



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

## Job description and Selection Criteria

<b>Job title</b>	<b>Postdoctoral Research Scientist</b>
<b>Division</b>	<b>Medical Sciences Division</b>
<b>Department</b>	<b>Physiology, Anatomy &amp; Genetics</b>
<b>Location</b>	<b>Sherrington Building, Parks Road, Oxford, OX1 3PT</b>
<b>Grade and salary</b>	<b>Grade 7: £36,024-39,347 per annum</b>
<b>Hours</b>	<b>Full time</b>
<b>Contract type</b>	<b>Fixed-term until 01 December 2027. Position available from 02 December 2024.</b>
<b>Reporting to</b>	<b>Professor Pawel Swietach</b>
<b>Vacancy reference</b>	<b>AV24043 / HRIS:174845</b>

<b>Research topic</b>	Mechanisms of metabolic heterogeneity in pancreatic cancer
<b>Principal Investigator / supervisor</b>	Pawel Swietach
<b>Project team</b>	Swietach Group
<b>Project web site</b>	<a href="https://www.dpag.ox.ac.uk/research/swietach-group">https://www.dpag.ox.ac.uk/research/swietach-group</a>
<b>Funding partner</b>	The funds supporting this research project are provided by the Medical Research Council (UKRI)
<b>Recent publications</b>	<ol style="list-style-type: none"> <li>1. Phenotypic screen of sixty-eight colorectal cancer cell lines identifies CEACAM6 and CEACAM5 as markers of acid resistance. Michl J, White B, Monterisi S, Bodmer WF, Swietach P. Proc Natl Acad Sci U S A. 2024 Mar 26;121(13):e2319055121. doi: 10.1073/pnas.2319055121</li> <li>2. Dynamic IL-6R/STAT3 signaling leads to heterogeneity of metabolic phenotype in pancreatic ductal adenocarcinoma cells. Blaszcak W, White B, Monterisi S, Swietach P. Cell Rep. 2024 Jan 23;43(1):113612. doi: 10.1016/j.celrep.2023.113612.</li> </ol>



	<p>3. How protons pave the way to aggressive cancers. Swietach P, Boedtkjer E, Pedersen SF. Nat Rev Cancer. 2023 Dec;23(12):825-841. doi: 10.1038/s41568-023-00628-9</p> <p>4. Acid-adapted cancer cells alkalinize their cytoplasm by degrading the acid-loading membrane transporter anion exchanger 2, SLC4A2. Michl J, Monterisi S, White B, Blaszcak W, Hulikova A, Abdullayeva G, Bridges E, Yin Z, Bodmer WF, Swietach P. Cell Rep. 2023 Jun 27;42(6):112601. doi: 10.1016/j.celrep.2023.112601</p> <p>5. CRISPR-Cas9 screen identifies oxidative phosphorylation as essential for cancer cell survival at low extracellular pH. Michl J, Wang Y, Monterisi S, Blaszcak W, Beveridge R, Bridges EM, Koth J, Bodmer WF, Swietach P. Cell Rep. 2022 Mar 8;38(10):110493. doi: 10.1016/j.celrep.2022.110493</p>
--	---

## The role

The Swietach group has an overarching interest in metabolism, pH regulation and signalling which we apply in the context of understanding diseases, including cancer. This project leverages on our recent discovery of dynamic metabolic oscillations in pancreatic cancer cells. We believe that these dynamic changes in metabolic profile are important in enabling metabolic heterogeneity across cancer cell populations. In turn, variation in metabolic rate is conducive for resource-sharing in an otherwise limited tumour microenvironment. Effective use of resources, by allowing cancer cells to take turns in using substrates, is a long-term strategy for survival and ultimately necessary for reaching metastatic states. However, how these oscillations are established, how general they are among pancreatic cancer cells, and their impact on overall growth are unclear. Identifying the enabling mechanisms could help describe novel vulnerabilities in pancreatic cancer. Since our mechanisms emerge at single-cell level, and manifest as heterogeneity of function rather than any specific gene, the required approaches are innovative and pioneered in our group. The researcher will be responsible for undertaking an exciting and ambitious research programme that builds on strong pilot data and is supported by our track record in innovation. The work will be embedded in a wider programme of cancer-related work, with opportunities to synergise with colleagues in the group working on drug delivery and pH-related vulnerabilities. Within the Oxford ecosystem, we have extensive collaborations to enable world-class training and as a department, we are committed to mentoring researchers across all levels of training.

