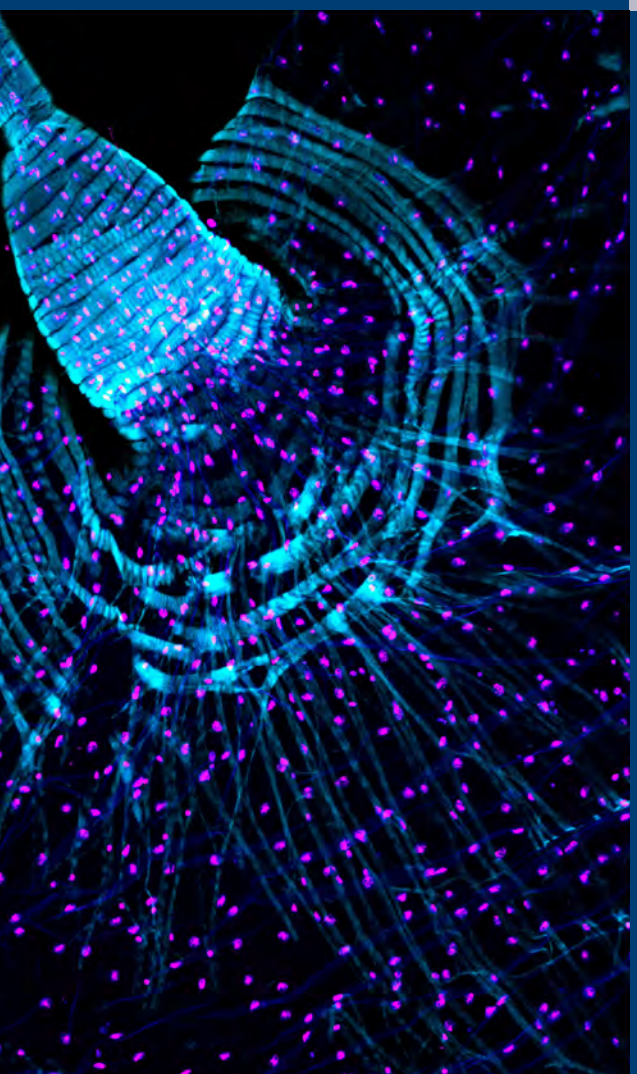
UNIVERSITY OF CAMBRIDGE

School of Biological Sciences



Research Themes

Annual Report 2024/ 25

Promoting innovation and collaboration in the School of Biological Sciences and beyond.

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Message from Rebecca Lawson
Acting Deputy Head of School for Research Strategy

It is a real pleasure to introduce this year's Research Themes Annual Report. Looking back over the past twelve months, I'm struck by the sheer energy, creativity, and ambition that continue to drive our biological sciences community forward. Whether it's bold new ideas taking root, cross-disciplinary teams forming, or game-changing new research programmes beginning to emerge - there's a tangible sense of momentum across everything we do.

At the heart of our strategy is a commitment to transformative, cross-disciplinary research. As the six Themes develop and grow, we're seeing growing collaboration and convergence between them - giving rise to three broad and evolving areas of activity: Breakthrough Biology, Future of Health, and Environmental and Societal Resilience. These are not fixed categories, but fluid and responsive groupings that reflect the dynamic nature of research across the School.

In Breakthrough Biology, we've seen extraordinary progress - from tissue regeneration and microbiome science to the complex dynamics of membrane biology. Our Future of Health strand is breaking new ground too - advancing our understanding of immunotherapy, mental health, ageing, and antimicrobial resistance. Meanwhile, Environmental and Societal Resilience addresses some of the most urgent challenges of our time, with pioneering research into ecosystem security and life at the extremes. Alongside these, we've made Transformative Technologies a strategic focus - advancing tools like state-of-the-art bioimaging and AI-driven discovery that connect, support and amplify research across all of these domains.

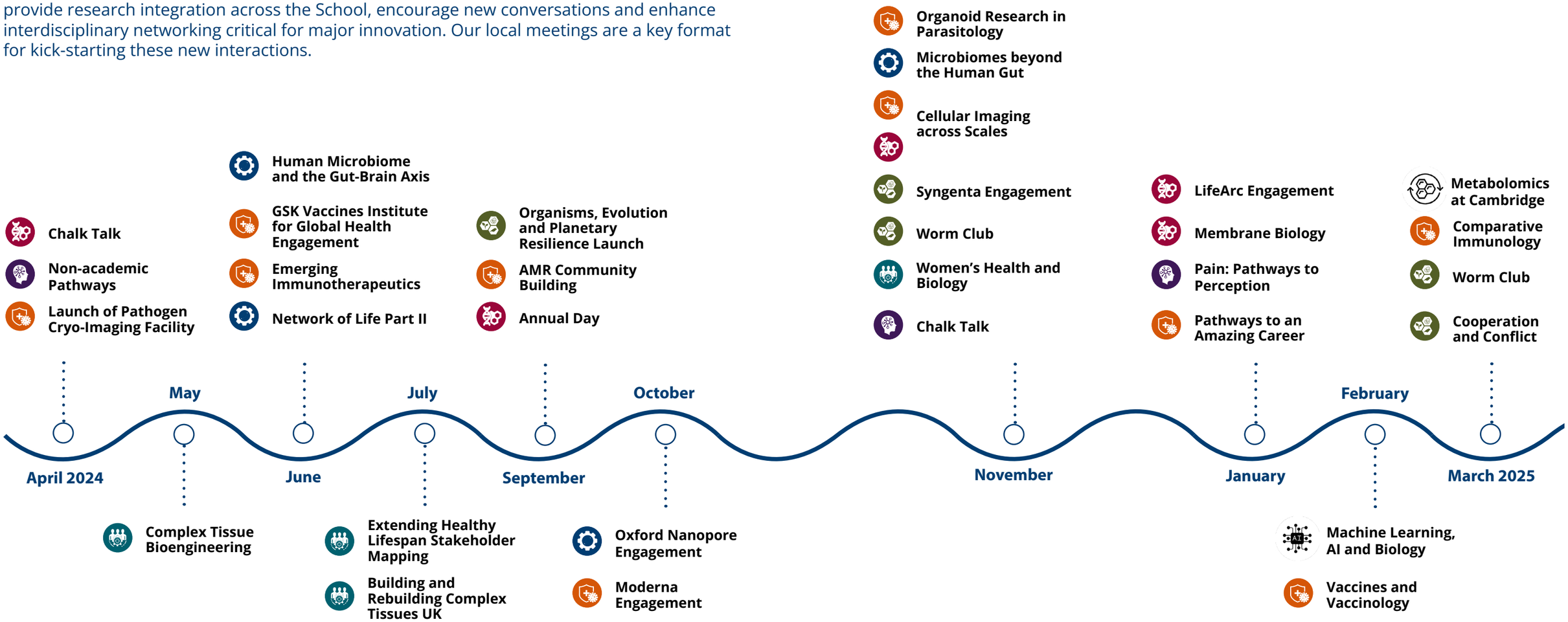
Of course, world-class research doesn't happen in isolation. Our work in Impact, Innovation and Engagement ensures that what we do connects beyond academia - whether that's through partnerships with industry, informing public policy, or engaging communities in meaningful ways. Through our Capacity Building efforts, we're creating space for bold ideas to thrive, supporting talented researchers at all stages of their careers, and cultivating a research culture that's inclusive, supportive, and forward-looking.

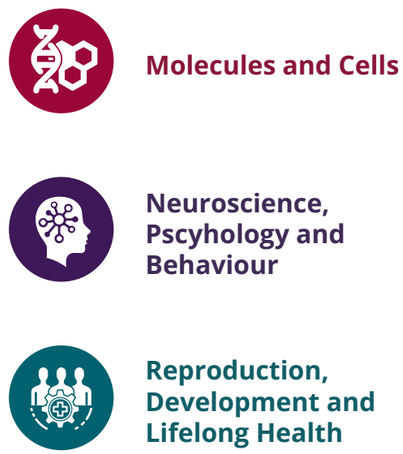
Looking ahead, our focus remains on enabling great science, strengthening collaboration, and ensuring our work delivers lasting benefit - locally, nationally, and globally. Thank you to everyone who has contributed to this year's achievements. It's your curiosity, commitment, and collaborative spirit that make this community so extraordinary.

Rebecca Lawson
Acting Deputy Head of the School of Biological Sciences (Research Strategy)
University of Cambridge

Research Theme Activities and Events: 2024/25

Established in 2021, the Research Themes in the School of Biological Sciences are designed to provide research integration across the School, encourage new conversations and enhance interdisciplinary networking critical for major innovation. Our local meetings are a key format for kick-starting these new interactions.





