



Windsor Fellowship Prostate Cancer UK Internship Programme

Internship information pack

Internship placement information

Host institution:

Keele University

Host laboratory address:

Lennard-Jones Laboratories
Keele University
Keele
ST5 5BG

Host lead and joint lead researchers:

Professor Charlene Greenwood & Dr Sarah Gosling

Project title:

Exploring Molecular and Elemental Changes in Early Prostate Cancer

Research Project summary:

Background

Our research focuses on the early detection of multiple cancer types, including prostate, through identifying changes within the tissue microenvironment that may provide novel biomarkers of disease. In prostate cancer, our work has focused particularly on collagen and microcalcifications. Collagen is a major component of the extracellular matrix and plays an important role in cancer formation and progression. Our ongoing X-ray scattering research has identified differences in collagen structure across prostate cancer grade groups. Microcalcifications are calcium-containing mineral deposits commonly associated with diseased tissue, and our CRUK Primer Award-funded X-ray diffraction research has demonstrated differences in their mineral composition between normal and cancerous prostate tissue. This work is now being extended into high-grade prostatic intraepithelial neoplasia (HGPIN) through a Prostate Cancer UK Career Acceleration Fellowship (TLD-CAF24-004).

Building on this research, the internship will investigate tissue changes across normal prostate tissue, HGPIN, and prostate cancer Grade Groups 1 and 2. By combining molecular information from Raman spectroscopy with elemental information from X-ray fluorescence (XRF), the project will investigate changes in tissue composition, including

collagen and mineral components, during early disease. Identifying features associated with these changes may reveal potential biomarkers for early detection and disease characterisation, directly aligning with Prostate Cancer UK's 'Better diagnosis' research strategy.

Hypothesis and aim

We hypothesise that measurable molecular and elemental changes occur within the prostate tissue microenvironment during the earliest stages of cancer development. The project aims to identify and characterise these changes using complementary Raman spectroscopic and XRF measurements across normal, HGPIN and early-stage prostate cancer tissue.

Objectives and milestones

The project will be delivered through three objectives and milestones over eight weeks:

- **Weeks 1-2:** Training and analysis of existing XRF data to investigate and quantify elemental changes across prostate tissue.
- **Weeks 3-6:** Collect and analyse Raman spectroscopic maps to investigate molecular composition, including collagen, lipids, nucleic acids and mineral components, across disease stages.
- **Weeks 7-8:** Integrate Raman and XRF findings, interpret results in the context of published literature and prepare a presentation for the research team.

Established protocols and analysis workflows within the research team will support delivery within the eight-week placement.

Expected results and outputs

The project will generate Raman spectroscopic data for ten prostate samples, integrated with existing quantitative XRF measurements. We expect to identify molecular and elemental differences across normal tissue, HGPIN and early prostate cancer, including changes associated with collagen and mineral components. Integrating these complementary datasets will provide new insight into changes within the tissue microenvironment during early disease and highlight features for further investigation as potential biomarkers. These findings will provide preliminary data to inform the design and focus of a subsequent larger-scale study.

Intern outcomes

You will gain hands-on experience of Raman spectroscopy and human-tissue research, experimental troubleshooting, quantitative analysis of spectroscopic and elemental data, literature evaluation and scientific interpretation. You will develop experience in integrating complementary datasets to address a biological question, critically evaluating your findings against published research, and communicating your results through presentation and discussion at a research team data meeting.

To get a feel for the research environment and facilities you will be working in, explore our interactive virtual tours of our bespoke laboratories, designed for the storage, preparation and analysis of biological tissues.



[Laboratory LJ 1.31](#)



[Laboratory LJ 1.33](#)

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

Throughout the project, you will develop practical, data-analysis and research communication skills, while gaining an understanding of how multidisciplinary research projects are designed and delivered. Practical training will include Raman spectroscopic mapping of human prostate tissue, safe operation of specialist instrumentation, experimental design and troubleshooting. You will also gain experience in the safe handling of human tissue and associated procedures for storage, documentation and research governance.

Data-analysis training will include processing and interpretation of Raman spectroscopic datasets using OMNIC and analysis and quantification of existing X-ray fluorescence data using PyMca. You will learn how complementary molecular and elemental datasets can be integrated to investigate a biological question and will be introduced to appropriate approaches for data visualisation, statistical analysis and interpretation.

You will also develop skills in data management, laboratory record keeping and good research practice. You will gain experience in literature searching, critical evaluation of scientific publications and scientific communication, including presenting and discussing your findings at research team meetings. Collectively, these experiences will develop your practical research skills, analytical confidence and scientific independence, providing a strong foundation for future MSc or PhD study and a career in biomedical research.

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

You will receive a structured induction, supervision and development programme designed to ensure you feel supported, integrated within the team and increasingly confident as an independent researcher.

