



Oxford Anatomy & Physiology ranked #1 in QS World Rankings by subject 2017, 2018, 2020, 2021, 2022, 2023 and 2024

Job description and Selection Criteria

Job title	Postdoctoral Research Scientist – Combinatorial Chemist – Polymer Nanoparticles
Division	Medical Sciences Division
Department	Physiology, Anatomy & Genetics
Location	Kavli Institute for Nanoscience Discovery, Dorothy Crowfoot Hodgkin Building, Parks Road, Oxford, OX1 3QU
Grade and salary	Grade 7: £38,674 - £46,913 per annum
Hours	Full time
Contract type	Fixed-term for 18 months or 31 July 2026 (whichever is soonest)
Reporting to	Professor Molly Stevens
Vacancy reference	(AV24052) HRIS: 177069
Additional information	While this is a full-time role, we welcome applications from individuals who wish to be considered for part-time working or other flexible working arrangements.

Research topic	Design of innovative biomaterials and techniques for advanced therapeutics
Principal Investigator / supervisor	Professor Molly Stevens
Project team	Stevens Group
Project web site	https://www.dpag.ox.ac.uk/research/stevens-group https://www.stevensgroup.org
Funding partner	The funds supporting this project are provided by Novo Nordisk.
Recent publications	O. Rifaie-Graham, ... M. M. Stevens. Nature Chemistry. 2022. DOI: 10.1038/s41557-022-01062-4. A. Najer, ... M. M. Stevens. ACS Central Science. 2022. DOI: 10.1021/acscentsci.1c01368.



The role

We are seeking to appoint a Postdoctoral Research Scientist to join Professor Molly Stevens's lab at the Kavli Institute for Nanoscience Discovery. The Stevens Group is based at the Department of Physiology Anatomy and Genetics and is also part of the Institute of Biomedical Engineering. We are looking for a talented organic/polymer chemist with broad expertise on the design and synthesis of materials for drug delivery. The post holder will synthesise a library of lipid-like polymers (lipidoids) to be used in nanoparticle formulations for nucleic acid delivery. The role is highly multidisciplinary involving collaboration with researchers working within the fields of materials science, bioengineering, chemistry and biology. Successful candidates will engage with researchers both within the lab and across partner institutions, requiring strong organizational abilities and project management expertise to navigate complex, multi-team projects.

The post-holder will be active within a vibrant and multidisciplinary environment comprising multiple research strands in fundamental and applied bionanoscience. Based at Professor Molly Stevens' group, the post will involve collaborations with other internationally recognised biomaterials and nanomaterials research groups. The Stevens Group has received numerous awards for outstanding biomaterials related research (www.stevensgroup.org) and comprises a diverse and multidisciplinary group of postdoctoral researchers and postgraduate students. We are looking for a talented scientist who is a confident self-starter and a collaborative team member with impeccable work ethics.

Responsibilities

- Develop a library of hybrid polymer- and lipid nanoparticles and design functionalisation strategies for targeted drug delivery.
- Use state-of-the-art nanomaterial characterisation techniques including cryo-TEM, DLS, SANS/SAXS and the in-house developed single particle Raman spectroscopy technique SPARTA.
- Establish cross-disciplinary protocols to incorporate the materials into biomedical applications in collaboration with other members of the research team.
- Undertake the associated data analysis and interpretation, ensuring validity and reliability of data at all times.
- Help the other research staff in the daily management of the group laboratories.
- Liaise with the other research staff and students working in broad areas of relevance to the research project and partner institutions.
- Manage own academic research and administrative activities taking initiative in planning own research. This involves small scale project management, to co-ordinate multiple aspects of work to meet deadlines.
- Adapt existing and develop new scientific techniques and experimental protocols.
- Test hypotheses and analyse scientific data from a variety of sources, reviewing and refining working hypotheses as appropriate.
- Ensure compliance with Health and Safety (H&S) regulations and actively contribute to the development and implementation of best practices to promote a safe and efficient research environment.
- Contribute ideas for research projects across the group.
- Develop ideas for securing research funding, and present detailed research proposals to Prof Stevens, management team and senior researchers.
- Collaborate in the preparation of scientific reports and journal articles and prepare material for presentation in oral and poster formats.
- Act as a source of information and advice to other members of the group on scientific protocols and experimental techniques.

