



MRC Laboratory
of Medical
Sciences

MRC Laboratory of Medical Sciences: Science Technology Graduate Programme Handbook





Table of Contents

<i>Background Information</i>	3
<i>About the LMS Science Technology Graduate Programme</i>	4
<i>Message from Director</i>	3
<i>Introduction to the Graduate Programme</i>	4
<i>The aims of the Graduate Programme</i>	5
<i>The objectives of the Graduate Programme</i>	5
<i>Graduate Programme Overview</i>	6
<i>Graduate Programme Positions</i>	7
<i>Graduate Programme Structure</i>	8
<i>Graduate Programme Opportunities</i>	9
<i>Key Personnel</i>	10
<i>On-boarding</i>	13
<i>Graduate Programme Training</i>	13
<i>Off-boarding</i>	14
<i>Post-Graduate Programme Opportunities</i>	15
<i>Communication and Graduate Programme Profile</i>	15
<i>Programme Evaluation</i>	15



Message from Director of the LMS

Welcome to the LMS! We are thrilled that you are considering our Graduate Programme as your introduction to scientific research. The LMS is a vibrant biomedical research institute that values team science and the breadth of expertise required to deliver world-class research. Our state-of-the-art core facilities are the backbone of our research, providing researchers with expert guidance and instruction, as well as driving innovation through the development of new methodologies. Our core facilities serve as key partners in our quest to push the boundaries of biomedical research, and share these advancements to benefit the wider scientific community. Our Graduate Programme offers an exciting opportunity for you to learn cutting-edge research skills, preparing you for a successful career in science. We are committed to supporting you every step of the way as you embark on this transformative journey towards the next phase of your scientific career. The heartbeat of the LMS is its people, and our cohort of Graduates will help to contribute to our success and make us even better!



**Wiebke Art, Director of MRC
Laboratory of Medical Sciences**

Background Information

The MRC Laboratory of Medical Sciences (LMS) is a biomedical research institute where scientists and clinicians collaborate to advance the understanding of biology and its application to medicine. The LMS is core-funded by the Medical Research Council, which provides funding to support around 35 research groups. This funding also underpins eight cutting-edge research facilities and a communications and engagement support team. The LMS is located on Imperial College London's Hammersmith Hospital campus, and is a key component of the College's Institute of Clinical Sciences. The LMS is uniquely positioned within a rich multi-disciplinary environment, with Hammersmith Hospital and Imperial's White City Campus, NIHR Biomedical Research Centre and Clinical Research Facility, all in close proximity. The LMS aims to leverage its cross-disciplinary network to deliver transformative team science, tackle major public health challenges and push the boundaries of discovery to unprecedented heights.



About the LMS Science Technology Graduate Programme

In 2023, only 43% of biomedical science Graduates secured jobs in science, with the majority venturing into non-scientific careers (source: www.prospects.ac.uk). Moreover, it is becoming increasingly difficult for Graduates without postgraduate qualifications to secure jobs in scientific research. The LMS recognises the challenges that new science Graduates face, with the lack of opportunities available to them, and is committed to improving this situation. The LMS Science Technology Graduate Programme (Graduate Programme) has been established to provide UK Graduates with an exciting opportunity to increase their scientific knowledge, develop their technical skills, and inspire the next generation of UK scientists. Graduates will be based within our core research facilities, where they will work to progress scientific outputs, develop facility methodologies, and conduct environmental sustainability-related pilots for the betterment of the Institute. Graduates enrolling on this programme will receive high-quality training in cutting-edge biomedical research technologies, hands-on laboratory experience and a meaningful job, interacting with some of the best scientists in the UK. Besides offering specialist training and practical experience, you will have access to training courses and opportunities that will further your professional development. This programme intends to provide a comprehensive package that will develop aspiring scientists into highly sought after technical professionals, equipped to pursue a career in science.

Introduction to the Graduate Programme

The Graduate Programme offers Graduates an opportunity to learn specialist skills in the field of biomedical science, gain significant work experience and further their personal development.

The purpose of the programme is to develop the next generation of promising scientists into technical specialists across the LMS portfolio of research facilities, so that they can progress into academia or industry.

Graduates will be employed on a 2-year fixed-term contract and will receive a salary of £35,193 per annum.