Our Theme Leads

Molecules and Cells

James Edgar
Pathology

Graham Ladds
Pharmacology

Ritwick Sawarkar
MRC Toxicology Unit / Genetics

Katherine Stott
Biochemistry

Infection and Immunity

Kate S Baker
Genetics

Cinzia Cantacessi
Veterinary Medicine

Brian Ferguson
Pathology

Stephen Graham
Pathology

Jeanne Salje
Biochemistry / Pathology

Neuroscience, Psychology and Behaviour

David Bulmer
Pharmacology

Hannah Clarke
PDN

Rebecca Lawson
Psychology

Amy Milton
Psychology

Functional and Evolutionary Genomics

Alexandre Almeida
Veterinary Medicine

Ian Henderson
Plant Sciences

Aylwyn Scally
Genetics

Lucy Weinert
Veterinary Medicine

Reproduction, Development and Lifelong Health

Alex Cagan
Genetics / Pathology/
Veterinary Medicine

Amanda Sferruzzi-Perri
PDN

Ben Steventon
Genetics

Mekayla Storer
PDN / Stem Cell Institute

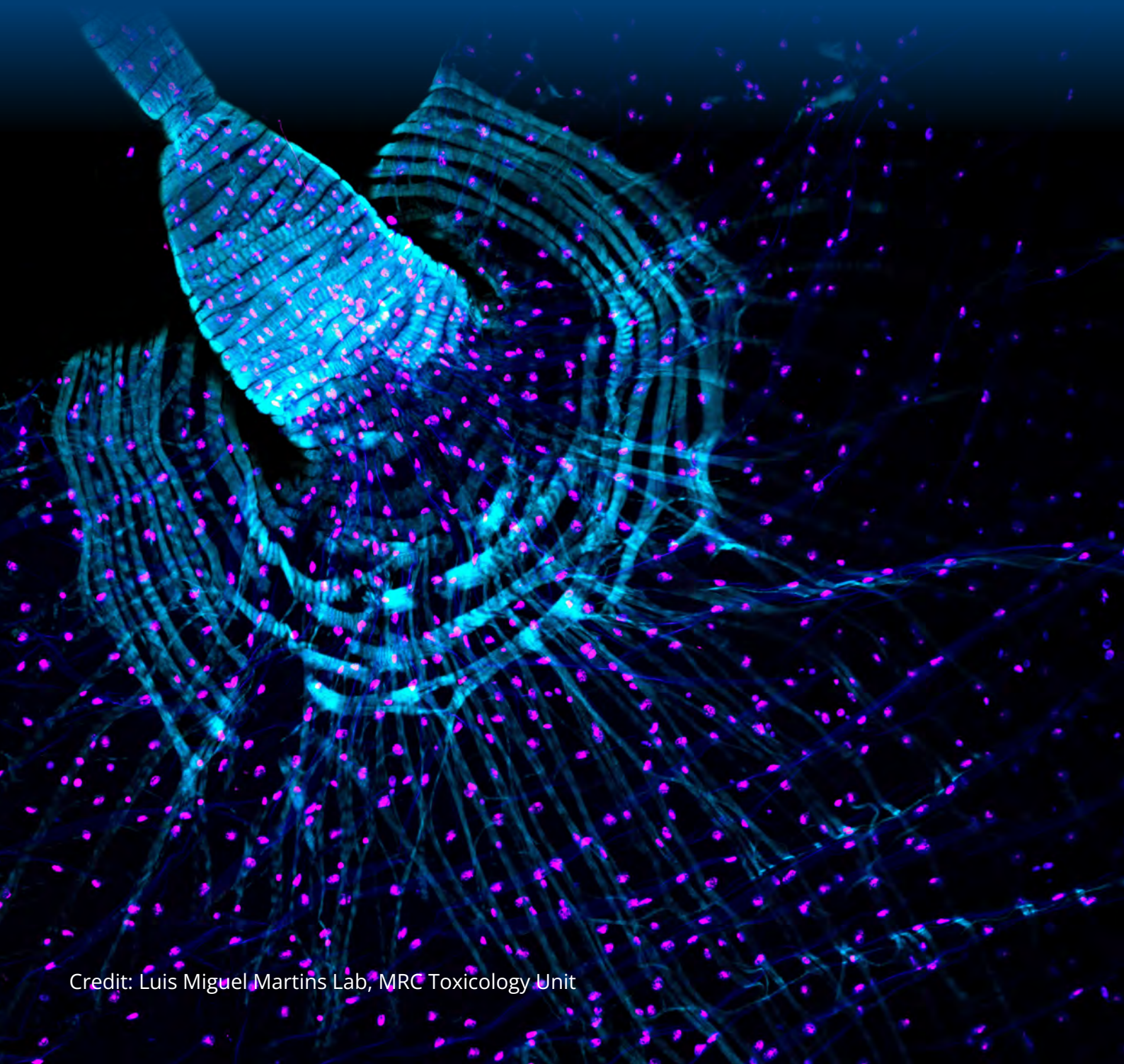
Organisms, Evolution and Planetary Resilience

Sebastian Eves-van den Akker
Plant Sciences

Emília Santos
Zoology

Breakthrough Biology

Discovery science is essential for advancing our knowledge of fundamental biological processes, laying the groundwork for scientific breakthroughs and technological innovations. By exploring key mechanisms and interactions at molecular, cellular and systems levels, our researchers are shifting the boundaries of knowledge in the biological sciences and leading the way towards major breakthroughs and innovations.



Credit: Luis Miguel Martins Lab, MRC Toxicology Unit

Complex Tissue Regeneration across Scales and Systems

Embryos and plants demonstrate that multi-tissue regeneration is possible; however, in complex animals and humans, this ability is limited and largely restricted to specific tissues. The **Reproduction, Development and Lifelong Health Theme** continues to deliver progress in the Complex Tissue Regeneration focus area, engaging researchers across Cambridge and beyond to bring together expertise from different tissues, systems and scales to answer fundamental questions in regenerative bioscience.

In May 2024, the Theme ran a multidisciplinary meeting focussing on 'Complex Tissue Bioengineering', bringing together 26 researchers from across 13 University Departments and Institutes to develop new research links aimed at building complex tissues *in vitro*.

> "The meeting on Complex Tissue Bioengineering was a great forum for engaging with other researchers working on the challenge of tissue building and regeneration, but who approach this from a range of scientific perspectives. There was a real sense of knowledge sharing and collaboration which certainly sparked ideas for future engagement and grant applications, and I look forward to seeing how the group will continue to develop and nurture these new interactions."
>
> Róisín Owens, Deputy Head of the School of Technology (Research)

In recognition that future large collaborative grants will need wider engagement beyond Cambridge, Sumru Bayin (Gurdon Institute), Mekayla Storer (Cambridge Stem Cell Institute) and Ben Steventon (Department of Genetics) organised a UK Network Meeting on 'Building and Rebuilding Complex Tissues' which was supported by the British Society for Developmental Biology and the International Society for Regenerative Biology. The meeting was attended by over 100 delegates from around the UK, Europe and America, and laid important groundwork for a BBSRC Network Grant which is currently in submission.

- **Grant success**: Seed funding to study extracellular matrix mechanics in the earliest stages of oesophageal tumour development
- **In submission:** BBSRC UK Network Grant on (Re)Building Complex Tissues
- **In submission:** BBSRC Response Mode Grant establishing a new collaboration between the University of Cambridge and University of Nottingham
- **In submission:** UKRI call for 'Novel human in vitro models of complex disease', bringing together PIs across the Cambridge Stem Cell Institute, Veterinary Medicine, Physiology, Development and Neuroscience, Engineering and Physics.

Microbiome Research for Human, Animal and Planetary Health

Microbiome research is inherently interdisciplinary, spanning the fields of microbiology, genetics, immunology, ecology, bioinformatics and medicine, among others. Through a series of engagement meetings, researchers from across the School and wider University and Institutes are collaborating to explore how microbiomes influence health, disease and ecological balances in the wider environment.

Led by the **Functional and Evolutionary Genomics Theme**, a series of five meetings have so far been organised within Cambridge on different focus areas within the microbiome topic. 132 researchers from across 28 Departments and Institutes have engaged and shared research challenges and opportunities, contributing to a closer scientific ecosystem spanning the breadth of microbiome biology.

> The Microbiome meetings offer an invaluable space for researchers with a breadth of knowledge, skills and ideas in microbiome research to connect and network with each other whilst keeping apace with developments in the field. I find the meetings immensely helpful and I am really grateful to Alex and the team for creating this amazing collaborative environment.
>
> Priscilla Day Walsh, Loke Centre for Trophoblast Research

UK Gut-Immunology-Brain Axis Network

Building on the success of the microbiome networking series here in Cambridge, and leveraging his own research track record, Alex Almeida (Department of Veterinary Medicine) joined a leadership team spanning the University of Southampton, King's College London and the Quadram Institute who have successfully secured BBSRC funding for the UK Gut-Immunology-Brain Axis Network.

This new funding will establish a single interdisciplinary network to bring the UK research and innovation community together to advance the understanding of the mechanisms of the gut-immunology-brain axis. Having the University of Cambridge as part of the core team leading the network will bring new avenues to drive impactful scientific discovery and ultimately deliver scientific breakthroughs to improve physical, cognitive and mental health across lifespan.

- **Grant success**: BBSRC UK Gut-Immunology-Brain Axis Network award
- **Grant success**: Pain Relief Foundation studentship awarded to investigate the microbiome in chronic pain
- **Grant success**: AstraZeneca studentship to explore the links between the microbiota and chronic pain
- **In submission**: MRC Grant Application bringing together PIs across Veterinary Medicine and Genetics.

Further Areas of Focus

Evolutionary Biology: The Network of Life

Following a successful first meeting in 2022, the **Functional and Evolutionary Genomics Theme** have developed a collaborative research focus area on 'Evolutionary biology: the Network of Life'. In June 2024, researchers once again met together to explore the different complex network structures and branching models of evolution. The meeting was attended by 21 researchers from across 9 University Departments and Institutes, and from across 4 different Schools in the University.

The Network of Life focus has since been taken forward as part of the strategic focus for a new post being recruited to the School, with interviews undertaken in Spring 2025. More details of this and other strategic recruitments across the School are incuded on page 38.

Miniature Worlds: Organoid Research in Parasitology

In November 2024, the **Infection and Immunity Theme** worked in collaboration with the journal Parasitology (Cambridge University Press) to deliver 'Miniature Worlds: Organoid Research in Parasitology', a meeting to explore research opportunities at the intersection of the organoid and parasitology fields. The hybrid meeting was attended by over 150 leading experts and early-career researchers and provided an inspiring forum to explore new opportunities for collaboration and discovery in this emerging field.