- Represent the research group at external meetings/seminars, either with other members of the group or alone, for example by attending progress and management meetings as required and networking with the other research groups.
- Undertake instruction of PhD, masters and undergraduate students, as agreed.
- Prepare and deliver a small number of lectures and mark assessments, as agreed.

Other Duties

- Participate in a regular Annual Review.
- Undertake any necessary training identified and continuing professional development in order to stay up-to-date professionally including annual Information Governance training.
- Comply with Health and safety regulations.
- Comply with the policies and procedures set out in the Handbook for University Support staff (or) Academic-Related staff.
- Any other duties that may be required from time to time commensurate with the grade of the job.

This job description should be regarded only as a guide to the duties required and is not intended to be definitive. It may be reviewed in the light of a change in circumstances following consultation with the post holder. The Job Description does not form part of the contract.

Please note that the appointment of the successful candidate will be subject to standard compulsory pre-employment screening, such as right to work checks.

Selection criteria

Essential selection criteria

- Hold, or be near to completion of, a PhD/DPhil in chemistry, materials science, nanotechnology, or related field
- Experience in multi-step organic synthesis, purification and standard chemical characterisation techniques (e.g. NMR, LC-MS)
- Experience in the synthesis of polymer/lipid nanoparticles for applications in therapeutic deliver
- Experience in nanoparticle characterisation techniques
- Knowledge of health and safety regulations relevant to a chemical synthesis laboratory and experience in implementation of best practices
- Previous experience of contributing to publications/presentations, with a proven track record of first author publications in peer reviewed journals.
- Excellent communication skills, including the ability to write for publication, present research proposals and results, and represent the research group at meetings.
- Ability to manage own academic research and associated activities.
- Commitment to engaging with, and promoting awareness of, equality, diversity and inclusion and embedding these into your work.

Desirable selection criteria

- Knowledge of drug delivery in vitro and in vivo models.
- Experience in cross-team collaborative research, including effective project management, adherence to tight deadlines, and technical reporting.
- An interest in clinical translation of science. Experience with entrepreneurial activities or intellectual property is a plus.
- Experience of independently managing a discrete area of a research project.
- Experience of actively collaborating in the development of research funding applications.

Pre-employment screening

Standard checks

If you are offered the post, the offer will be subject to standard pre-employment checks. You will be asked to provide: proof of your right-to-work in the UK; proof of your identity; and (if we haven't done so already) we will contact the referees you have nominated. You will also be asked to complete a health declaration so that you can tell us about any health conditions or disabilities for which you may need us to make appropriate adjustments.

Please read the candidate notes on the University's pre-employment screening procedures at:

<https://www.jobs.ox.ac.uk/pre-employment-checks>

Hazard-specific / Safety-critical duties

This job includes hazards or safety-critical activities. If you are offered the post, you will be asked to complete a health questionnaire which will be assessed by our Occupational Health Service, and the offer of employment will be subject a successful outcome of this assessment.

The hazards or safety-critical duties involved are as follows:

- Lone Working
- Work in hot or cold environments
- Working with Ionising Radiation
- Regular manual handling
- Working with category 3b or 4 lasers (laser safety class)
- Work with any substance which has any of the following pictograms on their MSDS:



Additional security pre-employment checks

This job includes duties that will require additional security pre-employment checks:

- A satisfactory basic Disclosure and Barring Service check
- University security screening (eg identity checks)

About the University of Oxford

Welcome to the University of Oxford. We aim to lead the world in research and education for the benefit of society both in the UK and globally. Oxford's researchers engage with academic, commercial and cultural partners across the world to stimulate high-quality research and enable innovation through a broad range of social, policy and economic impacts.

