

THE UNIVERSITY OF MANCHESTER
PARTICULARS OF APPOINTMENT
FACULTY OF BIOLOGY, MEDICINE & HEALTH
SCHOOL OF HEALTH SCIENCES
DIVISION OF PHARMACY AND OPTOMETRY
RESEARCH ASSOCIATE IN ADVANCED IN VITRO MODELS FOR NANOMATERIALS TESTING

VACANCY REF: BMH-016033

Salary:	£32,816 to £35,845 per annum depending on relevant experience
Hours:	1 FTE
Duration:	Fixed term from as soon as possible for 12 Months
Location:	Oxford Road, Manchester

Enquiries about vacancy shortlisting and interviews:

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The University of Manchester

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 aim to become one of the top 25 research universities in the world by 2020 and 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 were 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 will 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 will 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 did inherit a number of key strategic partnerships that underpin its ambitions to develop ground-breaking research.

Working alongside six local NHS Trusts, the Faculty will be 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 will 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.

Nanomedicine Laboratory

The Nanomedicine Laboratory's mission (www.nanomedicinelab.com) is to generate and disseminate fundamental knowledge in the fields of bioengineering & nanotechnology and its translation as advanced diagnostics and therapeutics. Components used include DNA, RNA, viruses, stem cells, radionuclides, liposomes, carbon, gold and other nanomaterials. The research efforts taking place within the Nanomedicine Lab are bridging the gap between fundamental nanomaterials engineering and biomedical applications towards the clinical realisation of advanced therapeutic modalities. The Research Associate will be a member of the Faculty of

Biology, Medicine and Health, and will work in the Nano-Cell Biology team in Nanomedicine Laboratory located at the AV Hill Building on the main University campus.

Overall Purpose of the Job

We are looking for an enthusiastic, self-motivated postdoctoral researcher with a strong background in working with advanced cell culture models to primarily develop pulmonary co/tri-culture models and lung organoids. The subsequent aim would be to study interactions of 2D nanomaterials with these models, with the emphasis on the toxicity, uptake and subcellular localization of nanomaterials. The aim of this multidisciplinary project is to determine the safety profile of 2D materials to be used in a variety of consumer products and for nanomedical purposes.

Key Duties:

Principal Responsibilities

- Experimental research work using advanced cell culture models (development of pulmonary co/tri-cultures and lung organoids derived from stem cells)
- Assess toxicity, uptake pathways and subcellular localization of 2D nanomaterials using a range of cytotoxicity assays, RNA-Seq, flow cytometry and confocal microscopy
- Bioinformatics analysis (e.g. Ingenuity pathway analysis software) in collaboration with the FBMH core facility
- Preparation and implementation of research protocols, SOPs and related documentation
- Establishment, training and supervision of students and researchers in protocols developed and core facilities used
- Participate in shared responsibilities that contribute to the management and running of the Nanomedicine Lab

General

- Through interaction with the PI and other members of the Nanomedicine Lab to contribute proactively to the development, progression and execution of the Deliverables and Tasks project
- Contribute to the implementation of the project, ensuring that milestones and deadlines are achieved and that work is completed on time and within budget
- Analyse and interpret data and make a significant input to the scientific direction of the project.
- Prepare and present regular reports on research progress
- Provide clear and timely written work, producing reports and publishing in high quality publications, and communicate verbally as required with other members of the University and with collaborating partners. This may include presentations at national or international level.
- To attend meetings and conferences as agreed by the PI and appropriate to the post and to represent the group when necessary
- Keep abreast of current developments in the area of research by conducting relevant literature searches and reviews
- Contribute to disseminating research information in an appropriate manner, through: i) submission of abstracts at national and international conferences and ii) publications in relevant journals.
- Play an active role in the research group, participating in all group meetings and activities.
- Assist in the laboratory supervision of undergraduate and postgraduate students and junior members of staff, if and when requested

- To act at all times in accordance with the University's policies and procedures relating to Health and Safety, Equal Opportunities, and all other policies and procedures that apply to the post
- To understand and engage with the University's social responsibility agenda and contribute, as appropriate, especially with regard to sustainability
- To undertake appropriate training and development activities
- Any other duties appropriate to the post and grade that may be reasonably requested

Person Specification

The researcher appointed should be a self-motivated individual, with extensive previous experience in tissue culture work (full PhD (or equivalent) or at least 2 years of postdoctoral experience in working with advanced *in vitro* models).

Education and Professional Qualification

Essential

PhD in Stem/Cell Biology, Tissue Engineering, Biochemistry, Biotechnology, or equivalent.

Skills and Knowledge

Essential

- Demonstrable previous experience in stem/cell biology research using a variety of advanced cell culture models (working with co/tri-cultures, stem cells and organoids)
- Advanced skills in standard biological research techniques (e.g. confocal microscopy, flow cytometry, ELISA) and molecular biology techniques (DNA and RNA extraction, PCR), immunofluorescence and immunohistochemistry
- Ability to work effectively in a multi-disciplinary team
- Excellent organisational and time-management skills, including the ability to deliver timely and high quality outputs
- Ability to demonstrate scientific writing and communication skills
- Ability to be creative in research ideas to develop/progress the research area
- Ability to plan, organise, and undertake work without detailed supervision
- Ability to develop effective working relationships with all levels of staff, students and external contacts
- Ability to work under pressure and maintain a high degree of accuracy
- Excellent verbal and written communication skills
- Ability to work independently, use own initiative, where appropriate, and be proactive in approach to work
- Ability and willingness to learn new skills outside own discipline

Desirable

- Experience with bioinformatics tools and methods
- Experience in experimental research using of nanomaterials
- Experience of supervising student research projects
- Evidence of a developing track record in publishing and dissemination of high quality publications in peer-reviewed journals