Before arrival, we will provide an induction pack, key contacts and project overview. During week one, you will complete University and laboratory inductions covering facilities, health and safety, research integrity, data management and relevant laboratory procedures. You will have a dedicated desk alongside the research team, facilitating day-

to-day interaction with MSc, PhD and PDRA researchers, and will participate in team and departmental meetings from the outset.

You will have a weekly 1:1 with the lead applicants to review progress, discuss results and challenges, and agree objectives, alongside day-to-day support from Gosling and other research team members. A mid-placement review will assess progress, training needs and development goals, with a final review focused on achievements and next steps. These meetings will also provide space to discuss wellbeing, inclusion and any concerns arising during the placement.

Protected career-development sessions will be scheduled throughout the placement. Early discussions about your aspirations will inform subsequent sessions, introductions and opportunities. Sessions will cover MSc/PhD pathways and funding, identifying studentships and potential supervisors, CV and application development, and interview preparation. You will also have the opportunity to speak informally with PhD students, postdoctoral researchers and academics about their career pathways and experiences. Beyond the team, you will have access to the ICDD ECR Network, connecting you with over 200 researchers internationally for technical training, career development and professional networking.

You will also be offered an independent mentor through our EDI Committee's established mentorship scheme, providing confidential support outside the research group. Following the internship, we will maintain mentoring contact and share relevant seminars, research and postgraduate opportunities, supporting continued progression towards postgraduate research.

Can the project/internship be completed part-time:

We would fully support a part-time internship and have experience supervising part-time research project students. We would agree an individual working pattern with you before the placement begins, informed by your circumstances and support needs. Where required, the placement duration would be extended to provide equivalent research and development time while maintaining realistic workloads and milestones.

The research project would retain its core aims but be restructured into clearly defined, achievable work packages, with experimental and analytical activities scheduled around the agreed working pattern. Time-sensitive laboratory work would be planned carefully, with continuity provided by the wider research team where necessary. Milestones would be reviewed regularly and adjusted without reducing the quality of the research experience.

Supervision would remain consistent, with scheduled one-to-one meetings with the lead applicants and day-to-day support from the research team. Technical training would be scheduled on your working days and, where possible, lab meetings, seminars and career-development activities arranged to maximise participation.

You would receive the same access to mentoring, postgraduate career guidance, networking and wider team activities as a full-time intern. We would review the arrangement throughout the placement to ensure that working patterns, training and support remained appropriate and accessible.

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

Yes. Keele University provides on-campus vacation accommodation during the summer period, subject to availability. This would provide a convenient option for an intern relocating to Keele for the July-August 2027 placement.

The University has not yet published its summer 2027 vacation accommodation rates. However, as an indication of costs, summer 2026 vacation accommodation ranges from £154.14 per week for a standard shared flat to £232.05 per week for a superior en-suite room, equivalent to approximately £1,233 - 1,856 for an eight-week stay. We would liaise with the University Accommodation Team well in advance of the placement to support the intern in identifying and arranging suitable accommodation, noting that summer accommodation is subject to availability and early booking is recommended.

Accommodation is also available off-campus in the surrounding area, including short-term lets. If you would prefer to explore this option, we would be happy to suggest local areas to consider when searching for accommodation. The surrounding area benefits from good public transport links, including bus services directly to Keele University campus.

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; Biochemistry; Biomedical Science; Medical Sciences; Human Biology; Cell and Molecular Biology; Chemistry; Medicinal Chemistry; Pharmacology; Pharmaceutical Science; Physics; Medical Physics; Materials Science; Biomedical Engineering; Bioengineering; Chemical Engineering; Natural Sciences. Other closely related STEM degrees with relevant biological, chemical, physical, materials or analytical science content would also be suitable.

Interview and recruitment processes for this placement:

Shortlisted candidates will be assessed using a predefined scoring matrix focused on motivation, transferable skills, research curiosity, potential and development needs, rather than previous access to specialist research experience. Interviews will take place in January 2027 with the lead applicants, an ECR from our research team and an independent academic from our EDI Committee with experience in inclusive recruitment. Questions and assessment criteria will be agreed in advance to ensure consistency and minimise bias.

Ahead of interview, you will receive a figure and brief text from one of our tissue-characterisation publications to interpret and present at interview. You will identify key observations, questions and possible approaches to further investigation. No prior X-ray expertise will be expected; we will assess curiosity, reasoning, communication and engagement with unfamiliar information.

The interview will explore motivation for prostate cancer research and postgraduate study, problem-solving, teamwork and development goals. Panel members will score independently before structured discussion. You can ask questions and discuss support needs. You will also meet the wider research team and tour the laboratory, virtually if interviewed online, providing insight into the research environment. The successful applicant will be contacted promptly, enabling relationship-building before April-June training and the July-August placement.

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
Total	£2,210

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.