We believe our strengths lie both in empowering individuals and teams to address fundamental questions of global significance, while providing all our staff with a welcoming and inclusive workplace that enables everyone to develop and do their best work. Recognising that diversity is our strength, vital for innovation and creativity, we aspire to build a truly diverse community which values and respects every individual's unique contribution.

While we have long traditions of scholarship, we are also forward-looking, creative and cutting-edge. Oxford is one of Europe's most entrepreneurial universities and we rank first in the UK for university spin-outs, and in recent years we have spun out 15-20 new companies every year. We are also recognised as leaders in support for social enterprise.

Join us and you will find a unique, democratic and international community, a great range of staff benefits and access to a vibrant array of cultural activities in the beautiful city of Oxford.

For more information, please visit www.ox.ac.uk/about/organisation.

The Department of Physiology, Anatomy and Genetics

Oxford Anatomy and Physiology ranked #1 in the QS World University Rankings by subject 2017, 2018, 2020 2021, 2022, 2023 and 2024.

Our mission is empowering discovery in the physiological sciences to improve health and educate the next generation of doctors and biomedical scientists. For more information, please visit www.dpag.ox.ac.uk



The Department of Physiology, Anatomy and Genetics holds a silver Athena Swan award to recognise advancement of gender equality: representation, progression and success for all.

The Department is a large pre-clinical department within the Medical Sciences Division, with ca. 500 staff and students. It has a world-class reputation in both its research and teaching. The Department was part of the University of Oxford's Biological Sciences submission to the Research Excellence Framework 2021 that was rated top for its world-leading research. Moreover, Oxford's Anatomy and Physiology has been ranked number one in the QS World University Rankings for the past five years. Please see the 2023/2024 annual report: [Annual Report 2023-24 published — Department of Physiology, Anatomy and Genetics \(DPAG\) \(ox.ac.uk\)](https://www.dpag.ox.ac.uk/annual-report-2023-24)

Information about faculty in the Department

Professor David Paterson FRSNZ is the Head of Department. There are five named Professors: the Dr Lee's Professor of Anatomy (vacant) the Waynflete Professor of Physiology (Professor Gero Miesenböck, FRS FMedSci), the BHF Professor of Regenerative Medicine, Development and Reproduction (Professor Paul Riley, FMedSci), the Krebs Chair in Physiological Metabolism (vacant) and the John Black Professor of Bionanoscience (Professor Dame Molly Stevens, FREng, FRS). Other appointments include four Research Professors (Professor Dame Frances Ashcroft, FRS; Emeritus Professor Dame Kay Davies CBE, FRS FMedSci; Professor Scott Waddell FMedSci; Professor Anant Parekh FMedSci FRS), one Wellcome Trust Principal Research Fellow (Professor Andrew King, FMedSci FRS), 13 further full professors and 15 associate professors. There are approximately 175 academic-related research staff supported by external grants and over 100 graduate students registered for higher degrees in the Department. The teaching and the research activities of the department are supported by teams of professional services and technical staff.

Research Centres/Institutes and research themes

The Department has a distinctive, forward-looking, and integrative biomedical research programme organised into four research Centres with a presence in two research institutes <https://www.dpag.ox.ac.uk/>. We also have strong cross-cutting themes in cardiac sciences, cell physiology, development and cell biology, functional genomics, metabolism and endocrinology, and neuroscience, which map on to the research centres. These include the Centre for Integrative Neuroscience (Director: Professor A King FRS), Centre for Neural Circuits and Behaviour (Director: Professor G Miesenböck FRS), Centre for Cellular & Molecular Neurobiology (Emeritus Professor Dame Kay Davies FRS and Professor Dame Frances Ashcroft FRS), Centre for Integrative Physiology (Professor A Parekh FRS)/the Burdon Sanderson Cardiac Science Centre (Director: Professor Manuela Zaccolo FRSB). The Institute for Developmental and Regenerative Medicine (IDRM: Director Professor Paul Riley FMedSci) and the new Kavli Institute for Nanoscience Discovery, which is directly opposite the Sherrington building (Deputy Director: Professor Dame Molly Stevens DBE FRS FREng).

