



# Windsor Fellowship Prostate Cancer UK Internship Programme

Internship information pack

# Internship placement information

Host institution:

University of Essex

Host laboratory address:

University of Essex, Colchester Campus, Wivenhoe Park, Colchester, Essex, CO4 3SQ

Host lead and joint lead researchers:

Dr Andrea Mohr, Senior Lecturer (lead researcher)

Dr Ralf Zwacka, Reader (joint-lead researcher)

Project title:

Matrix-free 3D prostate cancer organoids: a platform for drug testing and modelling tumour–stroma interactions

#### Research Project summary:

**Background.** Conventional 2D cell cultures fail to replicate the 3D architecture and cellular heterogeneity of prostate tumours, while widely used Matrigel-based organoid systems suffer from batch-to-batch variability, undefined composition and animal derivation, which limits reproducibility and translational utility. Our team has established a PETG scaffold platform for matrix-free 3D organoid culture and has shown organoid formation across multiple cancer cell lines, with histology confirming preserved cellular architecture and cytotoxicity assays confirming pharmacological responsiveness. The project aligns with Prostate Cancer UK's priorities by advancing biologically relevant, reproducible 3D models that improve understanding of prostate cancer behaviour and accelerate drug development.

**Hypothesis.** PETG scaffolds facilitate the formation of structurally organised, pharmacologically responsive prostate cancer organoids that serve as reliable models for drug screening and studies of the tumour microenvironment.

**Aims.** (1) Characterise organoid formation, growth kinetics and morphology across prostate cancer cell lines; (2) validate drug responsiveness using clinically relevant agents, including docetaxel and enzalutamide; (3) 3D bioprint prostate cancer organoids with mesenchymal stromal cells (MSCs) to model tumour–stroma interactions.

**Methods.** Prostate cancer cell lines will be seeded onto pre-treated PETG scaffolds and cultured for up to 28 days. Organoid development will be monitored by brightfield and fluorescence microscopy with quantitative size analysis in ImageJ. Harvested organoids will undergo propidium iodide viability staining, CellTiter-Glo ATP assays, haematoxylin and eosin histology and western blot analysis of caspase-3. Drug-response experiments will be carried out within scaffolds and in ultra-low attachment plates, and CFSE-labelled MSCs will be 3D bioprinted with prostate organoid cells to assess stromal integration and its impact on treatment outcome.

**Timeline (8 weeks).** Weeks 1–2: induction, Health and Safety training, laboratory orientation, cell-culture training, scaffold preparation and initial cell seeding. Weeks 3–4: monitoring organoid formation, brightfield/fluorescence imaging and growth-kinetics analysis. Weeks 4–6: organoid harvest, viability assays (PI, CellTiter-Glo), histological processing and H&E staining. Weeks 5–7: drug-treatment experiments, caspase-3 western blotting and initiation of MSC co-culture. Week 8: data analysis, statistical testing, written report and oral presentation.

**Expected outcomes.** You will contribute original data to an active research project, with findings suitable for future publication or conference presentation, and leave with a strong foundation for progression into postgraduate research or a career in cancer biology.

What skills, techniques and/or methods will you develop during the project:

You will develop a broad and directly transferable set of laboratory and scientific skills, including:

- aseptic cell culture using prostate cancer cell lines
- 3D scaffold-based organoid culture in PETG matrices
- brightfield and fluorescence microscopy, and quantitative image analysis (ImageJ)
- cell-viability assays, including propidium iodide staining and CellTiter-Glo ATP measurement
- histological processing and staining of paraffin-embedded organoids
- western blot analysis of apoptotic markers
- pharmacological study design and methodology using clinically relevant agents

Beyond bench techniques, you will build skills in experimental design, quantitative data analysis and statistical testing. Scientific record-keeping will be embedded throughout, and you will take part in journal clubs and group meetings to strengthen critical reading and scientific communication. The placement concludes with a written report and an oral presentation to the research group, helping you build confidence in communicating scientific findings. Together, these experiences provide a strong practical foundation for postgraduate study or a career in cancer biology or biomedical research.