The aims of the Graduate Programme

The programme aims to:

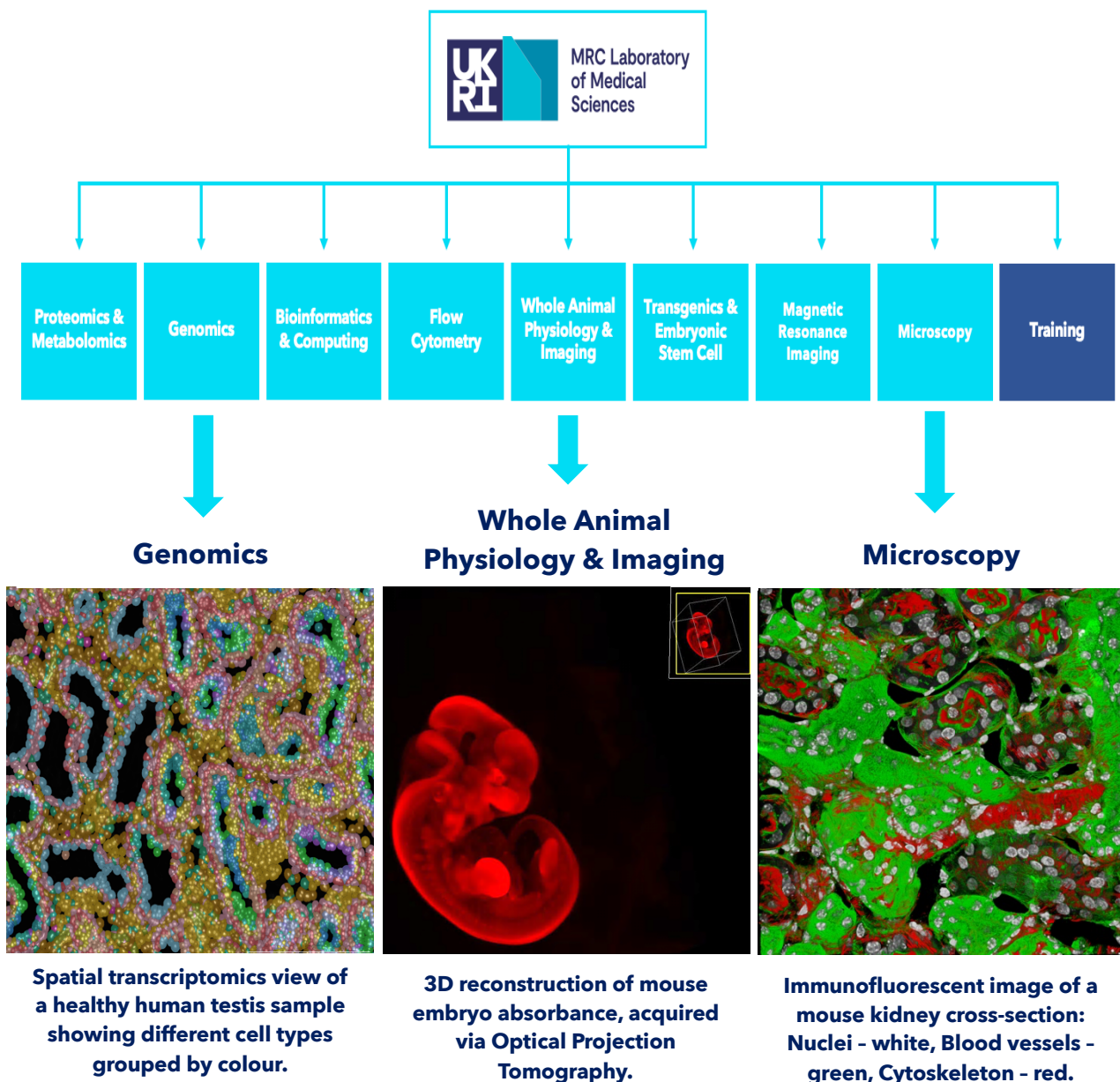
1. Develop enthusiastic science Graduates into technical professionals with specialist skillsets, primed for successful careers in science.
2. Provide Graduates with high-level scientific and technical training, as well as experience, enabling them to not only contribute to our scientific output but also to sustain and improve the Institute and its core research facilities.