The Infection and Immunity Theme are planning a follow up meeting to continue to explore the latest technological advances in organoid research, and how they can be used across different areas of infection and immunity work.

Membrane Biology: Where Structure Meets Signalling

Discussions with **Molecules and Cells Theme Members** at the Theme Annual Meeting in September 2024 highlighted the desire for a focussed event to bring together researchers working on the broad topic of 'Membrane Biology'. Subsequently, in January 2025, 26 researchers from 12 University Departments and Institutes met to discuss a broad range of topics including: receptor biology; ion channel biology; organelles; membrane trafficking; and cell compartmentalisation and organisation.

The meeting successfully connected researchers across Departmental boundaries, established new collaborative opportunities, and seeded ideas for ongoing meetings, including a follow up event on 'Nanomedicines: Exploring the biology-engineering interface' and another on 'Opportunities in Electrophysiology' which will be organised later in 2025 in collaboration with the Neuroscience, Psychology and Behaviour Theme.

Future of Health

Researchers in the School of Biological Sciences are working closely with colleagues across disciplines to shape the future of health around the globe. By fostering collaborations with academic colleagues, clinical partners, lived experience experts, biotech, industry and policy makers, our scientific networks are driving innovations that extend from breakthrough drug discovery to novel approaches that address urgent global health challenges. It is clear our researchers can make lasting impacts worldwide.

Emerging Immunotherapeutics: Protein Engineering and Novel Delivery Platforms

Scientists within the School of Biological Sciences and across the University are working beyond disciplinary boundaries to harness the power of immunotherapy. Our researchers are enabling the discovery of new molecular targets involved in cancer, neurodegeneration and inflammatory diseases, and engineering new types of drug molecules and novel delivery mechanisms to empower the future of immunotherapeutics.

In June 2024, the **Molecules and Cells Theme** and **Infection and Immunity Theme** supported Laura Itzhaki (Department of Pharmacology), Adrian Liston (Department of Pathology), Paul Miller (Department of Pharmacology) and Rahul Roychoudhuri (Department of Pathology) to organise a meeting to explore the intersection of immunotherapy, protein engineering and novel delivery platforms. The event was attended by 30 leading researchers from across 7 University Departments and Institutes, alongside colleagues from AstraZeneca, BioNTech, LifeArc and PhoreMost. The event successfully facilitated new collaborations between Cambridge researchers, enabled new connections with industry partners to be established, and laid groundwork for new translational directions for biological research findings.

> “Cambridge has an exciting mix of expertise across immunology, biochemistry, pharmacology, computational modelling, and protein engineering, which when combined with our clinical and industry colleagues can be harnessed to drive new therapeutic opportunities. I am excited to see how this innovative and collaborative research environment can deliver groundbreaking advances in diverse therapeutic areas.”
>
> Laura Itzhaki, Head of the Department of Pharmacology

The potential for immunotherapeutics is immense, and over the next 12 months our scientists across the biological sciences will be supported via the Research Themes to continue to grow collaborations with academic and industry colleagues to drive important impact and innovation pipelines that will directly benefit patient health.

- **Grant success**: AstraZeneca Partners of Choice funding to explore high throughput genetics to enhance long-term efficacy and function of CAR T cells
- **Grant success**: BBSRC Follow on Funding: enhancing long-term maintenance and efficacy of T cell therapies
- **In submission**: BBSRC Doctoral Focal Award: Engineering Biology for Biomedicine (in collaboration with the University of Bristol)

Mental Health and Illness across Scales, Species and Society

Mental health issues are projected to be one of the world's biggest causes of ill health by 2030. Just as breakthroughs in our understanding of cancer required interdisciplinary insights into basic biomedical mechanisms, a leap forward in our approach to tackling mental health must traverse disciplinary boundaries – linking across scales, species and society. Throughout 2024 / 2025, Rebecca Lawson and Amy Milton (Department of Psychology) and the **Neuroscience, Psychology and Behaviour Theme** have been articulating the strength and breadth of research in the School that underpins the mechanisms of mental health and illness. The Theme has built momentum in this space and fostered a collaborative network of mental health researchers across the School that spans scales and disciplines.

Investment in Young People's Mental Health

Working with colleagues across the University, the School has secured an endowed professorship to accelerate the understanding of young people's mental health. The Dawson Professor of Young People's Mental Health will be based in the Department of Psychology and will hold a Fellowship at St Catharine's College. This new appointment will drive new advances in the field of young people's mental health and will build capacity to expand investment and scientific breakthroughs in this important field.

> "We are thrilled that the University is dedicated to being a centre of excellence in mental health research for young people, and that this Professorship will be transformational to this vital area of research. Cambridge's revolutionary approach will reveal insights into the brain science of mental health in young people and increase the global understanding and development of new interventions. We couldn't be more excited to support this initiative with the foundational professorship."
>
> Christina and Peter Dawson

Looking forward, the Mental Health Network will continue to develop and foster new connections across the University and wider landscape, with plans for a third collaboration meeting in 2025. The Bioscience Impact Team will also be working to support new engagements across different external stakeholders to ensure a range of perspectives are being built into the mental health discovery pipeline.

- **Transformative investment**: The Dawson Professor of Young People's Mental Health
- **In submission**: Wellcome Climate and Mental Health grant on uncovering mechanisms between heat and maternal mental health
- **Profile article**: Mental Health Overhaul

Antimicrobial Resistance: Next-generation Strategies for a Changing Threat

Antimicrobial Resistance (AMR) is a global challenge, where microorganisms are becoming resistant to the antibiotics that once killed them, making infections harder to treat. To keep pace with evolving superbugs, scientists in the **Infection and Immunity Theme** and across the wider University ecosystem are developing next-generation strategies to stay ahead of these dangerous microorganisms.

In September 2024, Kate S Baker (Department of Genetics) worked with colleagues to lead a community building meeting to scope research strength and expertise in AMR across Cambridge. Analysis across biological, clinical and technological colleagues identified research expertise spanning the breadth of the World Health Organisation bacterial priority pathogens lists 2024. These bacterial pathogens are of significant public health importance and will be the focus of strategic research activity aiming to prevent and control antimicrobial resistance.

> “The recent AMR meeting was a valuable opportunity to bring together researchers from across the University of Cambridge, fostering interdisciplinary discussions on one of the most pressing global health challenges. Tackling AMR effectively requires more than just biological and clinical expertise—it demands an integrated approach that includes hardware and software engineers, machine learning and AI experts, as well as physicists with backgrounds in instrumentation and modelling. By connecting these fields with infection, immunity, and genetics experts, clinical microbiologists, and researchers from relevant clinical schools, we can accelerate innovation in areas such as rapid diagnostics, predictive modelling, and next-generation therapeutic strategies.”
>
> Somenath Bakshi, Department of Engineering

Microbial Bioinformatics Hackathon

Building on the momentum from the AMR community building meeting, and with support from BBSRC Knowledge Exchange grant funding, Cambridge researchers are working with the Wellcome Sanger Institute and colleagues at the University of Oxford, Wyoming Public Health Laboratory and the University of Melbourne to deliver a hackathon to address targeted challenges within antimicrobial resistance and microbial bioinformatics. The meeting in May 2025 forms part of an ongoing plan to build capacity across the AMR landscape in Cambridge and beyond.

- **Strategic investment:** BBSRC Knowledge Exchange funding to support the Microbial Bioinformatics Hackathon
- **Grant success:** BBSRC Impact Acceleration Account funding to develop epidemiological models of tree pests for use by policy makers.
- **Grant success**: BBSRC Impact funding to implement Streptococcus suis genomics into routine surveillance

Integrative Biology of Ageing

The Integrative Biology of Ageing is a multidisciplinary approach embedded across the School of Biological Sciences to increase understanding of the ageing process and develop strategies for extending human healthspan. Through increased research in core areas of ageing biology, researchers can unlock new understanding of the fundamental mechanisms of ageing which will pave the way for therapeutic breakthroughs and progress in preventative medicine.

Following a series of successful collaboration meetings, the **Reproduction, Development and Lifelong Health Theme** has continued to develop the Integrative Biology of Ageing focus area. In 2024 the academic leads worked with the Bioscience Impact Team to lead a facilitated stakeholder mapping session to explore the partners beyond academia who can inform and shape the research strategy in this important area. Healthy Ageing was also the focus of a range of engagement events at the Cambridge Festival 2025. Of note, Alex Cagan (Department of Genetics / Pathology / Veterinary Medicine) presented a flagship seminar on 'The Impossibility of Whales: somatic evolution across the tree of life' which explored how somatic mutations accumulate in cells throughout life and can contribute to ageing. The event showcased the huge potential research has to offer to understanding ageing and serves as a springboard for future engagement activities on this topic.

Investment in Ageing

This year also saw the launch of the National Mouse Genetics Network Ageing Cluster, a £3 million investment focused on improving existing models of ageing with the aim of enabling lifelong health and wellbeing. The cluster is led by scientists at the Universities of Cambridge and Newcastle and will build a time-resolved high-resolution map of age-associated phenotypic, cellular and molecular changes in the mouse. This data will be integrated with human ageing datasets to enable the identification of disease biomarkers and potential intervention strategies to promote healthy ageing.

> "I am very pleased to be co-leading this project from Cambridge and working with the rest of the team from around the UK. 'Prevention is better than cure' and so our project will generate a reference map that we will use in the future to assess interventions that could prevent ageing related health decline."
>
> Walid Khaled, Department of Pharmacology and Cambridge Stem Cell Institute

- **Initiative launch**: £3 million UKRI investment for the National Mouse Genetics Network Ageing Cluster
- **In submission**: Mapping the blueprint of ageing across tissue scales, in collaboration with the National Mouse Genetics Ageing Cluster
- **Profile articles**: 'Can we add more life to our years?' and 'The master of mutations'

Further areas of focus

Vaccines and Vaccinology

Vaccines are one of the most powerful tools we have to control infectious diseases. Vaccinology - the science of vaccines - encompasses a broad range of disciplines, including fundamental biology leading to antigen discovery and vaccine development; immunology; epidemiology; clinical evaluation; economics and social science approaches. There has been much recent innovation in vaccine technology and delivery, driven in large part by the COVID-19 pandemic, coupled with the need to maintain (and in some cases restore) vaccine confidence.