What induction, training, support and guidance will be provided to you:

**Supervision.** Dr Mohr will manage your project day to day, provide laboratory training and hold weekly 1:1 meetings to review experimental progress, address technical challenges, plan upcoming work and give personalised scientific and career guidance. Dr Zwacka will meet you at least fortnightly, offering additional mentorship, a broader research perspective and continuity during any periods of absence.

**Induction.** You will begin with a departmental induction covering Health and Safety procedures, an introduction to aseptic technique and orientation to key equipment.

**Working with the wider team.** You will work alongside MSc students undertaking summer research projects, enabling peer learning and exposure to a range of experimental approaches. Postdoctoral researchers, PhD students and laboratory technicians will provide hands-on training, and the department hosts other interns at the same time, giving you a wider peer network. You will have access to group meetings, journal clubs, departmental seminars, data-analysis software and professional-development workshops.

**Mentoring and career development.** An external mentor will be identified to give independent career guidance. You will receive feedback on all laboratory presentations and be introduced to early-career researchers across the School. Career development will be built into the programme, with guidance on academic, biotechnology and healthcare pathways, postgraduate applications, CV development and professional networking.

**Showcasing your work.** At the end of the placement, you will present your work as a poster at the annual Graduate Forum, a student-led research conference.

**Beyond the placement.** The team's support will continue after the placement through references, ongoing career advice and mentorship.

Can the project/internship be completed part-time:

Yes. The project has a modular structure, so individual experimental elements can be scheduled independently while maintaining training quality and scientific progress. The work is primarily laboratory-based, and the team prefers interns to be on site, but several components (quantitative image analysis, data processing, statistical evaluation and report writing) can be completed remotely when required. Rather than reducing the project scope, the placement would be extended proportionally where appropriate so you can achieve the same core learning outcomes. Training and supervision will be delivered to the same standard as for a full-time intern, with weekly meetings arranged around your schedule and additional remote contact to maintain continuity.

Can host institution provide accommodation for the duration of the internship programme:

Yes, subject to availability. The University of Essex can provide summer vacation accommodation at its Colchester Campus, allowing an intern relocating to Essex to stay on campus for the full eight-week placement with convenient access to the laboratory and wider University facilities. Summer 2027 rates have not yet been released, but current vacation-period pricing suggests an eight-week stay is likely to cost approximately £1,100–£1,600, depending on room type. Before the placement, the team will work with the University's Accommodation team to help you identify and secure suitable housing.

Stipend offer for this internship:

'Real Living Wage' (£13.45/hour) for 35 hours/week - a stipend of £3,766 over 8 weeks

# Internship placement requirements

## Eligibility criteria:

To be eligible for the internship, you must meet the following criteria:

- Must be in your penultimate or final year of undergraduate study, or a graduate who has yet to, but wants to pursue a MSc and/or PhD and a career in prostate cancer research.
- Must be currently studying towards, or hold, a relevant STEM undergraduate degree in the UK. Graduates must have received a minimum 2:2 grade.
- Must be a permanent resident in the UK, be eligible for home fee status and not have any restriction on their right to work in the UK.
- Must self-identify as being from a Black background, including a mixed background, for example: Black British, Black Welsh, Black African, Black Caribbean, Black Other and Mixed Black background.
- Must be a British citizen and have 'Home' tuition fee status.
- Must be free to attend a laboratory placement between July and August 2027.

STEM undergraduate degrees that would be suitable for an intern matched with this project/placement to hold or be undertaking:

- Biological Sciences
- Biomedical Science
- Biochemistry
- Molecular Biology
- Genetics
- Genomics
- Human Biology
- Cancer Biology
- Biotechnology
- Medical Biosciences / Medical Sciences
- Medicine

## Interview and recruitment processes for this placement:

The team will use a fair, transparent and well-structured process that focuses on each applicant's potential, motivation and interest in prostate cancer research, rather than on prior access to research opportunities. Team members have substantial experience in shortlisting and interviewing for academic and research roles, and all have completed unconscious-bias training.

