



Annual Report

1 JULY 2025 – 30 JUNE 2026

Catalysing discovery by
bringing the physical
sciences into the cell

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The year in numbers

38



Principal Investigators
and Group Leaders

600



Researchers, professional
staff and students

£48

million



New grant funding

10



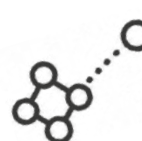
Clinical trials /
pharmaceutical translation

46



New funding bodies, of which
3 philanthropic donors,
5 industry partnerships

4



Early-stage spinouts

4



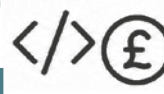
Translational grants

5



Patents filed

2



Software commercialisation /
development

Working more sustainably

Laboratory Efficiency Assessment Framework (LEAF) recognition reflects the practical steps teams are taking to reduce the environmental impact of laboratory work while supporting excellent science.

GOLD

Biochemistry: Higgins, Newstead

Chemistry: Robinson

NDCN: Becker, Talbot & Dafinca (shared lab), Tofaris

Paediatrics: Draper & Minassian (shared lab)

DPAG: Salman, Ryan, Fernandes, Wade-Martins, Stevens

SILVER

Biochemistry: Seiradake, Baker

Physics: Gruszka, Kapanidis

NDCN: Ray, Peirson, Jaganath, Hankins

Chemistry: Baldwin & Kukura & Benesch (shared lab)

DPAG: Vyazovskiy



Five years on



Five years ago, we founded the Kavli Institute for Nanoscience Discovery (KINsD) around a simple but ambitious idea: that some of the most important questions in science could be approached differently if we made it easier for researchers to work across

traditional disciplinary boundaries.

We wanted to create a KINsD environment in which people with different expertise, perspectives and technologies could come together around scientific questions; where the connections between them could lead in directions we might not have anticipated at the outset.

Five years on, it is rewarding to see that idea taking shape. Kavli Oxford has grown into a distinctive interdisciplinary research environment, bringing together researchers from across the physical, life and medical sciences. More importantly, we are increasingly seeing what that environment can make possible.

This year's research provides some compelling examples. Collaborations across Kavli Oxford and the wider University of Oxford have brought together expertise in areas ranging from mass photometry, machine learning and structural biology to antibody discovery, protein biophysics and computational modelling. The resulting work is giving us new insights into fundamental biology and disease, while also creating new tools and approaches that can be shared and developed by others. We are also seeing ideas and expertise extend beyond academic research, for example, Professor Zameel Cader's work in human stem-cell models has contributed to Oxford StemTech, the company he co-founded to develop iPSC technologies and human cell models for disease research and drug discovery.

Our fifth-anniversary symposium in April provided an opportunity to see the breadth of this work in one place. With researchers at different career stages presenting their science, discussing posters and encountering ideas beyond their own fields, the day captured much of what we hoped Kavli Oxford would become.

But an institute is shaped by far more than its research outputs. One of the things I value about Kavli Oxford

is the range of people and expertise that has come together around the science. This year we launched our first Kavli Oxford-funded doctoral studentships, while members of our faculty received fellowships, awards and opportunities to develop collaborations in the UK and internationally. Our technical and professional colleagues continue to make essential contributions to the Institute, and it has been a pleasure to see their achievements recognised too.

We are also extending our connections. Memorandums of understanding with international research institutes are creating opportunities for scientific exchange, while our involvement in the Kavli Foundation network continues to connect our researchers with colleagues around the world. This year we welcomed Professor Gijse Koenderink, Co-Director of the Kavli Institute of Nanoscience Delft, to speak about her work at the intersection of physics, biophysics and synthetic biology, while our KICK collaboration underway with the Kavli Nanoscience Institute at Caltech provides another example of the connections and exchange that the wider network makes possible.

As our science develops, we are also thinking carefully about how we conduct it. Our project exploring ethics in discovery science has encouraged researchers to consider the values and assumptions that can shape everyday scientific decisions. Alongside our work in public engagement, widening participation and sustainability, the project reflects our commitment to examining the values and practices that shape how we pursue new discoveries.