The objectives of the Graduate Programme

- To deliver a high-quality experience for the Graduates on the programme, maintaining high retention rates during the programme.
- To ensure that Graduates receive high-level technical training enabling them to contribute to LMS research projects.
- To teach Graduates how to design and perform experiments, analyse data and troubleshoot experimental problems.
- To enhance the environmental sustainability of the Institute through testing novel methodologies and products, as well as optimising the use of our technologies.
- To provide Graduates with opportunities that advance their professional development, particularly in the areas of communication, critical thinking and emotional intelligence.
- To ensure that Graduates on the programme develop a comprehensive understanding of the MRC LMS, UKRI, Imperial College London and the wider UK research community.
- To ensure that Graduates feel deeply valued, fully supported, and are presented with ample opportunities to flourish and succeed in whatever they do next.

Graduate Programme Overview

The LMS features eight state-of-the-art research facilities and a communications and engagement support team, which collectively underpin our ground-breaking scientific outputs. Our research facilities offer researchers access to cutting-edge equipment, expertise on highly-specialised technologies and applications, and the ability to develop new methodologies. Our communications and engagement team, organises community outreach projects, and coordinates all internal and external LMS communications. In addition to professional development training, our Graduate Programme offers the opportunity to work in and across our core facilities, as shown below.





Graduate Programme Positions

In 2024, we will recruit two Graduates who will be assigned to the following Research Facilities:

Facility 1 - Whole Animal Physiology & Imaging

This placement will be led by Dr Alex Sardini. In this facility, Graduates will use Optical Projection Tomography (OPT) to visualise samples, such as mouse embryos and organs, and reconstruct detailed 3D images to explore physiology at the cellular and tissue levels. Graduates will use OPT to map and quantify 3D gene expression as well as study the cellular localisation of proteins to further elucidate their functions. Graduates will learn fluorescence, bioluminescence, and acoustic microscopy and use these imaging techniques to characterise a range of phenotypes in animals.

Facility 2 - Genomics

This placement will be led by Dr Laurence Game. In this facility, Graduates will use high throughput technologies to explore gene expression and gene regulation at both single cell and whole tissue levels. Graduates will use next generation sequencing techniques such as Nanopore and Illumina to identify differentially expressed genes. Graduates will also use single-cell genomics, in particular single cell RNA-sequencing, to profile cells and study cell heterogeneity and function. Moreover, Graduates will use state-of-the-art spatial *in-situ* imaging platforms, such as Xenium Analyzer and Visium CytAssist, to map RNA molecules at the sub-cellular level in tissues, and study cellular interactions within a morphological context.



Graduate Programme Structure

In Year 1

0 - 6 months:

Graduates will be assigned to one of the two research facilities and work predominantly in that area. Graduates will be trained on the research facility's equipment, core lab techniques, technologies and their applications to research. Graduates will also learn how core facilities are managed to ensure that they provide effective support to the Institute's researchers.

6 - 12 months:

Graduates will work with and in other research facilities, learning about their equipment and technologies to expand their scientific knowledge and practical experience. Graduates will be encouraged to participate in the LMS technician community activities and public engagement opportunities throughout the rest of the programme.

In Year 2

0 - 6 months:

Graduates will work on research projects undertaken by their hosting facility and interact across multiple facilities and research groups to support LMS science outputs. Graduates will also participate in developing new methods and protocols, especially to improve the Institute's environmental sustainability.

6 - 12 months:

Graduates will continue to work on research projects undertaken by their hosting facility, prepare presentations of their work to present to an audience of LMS scientists and will receive support in managing their individual career paths and in preparing for positions after the programme.



Graduate Programme Opportunities

Knowledge Exchange Placements

Graduates will have the opportunity to participate in short exchange programmes (1-5 days) with other MRC institutes and UK partners, to acquire specialised skills not available at the LMS.

Events

Graduates enrolling in this programme will become members of the LMS technician community and will be encouraged to participate in technician-led workshops and networking events. These opportunities will include both LMS-hosted events and events organized by our UK partners, such as the Research Institute Technician Group (RITG), the UK Institute for Technical Skills and Strategy (ITSS), and the SPRINGFEST technician festival. Graduates will also be invited to partake in public engagement initiatives such as community engagement events with local schools and libraries and Imperial's annual Great Exhibition Road Festival.

Technician Commitment

The Technician Commitment is a university/research institute pledge to tackle the challenges affecting technicians and technical staff. The LMS is a signatory of the Technician Commitment, therefore we endeavour to:

- Build a network of technical staff who are experts in a wide range of cutting-edge technologies and methodologies, empowering them to adapt and thrive in a world where technology is ever-changing.
- Develop the careers of all technical staff by providing opportunities to attend training courses and networking events and to undertake placements in other institutions to learn new methodologies.
- Ensure visibility for technical staff by making them identifiable on our website and by showcasing their work through internal open days and inter-MRC technician conferences.
- Recognise the contributions made by technical staff in the delivery of world-class research, by ensuring that they receive appropriate acknowledgment for their facilitative role in a research project.