The **Infection and Immunity Theme**, in collaboration with the Cambridge Infectious Diseases Interdisciplinary Research Centre, is working to harness the wealth of expertise in Cambridge to drive innovation across vaccinology and deliver positive impacts on global infectious disease. In February 2025, 21 researchers from across 11 University Departments and Institutes met to discuss vaccine research strategy across the University, and how Cambridge is positioned to create and develop new vaccines. The meeting lays the groundwork to develop a well-organised vaccinology ecosystem across the University of Cambridge.

Vaccines and vaccinology has also been the focus of Industry Engagement activity, with the Infection and Immunity Theme hosting a visit from colleagues at the GSK Vaccines Institute for Global Health (GVGH) in 2024. The GVGH scientists engaged in discussions with Cambridge researchers from 9 different Departments and Institutes, exploring research synergies across pathogens and discussing systems-based approaches to identify correlates of protection.

Further areas of focus

Women's Biology and Health

The focussed study of women's biology is crucial if we are to fully appreciate the mechanisms that can influence susceptibility to diseases, treatment outcomes, and overall healthspan of women across the globe. Scientific research has often overlooked or underrepresented women, leading to gaps in understanding of sex-specific biological processes and physiology. The Reproduction, Development and Lifelong Health Theme is bringing researchers together with wide-ranging expertise in hormonal regulation, reproductive biology, immune system function, neurobiology, pharmacology, and drug metabolism, all of which are fundamental areas where sex disparities in women's biology can be studied.

In November 2024, Amanda Sferruzzi-Perri (Department of Physiology, Development and Neuroscience) and the **Reproduction, Development and Lifelong Health Theme** worked in collaboration with the Cambridge Reproduction Interdisciplinary Research Centre, to lead a meeting focussed on women's biology and health, bringing together 27 researchers from 13 different Departments and Institutes across Cambridge. The meeting also explored future areas of work and impact, including opportunities for lived experience consultations, policy workshops and industry partnerships.

Pain: Pathways to Perception

Pain is an emerging area of focus in the **Neuroscience, Psychology and Behaviour Theme** where researchers from across departmental boundaries are exploring a range of approaches to improve our understanding of how animals and humans experience pain with a view to developing new and more effective strategies for pain management.

In January 2025, 21 researchers from 9 University Departments and Institutes met to share their latest research findings in the pain field and gain deeper understanding of the biological mechanisms underpinning pain perception and response. Attendees at the meeting subsequently developed and submitted an application to the ERA-NET Neuron 'Interdisciplinary Approaches to the Neuroscience of Pain' call 2025.

Future plans include follow up meetings that can intersect with other focus areas, including Mental Health and Women's Biology, as well as working with the Bioscience Impact Team to scope external stakeholder engagement opportunities.

- **Grant success:** AstraZeneca studentship to explore the links between the microbiota and chronic pain
- **In submission:** Collaborative application to the ERA-NET Neuron 'Interdisciplinary Approaches to the Neuroscience of Pain' call 2025

Environmental and Societal Resilience

Discovery science that spans disciplinary boundaries provides the knowledge to develop sustainable solutions for interlinked global challenges such as climate change, biodiversity loss, and emerging diseases. Researchers across the School of Biological Sciences and beyond are providing new scientific insights that will better ensure that societies can anticipate and respond to these global threats effectively.

Life at the Extremes

'Life at the Extremes' encompasses the exploration of organisms, environments, people and societies that exist in environments that are considered exceptionally challenging or harsh, such as extreme temperatures, high altitudes, areas of low nutrient availability and societies recovering from natural disasters. Researchers spanning **Molecules and Cells** and **Organisms, Evolution and Planetary Resilience Themes** met in person in 2023 to share the wide variety of research that fits into this exciting research space, and momentum from that meeting continued into 2024 / 25.

"The Research Themes have offered an excellent platform to engage with researchers working on many aspects of extreme biology from across the biological sciences at Cambridge. The initial meeting has resulted in many new interactions, and we are so pleased that scientists from the British Antarctic Survey have been welcomed at meetings and able to engage with new ambitious collaborative projects with Cambridge colleagues."

Melody Clark, British Antarctic Survey

Life at the Extremes: live from the Antarctic!

In 2024 the Research Themes worked closely with the University's Communications team to organise 'Life at the Extremes: live from the Antarctic!' a live broadcast featuring Eric Miska (Department of Biochemistry) in Cambridge, and Melody Clarke and Lloyd Peck (British Antarctic Survey) joining live from Antarctica. The event delivered a thought-provoking conversation across research boundaries, exploring what it's like to live and work in such extreme conditions and how research at the extremes can inform our understanding of wider questions in environmental resilience.

- **Grant success**: Cross Research Council Responsive Mode Pilot Scheme to explore cold microscopy methods.
- **In submission**: BBSRC UK Network Grant exploring biotech solutions for life at the extremes
- **In submission**: Wellcome Climate and Mental Health grant on uncovering mechanisms between heat and maternal mental health
- **Profile article**: Cold Case

Ecosystem Security

Ecosystem security involves protecting and sustainably managing natural ecosystems, from soil microbial communities through to the complex biotic interactions between plants, animals and insects that maintain biodiversity. This balance is essential for preserving healthy ecosystems, which regulate climate, protect natural resources, support agriculture and prevent the emergence of new infectious diseases. Cambridge researchers in the **Organisms, Evolution and Planetary Resilience Theme** and beyond are working to understand ecosystem biology across disciplinary boundaries and develop the latest innovations that will enable a healthy and resilient planet for future generations.

> “Ecosystem security opens up powerful opportunities for collaboration across disciplines—from ecology and genomics to policy and public health. It’s an area that naturally brings people together, as the concept of the ecosystem touches everything. I am particularly excited about this from the perspective of the Cambridge Collections, as our libraries, archives, museums, and galleries collectively capture so much insight into the past, present, and future of our ecosystems. Our collections and the institutions that house them offer valuable spaces to convene interdisciplinary researchers and to catalyse their work.”
>
> Sam Brockington, Department of Plant Sciences,
> Curator of the Cambridge University Botanic Garden

In March 2025 a meeting exploring ‘Cooperation and Conflict’ brought together 22 PIs studying the interplay of conflict and cooperation at different scales across biology: between or within genes and genomes, cells and tissues, symbionts, individuals, collectives, and ecosystems. Attendees at the meeting are discussing potential next steps, including follow up meetings and potential routes for future funding and doctoral training programmes.

Academic and industry collaboration for food and ecosystem security

In November 2024, the Organisms, Evolution and Planetary Resilience Theme hosted Syngenta for a day of scientific discussions spanning a breadth of topics relating to agriculture, environmental health and food security. Syngenta scientists and Cambridge researchers from 7 Departments and Institutes explored how biological research can feed a scientific pipeline that balances the demand for safe and affordable food production, with the need to protect the land and wider ecosystems.

- **Grant success**: BBSRC Impact funding to develop epidemiological models of tree pests for use by policy makers.
- **In submission**: BBSRC Industrial Doctoral Landscape Award exploring innovation in genes, environments and management practices for future food production
- **Profile article**: Conservation efforts are bringing species back from the brink

Transformative Technologies

The School of Biological Sciences is actively leading the development and application of transformative technologies that are enabling our scientists to push the boundaries of knowledge and discovery across all aspects of biology.

Our transformative technologies underpin the scientific excellence across each of the Research Themes and are being championed by PIs and Technical Professionals to maximise progress and impact across the research ecosystem.

Innovations in Bioimaging

Imaging is a powerful catalyst for discovery in the biological sciences, enabling researchers to visualise biological processes across scales and species. Within the School, academic researchers, technical experts and industry partners are working together to innovate and advance imaging technologies. This unique ecosystem is providing researchers with unprecedented access to ever higher resolution and enhanced capabilities across diverse imaging platforms, paving the way for new research breakthroughs.

The new Microscopy Bioscience Platform is a centre for innovation in bioimaging, providing comprehensive support across the entire microscopy workflow to researchers across in the Biological Sciences. The successful launch of the Microscopy Bioscience Platform in November 2024 marked a step change in how microscopy will be pioneered and supported across the School, working in close collaboration with more local services and research groups.

The coherent and connected Microscopy Bioscience Platform provides an excellent springboard for investment, and in 2024, Dr Elena Scarpa (Department of Physiology, Development and Neuroscience) worked with Research Technical Professionals and PIs from 6 Departments and Institutes to successfully secure an MRC mid-range equipment grant for a Nikon Spinning Disk Confocal Microscope which will be embedded as part of the platform and open to users across the School and beyond.