- Applications will be assessed against clear, predefined criteria that reflect the aims of the project and the internship.

- Shortlisted candidates will be invited to an online interview, so that the process is accessible regardless of location.
- Interviews will be conducted by a gender-balanced panel with relevant research expertise and experience in equality, diversity and inclusion.
- All candidates will be asked the same core questions and evaluated using a consistent scoring framework, exploring motivation, interest in the project, relevant transferable skills and what the candidate hopes to gain.
- No substantial pre-interview task is required; candidates will receive a brief project overview in advance to support discussion.
- Interviews will be scheduled promptly after matching, and candidates will be informed of the outcome as soon as possible. Constructive feedback will be provided to unsuccessful applicants.

# Internship additional information

## Relocation

If you are required to relocate to undertake this internship, you may be eligible to claim relocation costs. Your commute must exceed 1.5 hours each way and you must demonstrate that daily commuting is impractical due to time, cost, or transport availability.

Eligible relocation costs:

| Category        | Amount over 8-week placement |
|-----------------|------------------------------|
| Accommodation   | £1,800                       |
| Travel          | £100                         |
| Moving/setup    | £150                         |
| Local transport | £160                         |
| <b>Total</b>    | <b>£2,210</b>                |

Requirements for requesting relocation costs:

**Proof of Expenses** - Reimbursement requirements: Receipts for accommodation, travel, or moving costs. Signed lease or booking confirmation.

**Type of Costs Covered** - Usual eligible costs: Temporary accommodation (short-term rental, student housing); Travel to and from the internship location (start/end of program); local transport. Not usually covered: Food and daily living expenses; Luxury accommodation upgrades; Costs without receipts

**Tax Considerations** - In some cases, relocation support may be treated as taxable income. This can apply to lump sum payments or un-evidenced payments.

Please note in your application if you require relocation costs for a placement you are applying for. Please note, there is only budget for a finite number of relocation costs, so not all requests can be accepted.

## Project-external development opportunities and support

As part of this internship, the Windsor Fellowship and Prostate Cancer UK will offer the following development opportunities and support:

- The Windsor Fellowship will provide pastoral support in personal and professional development throughout the duration of the internship.

- Internship Programme alumni will be enrolled onto Prostate Cancer UK's [Researcher Mentoring Scheme](#).
- Alumni will be invited to Prostate Cancer UK researcher events and conferences.
- Interns will be supported by a Prostate Cancer UK grant manager before and throughout the duration of the internship.
- Prostate Cancer UK will provide interns with support and guidance in finding postgraduate opportunities (e.g. PhD studentships).

# Code of conduct

1. Interns are expected to abide by the host organisation's employee manual, code of conduct, or similar standards (including dress code, where applicable) that apply to interns and/or employees at the site.
2. Interns must act in a professional and ethical manner including being punctual, dressing appropriately, fulfilling commitments, meeting deadlines, and maintaining a cooperative attitude.
3. Interns understand that permissible absences from the internship site include illness and serious circumstances, and that they will notify their host institution in a timely manner should these situations occur.
4. Interns must maintain confidentiality of any information gained regarding the host organisation's clients, projects, work, and personnel. Additionally, interns will respect copyright laws and intellectual property rights.
5. Interns understand that information about the host organisation should not be broadcast in public spaces, including online platforms such as YouTube, Facebook, X, blogs, websites, or message boards without expressed written authorisation of the host institution.
6. Interns will seek feedback from lead applicant(s), accept suggestions and constructive criticism, and strive to improve performance.
7. Interns must immediately report to the host institution or Prostate Cancer UK with any concerns about an internship placement, including requests to engage in unethical or illegal activities, exposure to sexual harassment, discrimination or unsafe situations, or any other circumstances that create an uncomfortable environment for the intern.

Interns recognise that the host institution and/or employer have the right to terminate the internship experience at any time if it is deemed by Prostate Cancer UK or the host institution that the intern has violated the code of conduct or otherwise negatively compromised the internship programme and/or host organisation.