Key Personnel

Graduate Programme Sponsor - Jamie Meredith

The Head of Operations acts as the sponsor for the Graduate Programme and will work to improve and ensure correct implementation of the programme. In addition, the Head of Operations will ensure that the training, pastoral support and developmental opportunities offered to Graduates are of exceptional quality and support their careers and progression.

Key responsibilities include:

- Contributing to the high-quality pastoral support we intend to deliver to Graduates.
- Ensuring that the Graduate Programme's policies and training programme are established and that key performance indicators and assessment methods are consistently monitored.
- Ensuring that the Graduate Programme is structured and organised in a manner that enables it to run effectively.

Heads of the Graduate Programme - Laurence Game | Alex Sardini

The Heads of the Graduate Programme are responsible for designing and delivering our two-year, comprehensive training programme aimed to develop our Graduates into technical professionals, prepared for careers in science.

Key responsibilities include:

- Acting as role models to transmit the values, ethos and standards of the LMS to the Graduates on the programme.
- Delivering and measuring the key performance indicators of the Graduate Programme.
- Delivering an innovative, high-quality Graduate Programme that transforms new science Graduates into skilled technical professionals and meets the strategic need of the LMS.
- Designing a two-year training programme that will teach their Graduate the core laboratory techniques of their facility, use of facility technologies and equipment.
- Identifying strategies to continually enhance and improve the Graduate Programme to ensure that it remains highly attractive to new Graduates.
- Informing Graduates of opportunities to further their personal and professional development, careers and understanding of the MRC LMS, UKRI and Imperial College London.



Graduate Programme Line Manager - Laurence Game | Alex Sardini

The Graduate Programme Line Manager is responsible for the day-to-day management of the Graduates on the programme, ensuring that they acquire valuable work experience, further their personal development, and have a rewarding experience overall.

Key responsibilities include:

- Ensuring that Graduates are afforded time to attend core training, personal and professional development opportunities as well as public outreach and engagement events with external stakeholders.
- Ensuring that Graduates are effectively managed, provided with sufficient time to settle in and work on research projects as well as enjoying a healthy work-life balance.
- Informing Graduates of opportunities to further their personal and professional development, careers and understanding of the MRC LMS, UKRI and Imperial College London.
- Providing regular constructive feedback to Graduates, ensuring proactive management of Graduate performance and wellbeing.

Graduate Programme Mentor - Tyrese Williams

The Mentor of the Graduate Programme will serve as a trusted ally, providing Graduates with a safe environment to express their thoughts, feelings and opinions. The Mentor will hold monthly meeting with Graduates to discuss their wellbeing, progress on the programme and offer advice and support. These meetings with Graduates are confidential. The Mentor should only share meeting details with other Graduate Programme key personnel, if the Graduate has agreed for them to do so.

Key responsibilities include:

- Challenging Graduates to identify gaps in their knowledge and development and supporting them to address these, to engender personal growth.
- Helping Graduates to become independent and reflect on their development/learning throughout the process.
- Listening to Graduates non-judgementally and offering Graduates objective, experience-based guidance for their continuous development.
- Providing Graduates with advice on their long-term professional goals and careers after the Graduate Programme.



Science Technology Graduate

The role of our Science Technology Graduates is to engage wholeheartedly in the programme to maximise their experience, take pride in being part of a thriving scientific institute, and be enthusiastic ambassadors of the Institute.

Key responsibilities include:

- Adhering to the standards laid out in the LMS Core Values and UKRI/MRC employee Code of Conduct. This involves conducting work with integrity and creating a working atmosphere based on trust, cooperation and mutual respect.
- Attempting to address any problems or difficulties experienced during the programme and seeking help if need be.
- Attending and actively participating in all that the Graduate programme offers: scientific and soft-skill training, events and all other opportunities.
- Contributing to a culture that has equality embedded at its core and one that promotes fairness, diversity and inclusion at all levels.
- Preparing for and partaking in quarterly reviews with their hosting facility head and the Heads of the Graduate Programme.
- Taking a proactive approach to their learning, personal and professional development by identifying areas of weakness and actively working to improve them.