> “The spinning disc microscope provides high-quality, fast, gentle imaging across a range of scales, from subcellular structures to whole organism live imaging, that will enable ever more ambitious microscopy projects to be undertaken across the biological sciences. It was great to work with many collaborators across departmental boundaries to bring this application together and we are pleased the microscope will be available to many researchers in the School through the Microscopy Bioscience Platform.”
>
> Elena Scarpa, Department of Physiology, Development and Neuroscience

- **Grant success:** MRC mid-range equipment grant for a Nikon Spinning Disk Confocal Microscope (2024)
- **In submission**: MRC mid-range equipment grant for a high-throughput laser micro-dissection of solid tissues (2025)
- **Collaborative infrastructure**: launch of the Microscopy Bioscience Platform and the Pathogen Cryo-Imaging Facility in Cambridge (PaCIFiC)

Engineering in Biology

Tremendous advances in engineering biology over recent years are driving innovations that are enabling researchers across the School, together with collaborators from the wider University and beyond, to develop cutting-edge technologies to shape our understanding of biology. Our dynamic ecosystem is accelerating the design and manipulation of biological systems, from molecules and cells, pathogens and plants, through to tissue engineering and novel therapeutic discoveries. These engineering biology advances are unlocking new possibilities in agriculture, healthcare, sustainability, and beyond.

Through a number of events across 2024 / 2025 new connections and collaborations have been established across the biological – engineering boundary. The Complex Tissue Bioengineering Meeting successfully fostered new research links on the topic of complex tissue regeneration *in vitro*, and the Emerging Immunotherapeutics meeting explored protein engineering opportunities and novel delivery platforms in this important translational space.

- **In submission**: BBSRC Doctoral Focal Award on Engineering Biology for Biomedicine (in collaboration with University of Bristol)
- **In submission**: UKRI call for 'Novel human in vitro models of complex disease', bringing together PIs across Cambridge Stem Cell Institute, Veterinary Medicine, Physiology, Development and Neuroscience, Engineering and Physics.

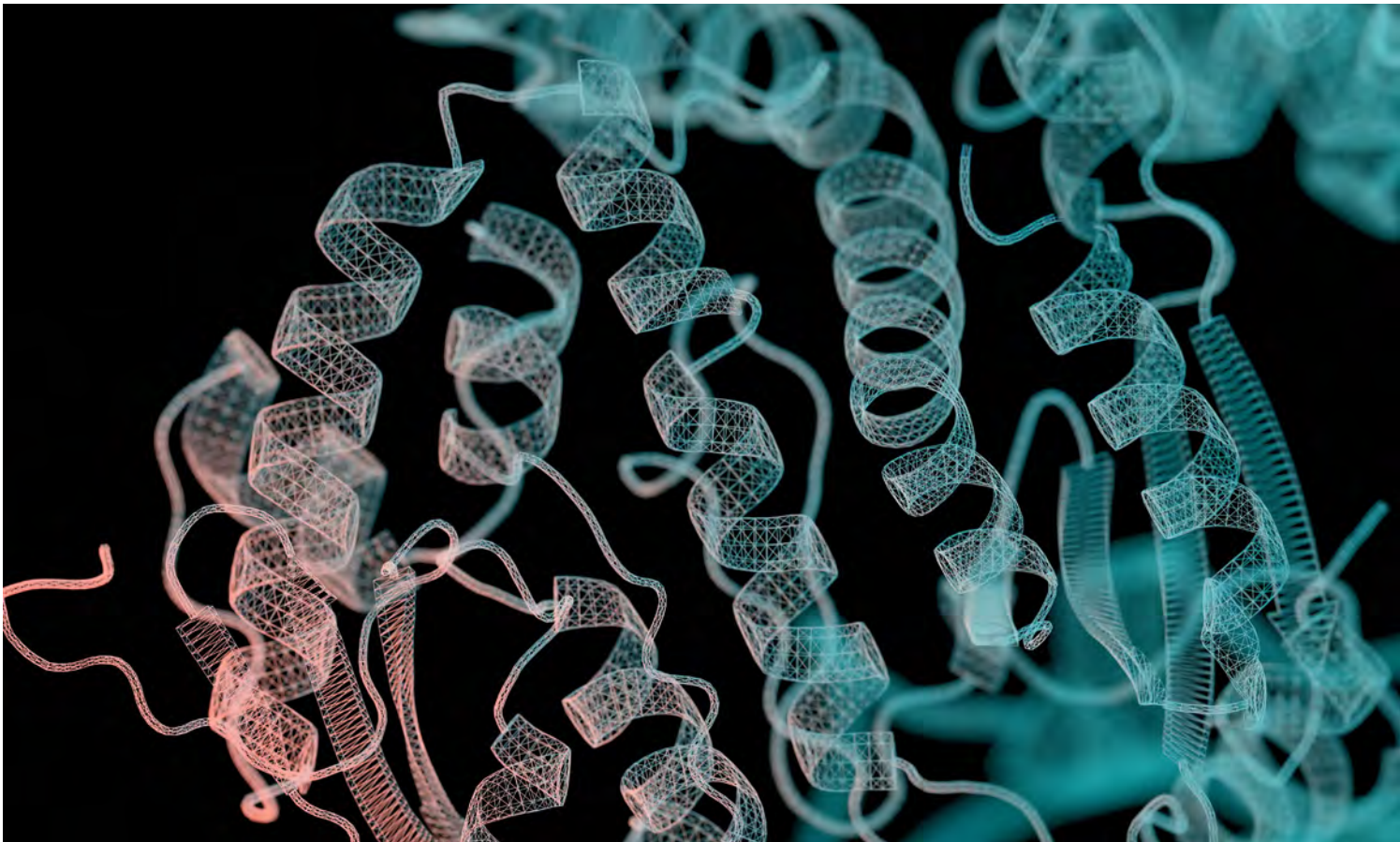
Future of Multiomics

Multiomics integrates genomics, transcriptomics, proteomics, metabolomics, and other 'omics technologies to provide greater insight into biological systems that in turn will drive groundbreaking discoveries. Our academic and technical experts are not only deploying these state-of-the-art technologies, but also validating and developing novel approaches for the vast array of samples generated through experimentation across the School, creating a research ecosystem that delivers comprehensive insights into cellular functions and disease mechanisms.

Implementing strategies adopted during the recent development of the Microscopy Bioscience Platform, we are now focussing on consolidating the genomics provision across the School, with opportunities for further cohesion with other 'omics capabilities being explored.

This collaborative ethos was demonstrated in the 2025 BBSRC ALERT call, where a team of researchers from 5 Departments and Institutes worked together to apply for a ThermoFisher Exploris 480 mass spectrometer. If successful, the mass spectrometer will be housed in the Cambridge Centre for Proteomics and will be available to researchers across the School and beyond.

- **In submission**: BBSRC ALERT grant for a ThermoFisher Exploris 480 mass spectrometer

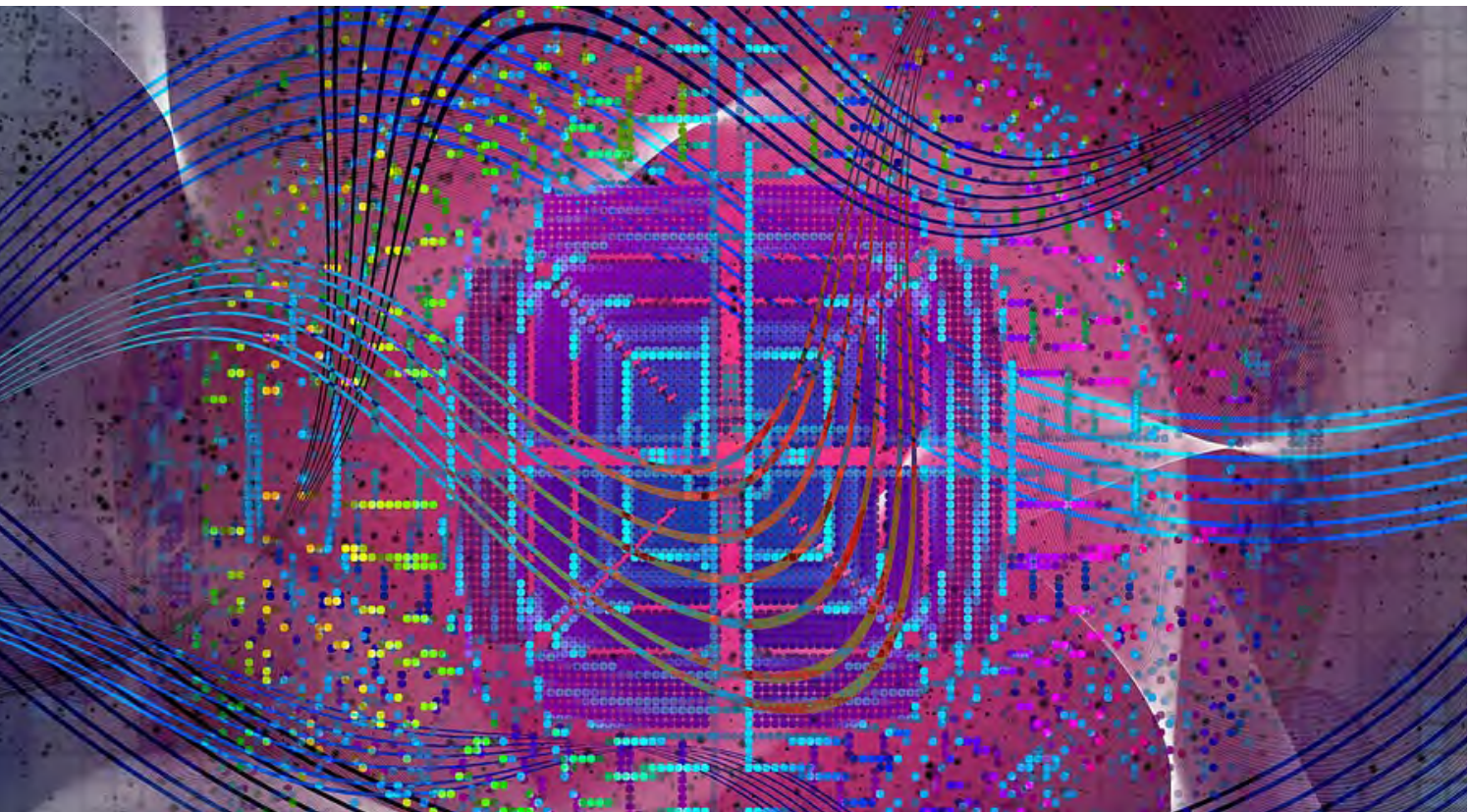


Structural Biology, Biophysics and Quantum Technologies

Advanced structural biology is unlocking new frontiers in the understanding of how biological molecules, such as proteins and nucleic acids, function at the atomic level. Through cutting-edge techniques such as cryo-electron microscopy, X-ray crystallography and nuclear magnetic resonance, researchers in the School can now visualize the intricate structures of these molecules with unprecedented detail. The diversity and volume of samples generated in the School demands both constant evolution in technologies and specialist expertise across a vast range of biological processes, fostering a thriving ecosystem of scientific ideation, support and innovation.