<https://kavlifoundation.org/news/meet-new-kavli-institute-nanoscience-discovery-university-oxford>

The Research Centres and thematic areas bring together researchers who address a range of fundamental issues in the biosciences at molecular, cellular, tissue and systems levels of organisation. <https://www.dpag.ox.ac.uk/centres>

For more information, please visit www.dpag.ox.ac.uk

The Kavli Institute for Nanoscience Discovery (Kavli INSD)

“Where the physical sciences are brought into the cell”

Leading scientific discovery into the most basic unit of life - the cell - the Kavli Institute for Nanoscience Discovery (Kavli INSD) is located at the heart of Oxford University's science area and was inaugurated in March 2021.

With over 30 faculty and 450 research staff and graduate students, world leading teams collaborate from multiple departments (biochemistry, cell biology, chemistry, physics, physiology, psychiatry, clinical neurosciences and engineering) to contribute to global health.

By bringing multiple disciplines together under the same roof to advance scientific research the Kavli INsD creates an environment that encourages the cross-pollination of ideas and inter-disciplinary cooperation. The Institute comes together to work on global health challenges and benefits from the close proximity of the scientific departments as well as advanced imaging facilities and state-of-the-art-instrumentation. As the first Director of Kavli INsD Professor Dame Carol Robinson and the research teams are creating a culture that is both bold and respectful.

The University of Oxford's, Kavli Institute for Nanoscience Discovery is the U.S based Kavli Foundation's 20th institute. The foundation, established in the year 2000 by Fred Kavli, has a mission "to advance science for the benefit of humanity". Research institutes in the fields of nanoscience, astrophysics, neuroscience, and theoretical physics have been endowed by the foundation which also supports programs that strengthen the connection between science and society. Learn more at kavlifoundation.org

Research support facilities



The Department has shared state-of-the-art facilities for a wide range of applications, such as a histology service, DNA/RNA services (rapid and supportive access to microRNA, RNASeq, CHIPSeq, etc.), confocal and other high resolution imaging equipment as well as a Transmission Electron Microscope. Proteomics facilities include MALDI-TOF/TOF and Ion Trap LC-MS/MS systems, and there are extensive magnetic resonance spectroscopy (MRS) and imaging (MRI) facilities for in vivo rodent and clinical investigations, including hyperpolarised

technologies. The Department also provides central support in photography, digital imaging, and poster printing as well as a high-quality mechanical workshop. A dedicated research support team helps with grant applications and awards, and data storage and computation facilities. The department is supported by a dedicated IT team.

Teaching



The main teaching responsibility of the Department is for pre-clinical Medicine students and those reading Biomedical Sciences. There are also contributions to teaching in Biochemistry, Biological Sciences, Human Sciences, Physics, and a graduate Neuroscience MSc programme.

In Oxford, Medicine students take a three-year pre-clinical course before proceeding to clinical training (a further three years). The first five terms of the three-year pre-clinical course provide broad training in all aspects of medical science (leading to the 1st BM qualification). Both pre-clinical

Medicine and Biomedical Sciences students spend the last four terms of their course studying for a BA degree, selecting two Advanced Options from a choice of ten, ranging from systems physiology and neuroscience to cellular and molecular science. Both cohorts also undertake an experimental project, which forms one paper in their final examination; these projects are supervised by members of the academic staff. The Department also contributes some preclinical teaching to the first part of the Graduate entry Medicine course.

Equality, Diversity and Inclusion in DPAG

The Department of Physiology, Anatomy and Genetics (DPAG) is committed to promoting a diverse and inclusive community. We have an active Equality, Diversity, and Inclusion (EDI) committee and are pro-active in promoting race equality. We hold an Athena SWAN silver award in recognition of our efforts to introduce organisational and cultural practices, which promote gender equality and create a better working environment for all. The Department promotes family-friendly policies and supports flexible working arrangements where possible. The University offers 450 nursery places for staff and students at five dedicated University nurseries and a network of local community nurseries. We will be happy to provide you with information about nurseries and schools in Oxford upon request.

