiology.
- Experience of directing and supervising practical lab-based research of others (e.g. students, technicians)
- Experience of lab administration, including compliance with Health and Safety and GMO regulations and COSHH.
- Willingness to work flexible hours including outside standard office hours (e.g. at weekends as required to maintain experiments).

The above particulars are intended as a general guide to the duties of the post and the conditions of service. They do not constitute a contract of employment between the University and the person appointed. The successful applicant will, however, receive a full set of conditions of service on appointment.