The fields of biophysics and quantum technologies are revolutionising the way we measure biological molecules by bringing advanced physics to life sciences, enabling ultra-sensitive detection with unprecedented resolution and information content. In 2024, a major new £24m investment was announced to create a world-leading centre dedicated to health, the Quantum Biomedical Sensing Research Hub (Q-BIOMED), with the University of Cambridge one of six partnering academic institutions. This investment positions our researchers at the forefront of this new phase of transformative technology development in biology.

- **Industry partnership**s: strong relationships with industry partners, including collaborations with BioNTech and Bicycle Therapeutics.
- **Collaborative infrastructure**: Joint working and management across the Pathogen Cryo-Imaging Facility in Cambridge and the Cryo-EM facility.
- **Transformative investment:** University of Cambridge is a partner on Q-BIOMED, a new world-leading quantum research hub dedicated to healthcare and life sciences.



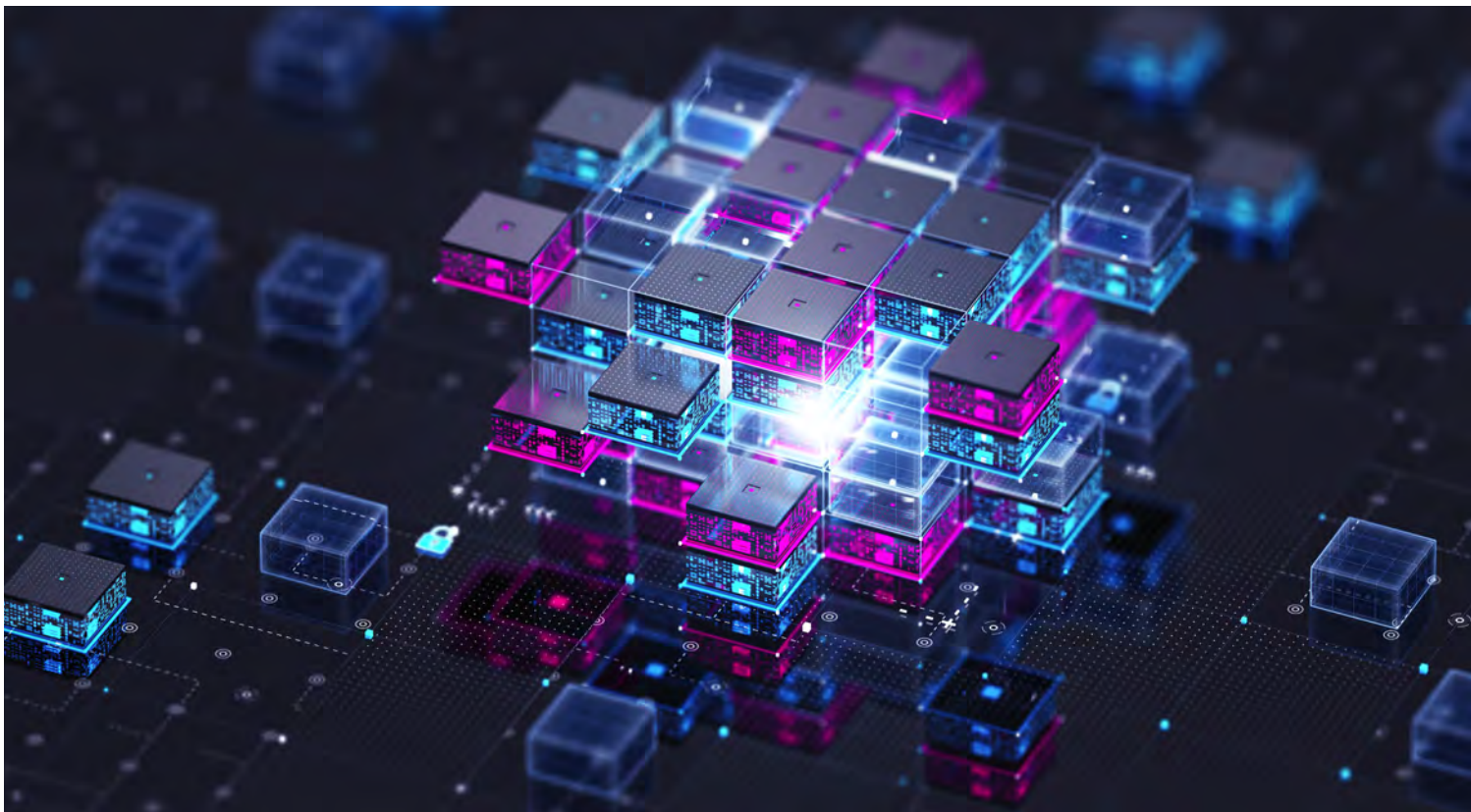
AI and Machine Learning

AI and machine learning are transforming biological sciences by enabling the analysis of vast, complex datasets that were once beyond human capability. These advanced technologies are helping researchers identify patterns, make predictions, and gain insights from biological data in ways that were previously unimaginable. By applying AI algorithms to genomics, proteomics, and other biological fields, scientists can uncover hidden relationships, accelerate drug discovery, and optimize personalized treatments. In the School of Biological Sciences, we are at the forefront of this revolution, applying cutting-edge AI and machine learning methods to push the boundaries of biological research and solve pressing challenge across fundamental biology, human health and environmental and societal resilience.

In February 2025, a meeting exploring the scope and future potential for AI and machine learning across the Biological Sciences was convened, bringing together researchers from across 12 Departments and Institutes, along with colleagues from Cambridge Enterprise, Cambridge Centre for Science and Policy, Cambridge Innovation Capital, CUDAR, and the Strategic Partnerships Office. The event marked a step-change toward a joined-up approach to the implementation of AI and machine learning across the biological sciences, where insights and innovations can be shared between colleagues to drive breakthrough research.

Learn more about our researchers leading the way in AI and Machine Learning across the Biological Sciences:

- AI to Tackle Dementia
- Using AI to diagnose coeliac disease
- Speeding up effective biodiversity conservation
- AI algorithm detects heart disease in dogs
- Early warning tool will help control huge locust swarms



Impact, Innovation and Engagement

In line with the University's mission to contribute to society through the pursuit of education, learning and research at the highest international levels of excellence, the Research Themes in the School of Biological Sciences are working to enable research that pushes the boundaries of knowledge and translates to real-world impacts. Our approach to knowledge exchange and impact mirrors our collaborative ethos and aims to foster proactive and equitable collaboration with external partners to influence and inform our research impact pipelines.

Bioscience Impact Team: supporting research impact pipelines

The Bioscience Impact Team have continued their work to raise the profile of research impact and offer invaluable support to researchers across the School to advance impact and knowledge exchange work programmes.

Business engagement and partnerships

Working closely with the Research Strategy Team in the School and the Life Sciences Strategy Manager in the Strategic Partnerships Office, the Bioscience Impact Team are supporting increasing numbers of researchers to fosters new interactions with industry and strategic partners. Across 2024 / 2025 the team delivered a range if industry engagement activities across a number of key areas in the biological sciences which have involved more than 60 researchers from across 17 Departments and Institutes:

June 2024
Focus: Vaccines

June 2024
Focus: Protein Engineering and Immunotherapeutics

October 2024
Focus: Autoimmunity and Vaccines

October 2024
Focus: Genome Sequencing

November 2024
Focus: Crop Protection and Food Security

January 2025
Focus: Childhood Cancer

January 2025
Focus: Life Sciences across Scales

> “The convergence of academic innovation and industry expertise at this symposium demonstrates why Cambridge is uniquely positioned to lead the next revolution in immunotherapeutics - one that will not only break new scientific ground but deliver transformative new medicines with the potential to tackle presently untreatable conditions. The discussions have already led to new collaborations, and we’re looking forward to building on this momentum with industry.”

Rahul Roychoudhuri, Department of Pathology

Engagement in policy making

The Bioscience Impact Team have established a close working relationship with colleagues at the Cambridge Centre for Science and Policy and are facilitating researchers across the School to engage more meaningfully with policy impacts. Using these connections, the Bioscience Impact Team are working with Theme Leads to scope opportunities and routes to policy impacts via the exciting research focus areas developed across the Themes.

> Over the next 18 months we have ambitious plans to develop research into antimicrobial resistance at Cambridge, bringing together multidisciplinary academics, lived experience partners, industry collaborators and policy perspectives. The support of the Bioscience Impact Team to develop and deliver this work will be invaluable.
>
> Kate S Baker, Department of Genetics

The Bioscience Impact Team are also supporting policy training and development for early career researchers. With funding from the BBSRC Flexible Talent Mobility Account, the team worked in collaboration with Centre for Science and Policy and the Wellcome Sanger Institute to deliver a Policy Training Workshop in March 2025. The workshop provided attendees with insights into how research evidence and expertise inform policymaking, as well as an opportunity to work with the experts to explore responses to real-world policy challenges. Experts joined from the Government Office for Life Sciences and the Academy of Medical Sciences and presented their insights alongside Cambridge academics who are leaders in policy engagement.