We encourage applications from suitably qualified, experienced, and eligible candidates regardless of sex, race, disability, age, sexual orientation, transgender status, religion or belief, marital status, or pregnancy and maternity. We embrace our differences, and you are very welcome at DPAG, without the need to hide any part of who you are.

Applications are particularly welcome from women and black and minority ethnic heritage candidates, who are under-represented in academic posts in Oxford.

To learn more about EDI in DPAG, visit our website: <https://www.dpag.ox.ac.uk/work-with-us/equality-diversity-inclusion>

For more information about the University's family friendly benefits, please also see <https://hr.admin.ox.ac.uk/information-for-parents-and-carers>

Potential applicants may email heidi.de-wet@dpag.ox.ac.uk and/or sally.vine@dpag.ox.ac.uk to discuss any aspect of EDI in DPAG.

The Medical Sciences Division

The Medical Sciences Division is an internationally recognized centre of excellence for biomedical and clinical research and teaching. We are the largest academic division in the University of Oxford.

World-leading programmes, housed in state-of-the-art facilities, cover the full range of scientific endeavour from the molecule to the population. With our NHS partners we also foster the highest possible standards in patient care.

For more information please visit: www.medsci.ox.ac.uk

How to apply

Applications are made through our online recruitment portal. Information about how to apply is available on our Jobs website <https://www.jobs.ox.ac.uk/how-to-apply>.

Your application will be judged solely on the basis of how you demonstrate that you meet the selection criteria stated in the job description.

As part of your application, you will be asked to provide details of two referees and indicate whether we can contact them now.

You will be asked to upload a CV and a supporting statement. The supporting statement must explain how you meet each of the selection criteria for the post using examples of your skills and experience. This may include experience gained in employment, education, or during career breaks (such as time out to care for dependants)

Please upload all documents **as PDF files** with your name and the document type in the filename.

All applications must be received by **midday** UK time on the closing date stated in the online advertisement. If you currently work for the University please note that:

- as part of the referencing process, we will contact your current department to confirm basic employment details including reason for leaving
- although employee may hold multiple part-time posts, they may not hold more than the equivalent of a full-time post. If you are offered this post, and accepting it would take you over the equivalent of full-time hours, you will be expected to resign from, or reduce hours in, your other posts(s) before starting work in the new post.

Information for priority candidates

A priority candidate is a University employee who is seeking redeployment because they have been advised that they are at risk of redundancy, or on grounds of ill-health/disability. Priority candidates are issued with a redeployment letter by their employing department(s).

If you are a priority candidate, please ensure that you attach your redeployment letter to your application (or email it to the contact address on the advert if the application form used for the vacancy does not allow attachments).

If you need help

Application FAQs, including technical troubleshooting advice is available at:
<https://staff.web.ox.ac.uk/recruitment-support-faqs>

Non-technical questions about this job should be addressed to the recruiting department directly at hr@dpag.ox.ac.uk.

To return to the online application at any stage, please go to: www.recruit.ox.ac.uk.

Please note that you will receive an automated email from our online recruitment portal to confirm receipt of your application. **Please check your spam/junk mail** if you do not receive this email.

Important information for candidates

Data Privacy

Please note that any personal data submitted to the University as part of the job application process will be processed in accordance with the GDPR and related UK data protection legislation. For further information, please see the University's Privacy Notice for Job Applicants at: <https://compliance.admin.ox.ac.uk/job-applicant-privacy-policy>. The University's Policy on Data Protection is available at: <https://compliance.admin.ox.ac.uk/data-protection-policy>.

The University's policy on retirement

The University operates an Employer Justified Retirement Age (EJRA) for very senior research posts at **grade RSIV/D35 and clinical equivalents E62 and E82**, which with effect from 1 October 2023 will be 30 September before the 70th birthday. The justification for this is explained at: <https://hr.admin.ox.ac.uk/the-ejra>.