On-boarding

Prior to the programme start date, Graduates will be provided with a Welcome Week timetable. During Welcome Week, Graduates will:

- Complete new starter administration forms and Health and Safety inductions.
- Complete the UKRI mandatory online training courses.
- Receive a tour of the LMS, Hammersmith Hospital and Imperial’s Hammersmith campus.
- Receive an introductory presentation and a Welcome Pack.
- Visit the core research facilities at LMS, meet with facility groups, key personnel from the Graduate programme, and members of the Institute's Senior Leadership team.

All Graduates will be subject to a 6-month probation period. Graduates will have quarterly meetings with their hosting facility head and the Heads of the Graduate Programme to monitor progress and ensure that everything is running smoothly.

Graduate Programme Training

Scientific and Technical Training	Soft skills Training
Molecular and cellular lab skills	Time, resources and basic management skills
Cellular and animal physiology	Communication skills including presentations and public speaking
Genomics and Proteomics	Decision making and influencing skills
Flow cytometry	Teamworking and networking skills
Microscopy and Histology	Emotional intelligence, EDI
Computational biology, bioinformatics and statistics	Sustainability in science
Professional Registration with the Science Council	
Outreach and public engagement	

Both lists of training are non-exhaustive, but the scientific and technical training list may vary depending on the projects undertaken by the hosting facility.



Off-boarding

All Graduates are expected to complete the two-year Graduate Programme to receive its full benefits, and acquire the skills and knowledge needed to excel as technical professionals. Upon completion of the two-year programme the Graduates will be awarded a Certificate of Completion from the LMS. This certification will be a valuable addition to the Graduate's CV, enhancing their future career prospects.

In Year 2, Graduates will receive support in managing their individual career paths and in preparing for positions after the programme, such as support on CV/Statement writing, interview preparation and career planning. Towards the end of Year 2, Graduates will give a presentation to the LMS community showcasing the work they have delivered and reflecting on their time at the LMS. Moreover, Graduates will be encouraged and supported to apply for professional registration with the Science Council to become registered scientists.

All Graduates will participate in an exit interview with HR to provide feedback on the LMS, the Graduate Programme, and the support received throughout their time, regardless of when they leave the programme. After completing the programme, Graduates will be encouraged to join the LMS alumni network so that we can stay connected, follow their career progression and offer them career opportunities. Whilst the LMS cannot guarantee employment for our Graduates upon completion of the programme, there is a possibility of job openings due to natural turnover.

Although we expect Graduates to complete the two-year programme, we understand that there may be circumstances that could prompt early departure. Graduates are encouraged to promptly address any concerns and issues they have with the Heads of the Graduate Programme to find a resolution. Should a Graduate wish to terminate their contract, they must submit a resignation letter specifying the resignation date and adhere to a one-month notice period.



Post-Graduate Programme Opportunities

Graduates that complete this Programme will be well-prepared to pursue a variety of career paths. Here are some potential career path trajectories:

1. Technical Path (University/Research Institute):

- a) Science Technology Graduate → Facility Technician → Facility Specialist → Deputy Facility Head → Facility Head.
- b) Science Technology Graduate → Research Assistant/Scientific Officer, Research Technician → Laboratory manager.

2. Academia Path (University/Research Institute):

- a) Science Technology Graduate → PhD Student → Postdoctoral Researcher → Early-career researcher / Assistant Professor → Mid-career researcher / Associate Professor → Principal Investigator / Professor.

3. Industrial/Pharmaceutical Path (Organisation/Company):

- a) Science Technology Graduate → Research & Development/Manufacturing Sciences & Technology.

Communication and Graduate Programme Profile

The launch, progress and achievements of this Graduate programme will be publicised using standard UKRI tools and opportunities. Graduates and facility heads are encouraged to promote the achievements and experience of the Graduate programme through the various communication channels.

Programme Evaluation

The following key performance indicators will be used to assess the programme and be reported to the Heads of the Graduate Programme:

- Successful completion of the 6-month probation period.
- Quarterly Graduate reviews/appraisals.
- Real-time Questionnaire for Graduate Programme key personnel.
- Feedback from attended training courses.
- Individual volunteering and outreach that raise the profile of the LMS.
- Involvement of Graduate in new innovations.
- Job secured at the end of the programme (if vacancy).
- Retention statistics on programme and post programme.