Entrepreneurship, technology transfer and commercialisation

Since their appointment in 2022, the Bioscience Impact Facilitators have worked hard to understand the complex entrepreneurship, technology transfer and commercialisation landscape in Cambridge so as to be a reliable and well-informed point of contact for researchers across the School. The team advise researchers on where best to channel their efforts to maximise outcomes and have begun to develop bespoke meetings and events to support this important route to impact. The team are building particularly close relationships with Cambridge Enterprise, co-developing workshops and support across the breadth of the biological sciences.

Internal funding to maximise engagement and impact

In addition to supporting the above strategic areas, the Bioscience Impact Team have also regularly attended Research Theme events and conducted departmental drop-ins to share opportunities and offer direct support to researchers across the School. The School Information Hub has a dedicated page of resources available to researchers in the impact space, as well as a page dedicated to impact and engagement funding opportunities. The team support a range of impact funding schemes that have enabled new pathways to impact over the last 12 months:

Title: Implementation of Streptococcus suis genomics into routine surveillance
Lead applicant: Geng Zou, Department of Veterinary Medicine
Scheme: BBSRC Impact Acceleration Account

Title: Generating a commercial antibody toolkit for studying rickettsial diseases
Lead applicant: Jeanne Salje, Department of Pathology and Department of Biochemistry
Scheme: Harmonised Impact Starter Fund

Title: Epidemiological models to inform plant health law: scientific underpinnings for regulations for eradication and containment of Xylella fastidiosa in the EU
Lead applicant: Nik Cunniffe, Department of Plant Sciences
Funded via the BBSRC International Institutional Award

Title: New pigment ingredients from algae
Lead applicant: Alison Smith, Department of Plant Sciences
Funded via the BBSRC International Institutional Award

Public and Community Engagement

The School of Biological Sciences' Involvement and Engagement Manager works closely with the Bioscience Impact Team and is embedded in the research ecosystem of the School via the Research Themes. Two focus areas that are currently in progress are strategic development of participatory research across the breadth of biological sciences and coordinated support for researchers in the School to engage with the Cambridge Festival.

Participatory Research with Lived Experience Partners

The goal of participatory research is to include people with lived experience of specific topics in the design, development and delivery of related research. This is especially pertinent in research linked to clinical conditions, where engagement with patient groups and carers can improve the quality and impacts of research.

In November 2023 the School launched the Participatory Research Support Fund which supports researchers to engage with lived experience participants, with the intention of shaping how research will be developed and undertaken. Engaging equitably with lived experience partners adds value to research proposals, lays the groundwork for future impact pathways and is increasingly a funder requirement.

> "It was important to hear from people with lived experience of depression, to ensure our science stays grounded in real lives and real needs. With the support of the Participatory Research Support Fund, we were able to properly recognise and value participants' contributions, helping us shape more meaningful research that can truly make a difference."
>
> Angela Roberts
> Department of Physiology, Development and Neuroscience

Supported by the School's Involvement and Engagement Manager and the Bioscience Impact Team, the Participatory Research Support Fund has so far supported 9 PIs from four Departments to undertake bespoke lived experience consultation meetings and we look forward to working with more researchers in this important research space.

Biological Sciences at the Cambridge Festival 2025

The Cambridge Festival takes place in Spring each year with a mixture of online, on-demand and in-person events covering all aspects of the world-leading research happening at Cambridge. In the School of Biological Sciences, researchers, PhD students, technicians and professional services staff came together to create, host and engage the public in a wide range of activities, from talks and panel discussions to hands on experiments, and exhibitions.

With over 40 activities delivered throughout the Festival, Departments and Institutes showcased our world-leading research to audiences of all ages. Covering themes such as genetics, pathogen biology, health and ageing, the Festival also served as a valuable opportunity for researchers to engage with the community, fostering meaningful conversations and insights.

Cambridge Festival 2025, Department of Pathology. Credit: Yulia Lapko

Capacity Building for the Future of the Biological Sciences

The School is committed to investing in the future of the biological sciences, and the last 12 months have seen the delivery of a series of capacity building initiatives that are ensuring a robust and sustainable foundation for future innovation and discovery. By promoting collaboration, fostering talent and strengthening research infrastructure, we are enhancing our ability to tackle the most pressing biological questions and ensuring the current and next generations of scientists are best equipped for long-term scientific growth and innovation.

Research Seed Funding: allowing new ideas to thrive

As the Research Themes continue to foster opportunities for new collaboration and interaction across Departmental boundaries, the School and the Issac Newton Trust have sustained support of the important seed funding awards that are open to PIs across the School. The call offers research grants of up to £50,000 to support new research collaborations. In 2024 / 2025 the scheme received 24 applications which spanned all Departments in the School with 6 grants successfully funded:

- **Paul Bays**, Psychology
  Using machine learning to build a new data-driven taxonomy of human memory

- **Maria Alcolea**, Physiology, Development and Neuroscience / Cambridge Stem Cell Institute
  The role of ECM mechanics in the earliest stages of oesophageal tumour development

- **Sebastian Eves-van den Akker**, Plant Sciences
  Programmed somatic rearrangements of hypervariable genes across the tree of life

- **Alex Cagan**, Genetics / Pathology / Veterinary Medicine
  Dogs as genomic sentinels of our shared environment

- **Jeanne Salje**, Biochemistry / Pathology
  Spatial transcriptomics for intracellular bacteria

- **Andrew Murray**, Physiology, Development and Neuroscience
  Early life stress and the neurometabolic programming of adult behavioural phenotypes – mitochondrial mechanisms and targets

“The Research Theme meeting on Complex Tissue Bioengineering in May 2024 brought together colleagues across biology, physical sciences and engineering, and was the catalyst for our seed funding project. We have already started the project which will establish the mechanistic underpinnings of oesophageal tumour development and should provide a springboard for larger scale funding and future impacts.”

Maria Alcolea, Department of Physiology, Development and Neuroscience and Cambridge Stem Cell Institute

Strategic Recruitment: cultivating talent to drive progress

Across 2024 / 2025, the School of Biological Sciences announced a range of new Professor and Assistant Professor posts spanning areas of significant research importance that align with Research Theme areas of focus. These posts have been advertised in two rounds, with the second set of recruitments completed in Spring / Summer 2025. The goal of these exciting new positions is to attract experts in their fields to drive interdisciplinary innovation whilst complementing and strengthening our existing academic excellence.

> The School of Biological Sciences is dedicated to fostering collaboration and innovation in science. These new Professorships are an exciting step forward, strengthening key research areas and bringing fresh momentum to our academic community. We look forward to welcoming outstanding leaders who will shape the future of our thriving research environment.
>
> Jon Simons, Head of the School of Biological Sciences

Round 1: Spring / Summer 2024

The first round of recruitment took place in Spring / Summer 2024 for new professorial appointments aligned to the Neuroscience, Psychology and Behaviour Theme and the Organisms, Evolution and Planetary Resilience Theme.

Alex Woolgar was appointed Professor of Integrative and Systems Neuroscience in the Department of Psychology, and Sebastian Eves-van den Akker and Christine Miller were appointed Professors of Biotic Interactions in the Department of Plant Sciences and the Department of Zoology, respectively.

Round 2: Spring / Summer 2025

The second round of recruitment takes place in Spring / Summer 2025 where we are excited to attract new talent to the School aligned with the following areas:

Evolutionary Genomics
Aligned with the Functional and Evolutionary Genomics Theme

Developmental Plasticity and Robustness
Aligned with the Reproduction, Development and Lifelong Health Theme

Infection and / or Immunity
Aligned with the Infection and Immunity Theme

Molecular and Cellular Biology
Aligned with the Molecules and Cells Theme

Research Culture: fostering a supportive and inclusive research environment

The development and maintenance of a research culture that is inclusive, supportive and principled is of key importance to the School and a central feature of the academic vision. The Research Themes offer new avenues to promote inclusion and collaboration to foster a positive working environment for all.

New Starters and Fellowships

In 2024 / 2025, 14 new PIs joined the School and Theme Leads continued to offer 1:1 meetings with these new starters, introducing the concept of the Themes, discussing collaborative opportunities and signposting wider initiatives that align with their research interests. This is an important element of Theme Lead activity, providing a useful contact point for new starters whilst they orientate themselves to the Cambridge research landscape.

The School's Research Fellowships Framework continues into its third year, aiming to support prospective Research Fellows applying for mid-career fellowships, including Wellcome Career Development Awards, Royal Society University Research Fellowships, UKRI Future Leader Fellowships, and other comparable awards. The support provided starts from the first stages of recruitment, offering feedback on applications and helping coordinate mock interviews, through to mentoring, development training and guidance on career progression when a Fellowship application has been successful.

Grant writing support across the School

Grant writing support was one of the areas identified as a priority by many respondents to the original Theme Members survey conducted in May 2021. The Themes continue to support several initiatives to help meet this need, including the implementation and maintenance of the Research Grant Advisory Database, an online resource containing details of a wide variety of researchers in the School who are happy to be approached to discuss successful grants. The database was updated in Spring 2025 and now contains more than 230 grant entries from individuals willing to support colleagues in the grant preparation process.

Theme structures have also been implemented to maximise engagement of School researchers in larger, strategic grant calls, including doctoral training programme applications, network grants and various equipment calls where a multi-user joined up approach has enhanced our applications and proved successful in securing new funding. The Research Strategy Manager and Theme Leads will be exploring further ways to support academics across the grant life cycle in 2025.