For **existing** employees on these grades, any employment beyond the retirement age is subject to approval through the procedures: <https://hr.admin.ox.ac.uk/the-ejra>.

There is no normal or fixed age at which staff in posts at other grades have to retire. Staff at these grades may elect to retire in accordance with the rules of the applicable pension scheme, as may be amended from time to time.

Equality of Opportunity

Entry into employment with the University and progression within employment will be determined only by personal merit and the application of criteria which are related to the duties of each particular post and the relevant salary structure. In all cases, ability to perform the job will be the primary consideration. No applicant or member of staff shall be discriminated against because of age, disability, gender reassignment, marriage or civil partnership, pregnancy or maternity, race, religion or belief, sex, or sexual orientation.

Benefits of working at the University

Employee benefits

University employees enjoy 38 days' paid holiday, generous pension schemes, flexible working options, travel discounts including salary sacrifice schemes for bicycles and electric cars and other discounts. Staff can access a huge range of personal and professional development opportunities. See <https://hr.admin.ox.ac.uk/staff-benefits>

Employee Assistance Programme

As part of our wellbeing offering staff get free access to Health Assured, a confidential employee assistance programme, available 24/7 for 365 days a year. Find out more <https://staff.admin.ox.ac.uk/health-assured-eap>

University Club and Sports facilities

Membership of the University Club is free for University staff. It offers social, sporting, and hospitality facilities. Staff can also use the University Sports Centre on Iffley Road at discounted rates, including a fitness centre, powerlifting room, and swimming pool. See www.club.ox.ac.uk and <https://www.sport.ox.ac.uk/>.

Information for Staff new to Oxford

If you are relocating to Oxfordshire from overseas or elsewhere in the UK, the University's Welcome Service includes practical information about settling in the area, including advice on relocation, accommodation, and local schools. See <https://welcome.ox.ac.uk/> There is also a visa loan scheme to cover the costs of UK visa applications for staff and their dependants. See <https://staffimmigration.admin.ox.ac.uk/visa-loan-scheme>

Family-friendly benefits

We are a family-friendly employer with one of the most generous family leave schemes in the Higher Education sector (see <https://hr.web.ox.ac.uk/family-leave>). Our Childcare Services team provides guidance and support on childcare provision, and offers a range of high-quality childcare options at affordable prices for staff. In addition to 5 University nurseries, we partner with a number of local providers to offer in excess of 450 full time nursery places to our staff. Eligible parents are able to pay for childcare through salary sacrifice, further reducing costs. See <https://childcare.admin.ox.ac.uk/>.

Supporting disability and health-related issues (inc menopause)

We are committed to supporting members of staff with disabilities or long-term health conditions, including those experiencing negative effects of menopause. Information about the University's Staff Disability Advisor, is at <https://edu.admin.ox.ac.uk/disability-support> . For information about how we support those going through menopause see <https://hr.admin.ox.ac.uk/menopause-guidance>

Staff Networks

The University has a number of staff networks including for research staff, BME staff, LGBT+ staff, disabled staff network and those going through menopause. Find out more at <https://edu.admin.ox.ac.uk/networks>

The university of Oxford Newcomers' Club

The University of Oxford Newcomers' Club is run by volunteers that aims to assist the partners of new staff settle into Oxford, and provides them with an opportunity to meet people and make connections in the local area. See www.newcomers.ox.ac.uk.

Research Staff

The Researcher Hub supports all researchers on fixed-term contracts. They aim to help you settle in comfortably, make connections, grow as a person, extend your research expertise and approach your next career step with confidence. Find out more <https://www.ox.ac.uk/research/support-researchers/researcher-hub>

Oxford's Research Staff Society is a collective voice for our researchers. They also organise social and professional networking activities for researchers. Find out more <https://www.ox.ac.uk/research/support-researchers/connecting-other-researchers/oxford-research-staff-society>