## Responsibilities

- Manage academic research activities and associated project management, co-ordinate multiple aspects of work to meet deadlines
- Test hypotheses and analyse scientific data from a variety of sources, reviewing and refining working hypotheses as appropriate
- Receive training to innovate scientific techniques
- Use specialist scientific equipment in a laboratory environment
- Engage in the collaborative opportunity between the host departments
- Undertake the research plan on cell lines, including a series of animal experiments, with a view of seeking translational opportunities for future work.
- Contribute ideas for new research projects, develop ideas for generating research income.
- Collaborate in the preparation of scientific reports and journal articles and present papers and posters
- 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

#### 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.

#### **Selection criteria**

##### ***Essential selection criteria***

- Hold, or be close to completion of, a PhD/DPhil in a relevant field, such as biochemistry, molecular biology, cancer research
- Possess sufficient specialist knowledge in the area of metabolism and/or signalling
- Demonstrable, advanced-level experience in cell culture, including gene manipulation and handling multiple cell lines concurrently
- Have experience in performing genetic screens such as CRISPR screens, or implementing innovative methods to study metabolism, or in single-cell technologies
- Ability to manage own academic research and associated activities
- Previous experience of contributing to peer-reviewed publications
- Commitment to engaging with, and promoting awareness of, equality, diversity and inclusion and embedding these into your work

##### ***Desirable selection criteria***

- Experience in animal models of cancer, such as xenografts.
- Ability to contribute ideas for new research projects and research income generation
- Excellent communication skills, including the ability to write for publication, present research proposals and results, and represent the research group at meetings
- Experience of actively collaborating in the development of research articles for publication

#### **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:

- Working at heights
- Lone Working
- Regular manual handling
- Working with category 3b or 4 lasers (laser safety class)
- Working with infectious pathogens (hazard group 2/3) - Hazard Group 3 pathogens
- Working with blood, human products and human tissues
- Work with allergens, Eg laboratory animals, pollen, dust, fish or insects etc.
- Work with any substance which has any of the following pictograms on their MSDS:



- Travel outside of Europe or North America on University Business

### **Additional security pre-employment checks**

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

- A satisfactory basic Disclosure and Barring Service check/Overseas Criminal Records 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](http://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](http://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 four years. Please see the 2024/2024 annual report: <https://www.dpag.ox.ac.uk/news/annual-report-2023-24-published>

### **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 Molly Stevens, FEng, 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.

<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](http://www.dpag.ox.ac.uk)



## 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](mailto:heidi.de-wet@dpag.ox.ac.uk) and/or [sally.vine@dpag.ox.ac.uk](mailto: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](http://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

#### **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 departments.

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>. Should you experience any difficulties using the online application system, and the FAQs do not answer your question, please email [recruitment.support@admin.ox.ac.uk](mailto:recruitment.support@admin.ox.ac.uk).

To return to the online application at any stage, please go to: [www.recruit.ox.ac.uk](http://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 70<sup>th</sup> 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, travel discounts, and a variety of professional development opportunities. Our range of other employee benefits and discounts also includes free entry to the Botanic Gardens and University colleges, and discounts at University museums. See <https://hr.admin.ox.ac.uk/staff-benefits>

### University Club and sports facilities

Membership of the University Club is free for all University staff. The University Club 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](http://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 website 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 dependents. See <https://staffimmigration.admin.ox.ac.uk/visa-loan-scheme>

### Family-friendly benefits

With one of the most generous family leave schemes in the Higher Education sector, and a range of flexible working options, Oxford aims to be a family-friendly employer. We also subscribe to the Work+Family Space, a service that provides practical advice and support for employees who have caring responsibilities. The service offers a free telephone advice line, and the ability to book emergency back-up care for children, adult dependents and elderly relatives. See <https://hr.admin.ox.ac.uk/my-family-care>

The University has excellent childcare services, including five University nurseries as well as University-supported places at many other private nurseries.

For full details, including how to apply and the costs, see <https://childcare.admin.ox.ac.uk/>

### Disabled staff

We are committed to supporting members of staff with disabilities or long-term health conditions. For further details, including information about how to make contact, in confidence, with the University's Staff Disability Advisor, see <https://edu.admin.ox.ac.uk/disability-support>

### Staff networks

The University has a number of staff networks including the Oxford Research Staff Society, BME staff network, LGBT+ staff network and a disabled staff network. You can find more information at <https://edu.admin.ox.ac.uk/networks>

### The University of Oxford Newcomers' Club

The University of Oxford Newcomers' Club is an organisation 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](http://www.newcomers.ox.ac.uk).