Roving Researcher Scheme

The Roving Researcher Scheme offers support to scientists if they need extended time away from the lab. A Roving Researcher is an experienced researcher who can provide research cover by continuing key aspects of someone's research while on, or during return from, leave.

Research assistants, postdoctoral researchers and faculty members in the School are all eligible for support from the scheme. The Roving Researcher is not intended to replace those on leave, but rather to support the science and labs they work in, ensuring that the research momentum is maintained during their absence.

The benefits of the scheme extend beyond supporting the individual on leave. It also provides valuable experience to the Roving Researcher who is exposed to a wide range of innovative research, benefits the wider laboratory, and ultimately enhances the University's research impact.

In March 2025, the School supported a Roving Research Showcase event to bring together past and current roving researchers from different institutions, along with funders and leadership delegations from other institutions who are looking to implement their own Roving Researcher Schemes.

> "It was fantastic to meet with other Roving Researchers and share our experiences of the scheme and to talk more broadly about the challenges and successes that we have achieved in our various schemes. It would be great to see more Institutions, Departments and Schools implementing their own Roving Researcher scheme which does so much to promote support and inclusivity in academia."
>
> Holly Craven, Roving Researcher in the School of Biological Sciences

Find out more about Roving Researcher Schemes in this Nature article from 2024: Could roving researchers help address the challenge of taking parental leave?

Strategic Next Steps for the Research Themes

As the Research Themes move into their 5th year, the original aims remain at the heart of our work and serve to focus our efforts and activities across the breadth of research in the School:

- Promoting collaboration and interaction across traditional Departmental boundaries
- Contributing to a research culture that is inclusive and supportive
- Increasing opportunities for involvement in major funding bids
- Enhancing targeted philanthropy and industrial engagement

Enabling People and Research: continued support for 'bottom up' initiatives

As described throughout this report, the Research Theme activities and ambitious research focus areas are maturing and producing valuable outcomes, from new collaborative research grants through to industrial and philanthropic engagement.

It is important that, in parallel with these successes, the Research Themes also continue to foster new ideas and pipelines for future areas of focus and investment. We are encouraged that the continued engagement between Theme Leads and Theme members are bringing new ideas and opportunities for collaborative research to the fore.

"As a new PI in Cambridge, the Research Themes have been invaluable in connecting me with colleagues across the School working in similar or complementary fields. The Theme infrastructure and the Research Themes team have been particularly supportive of my ideas to bring together researchers working in electrophysiology who are geographically spread across Departments. The Themes are enabling me to run a meeting to bring together this community, to share ideas, address challenges, and explore new collaborative opportunities."

Iris Hardege, Department of Zoology

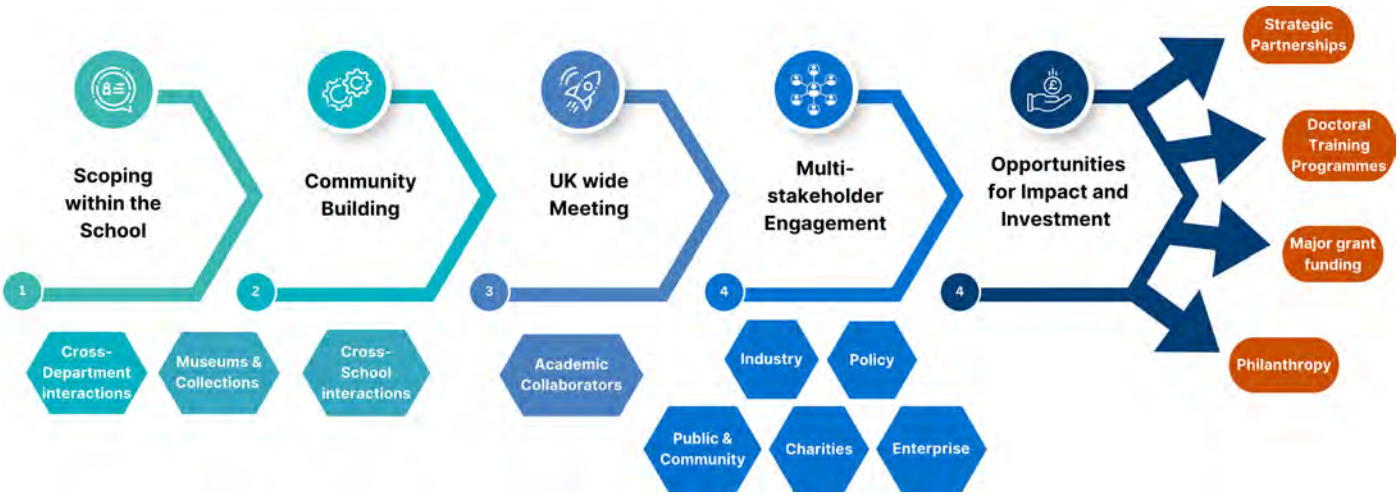
2025 / 2026 sees a range of events being developed and championed by PIs across the School and supported via the Research Themes. These include: The future of microbiome research (led by Alex Almeida, Department of Veterinary Medicine); Electrophysiology at Cambridge (led by Iris Hardege, Department of Zoology); Nanomedicines (led by Ioanna Mela and Laura Itzhaki, Department of Pharmacology, James Edgar, Department of Pathology), and Ljiljana Fruk (Department of Chemical Engineering and Biotechnology); and Women's Health, Inflammation and Infection (led by Amanda Sferruzzi-Perri, Department of Physiology, Development and Neuroscience, and Richard Hayward, Department of Pathology).

We support and fully encourage other PIs across the School to talk to Theme Leads and the Research Strategy Team in the School of explore further research areas that can be developed to support innovation and collaboration.

Multistakeholder engagement: a pipeline of innovation and impact

The wide range of scientific focus areas within the Research Themes have emerged from coordinated activity across PIs in the School and are being supported through a pipeline of activity to build capacity and capability to achieve ambitious goals, including strategic partnership development, doctoral training programme applications, major grant funding and philanthropic engagement.

Though 2025 / 2026, the School's Research Strategy Team will continue to support this pipeline of innovation and impact, working with the Bioscience Impact Team and colleagues across the wider support system in the University, with the aim of delivering valuable and strategic outcomes.



Linking biology across the Cambridge ecosystem

In recognition that many of the School's exciting research focus areas require expertise broader than the biological sciences, the Research Strategy Team in the School are exploring opportunities for Affiliate memberships to our Themes, where PIs from outside the School can register an interest and be included in meetings and events. This approach will further enable cross-disciplinary collaboration and better position our researchers to responds to strategic opportunities and major funding calls.

Our Theme Leads and Senior Leadership Team in the School are also working closely with colleagues across the wider research ecosystem, including Cambridge University Health Partners, Cambridge Biomedical Campus and the West Cambridge Innovation District to ensure a joined-up approach to major strategic directions and initiatives across the Cambridge research community.

Research Strategy Group: oversight, guidance and strategic direction

There are many ideas and focus areas emerging across the School that serve to deliver on each of the aims of the Research Themes. In 2024, the School established a new Research Strategy Group to provide oversight, guidance, and strategic direction for the diverse research activities in the School. The group offers valuable feedback on the ideas, initiatives, and strategies that are emerging across the School and diversifies the academic input that informs our research vision.

Future Estate

In line with the School's academic vision plan, we will continue to explore how the estate can be adapted and improved to continue to meet the dynamic needs of education and research, and a key focus for the coming years will be on the modernisation of the estate to support state of the art research and teaching.

The future estate project plans to develop accessible spaces to support interdisciplinary working and collaboration between researchers in the School. In May 2024, Research Theme Leads met with the future estate project consultants to discuss the opportunities and barriers to foster collaboration across the School, with specific consideration as to how our built environment can foster an interdisciplinary and collaborative culture.

The ideas and suggestions from the meeting were fed forward and are informing ongoing planning for the future estate. We look forward to continuing to contribute to the development of a research vision that will underpin a bright future for the School of Biological Sciences.

Conceptual drawings to explore initial ideas for the development of our future estate. Credit: BDP Architects.

Upcoming Events 2025

April

- Shaping the future of microbiome research

May

- Electrophysiology at Cambridge
- Nanomedicines: Exploring the biology-engineering interface
- Microbial Bioinformatics Hackathon
- Mechanisms of Bacterial Physiology

June

- Vaccinology Networking Lunch
- Microscopy across Scales
- Women's Health, Inflammation and Infection
- DNA Damage and Mutations

July

- Mental Health Part III

September

- Organoid Biology
- Annual Day
- Fundamental Biology of Ageing

If you have ideas for multidisciplinary topics that could benefit from a collaborative meeting, please contact us: research-themes@bio.cam.ac.uk

Find out more about upcoming events and activities on the School Information Hub.

Key Contacts

Research Strategy Team

Email: research-themes@bio.cam.ac.uk

Jon Simons
Head of the School of Biological Sciences

Rebecca Lawson
Acting Deputy Head of School for Research Strategy

Abi Herrmann
Research Strategy Manager

Susana Camacho
Communications Manager

Issy Baker
Research Communications, Events and Data Coordinator

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@cambridgebiosci.bsky.social

@Cambridge_SBS

@Cambridge_SBS

School of Biological Sciences

The Research Themes are directed and supported by the Research Strategy Team in the School of Biological Sciences:

Professor Jon Simons, Head of the School of Biological Sciences
Professor Rebecca Lawson, Acting Deputy Head of School for Research Strategy
Dr Abi Herrmann, Research Strategy Facilitator
Susana Camacho, Communications Manager
Issy Baker, Research Communications, Events, and Data Coordinator

A digital version of the Research Themes Annual Report is available on the School website at: www.bio.cam.ac.uk/research/research-themes

This document was written and produced by: Dr Abi Herrmann, Susana Camacho and Issy Baker, March 2025