Five years in offers an opportunity to look back, but perhaps more importantly, a vantage point from which to look ahead. We have established strong foundations: talented people, distinctive technologies, strong connections within and beyond Oxford, and the ability to work across disciplinary boundaries when the science demands it. This report captures some of what that approach has made possible over the past year. The challenge now is to continue building on those foundations: to deepen existing collaborations, create space for new ones and pursue the scientific possibilities they open up.

Professor Dame Carol Robinson
Founding Director

Five years of Kavli Oxford

The Institute marked its fifth anniversary on 15 April 2026 with a symposium that also celebrated the career of Founding Director Professor Dame Carol Robinson. Researchers shared work spanning disciplines, career stages and scientific questions, encountering ideas beyond their own fields and making new connections.

With 12 research talks and 39 scientific posters, the programme reflected the breadth of research now taking place across the Institute. Scientific communication workshops and a pop-up exhibition exploring the ethical questions raised by scientific discovery extended the conversation beyond research findings themselves.

Together, the day offered a snapshot of Kavli Oxford at five: ideas and expertise being shared across fields and career stages, and conversations opening up new possibilities for discovery science.

Recognising a founding contribution

The anniversary was also an opportunity to recognise Professor Dame Carol Robinson's contribution as Kavli Oxford's Founding Director. The symposium served as the closing day to 'The Celebration of Native Mass Spectrometry', an international event led by Professor Justin Benesch supported by Sabine

Huth-Rauschenbach, to celebrate Professor Robinson's career and reflect on the progress made in her field of native mass spectrometry. In a concluding ceremony, a seminar room in the Dorothy Crowfoot Hodgkin Building was renamed in Professor Robinson's honour, recognising her contribution as a scientist, mentor and a champion of collaborative research.

Looking ahead

Professor Matt Higgins brought the symposium to a close with a keynote exploring how developments in nanoscience, molecular biology and computational protein design are opening new approaches to malaria vaccine development.

**'Be bold.
Be curious.
Be kind.'**

Professor Dame Carol Robinson



As part of the birthday celebrations, Kavli Oxford made a contribution to colleague Colin Kleanthouse's fundraiser for the Motor Neuron Disease Association.



Kavli Oxford Lecture Awards: ideas worth sharing

The annual Kavli Oxford Lecture Awards recognise researchers whose work opens up new questions and possibilities, and takes research beyond the lab into real-world benefit. This year's lectures brought leading scientists and their ideas into the Institute, creating opportunities for Kavli Oxford researchers to make connections across disciplines and consider how fundamental discoveries can lead to real-world impact.

DR DANIEL SKOVRONSKY

2025 KAVLI OXFORD LECTURE AWARD

In November 2025, Kavli Oxford welcomed Dr Daniel Skovronsky, Chief Scientific and Product Officer at Eli Lilly and Company, and President of Lilly Research Laboratories, as recipient of the fourth Kavli Oxford Lecture Award. The award recognised his perseverance and commitment to practical impact throughout a distinguished career, spanning pioneering imaging of Alzheimer's disease in living brain tissue to his recent work in metabolic drug development. His lecture, on harnessing incretin biology to improve human health, traced more than a century of discovery: from early work on pancreatic extracts and insulin to today's incretin-based medicines.

Scientific achievement +
real-world impact



PROFESSOR JUE CHEN

2026 KAVLI OXFORD LECTURE AWARD

In June 2026, Professor Jue Chen of Rockefeller University became the fifth recipient of the Kavli Oxford Lecture Award for her contributions to understanding ATP-binding cassette (ABC) transporters – membrane proteins fundamental to a wide range of cellular functions.

Her lecture explored how understanding the structures and mechanisms of these proteins is helping researchers unravel processes involved in immunity and disease, including cystic fibrosis – and how fundamental structural insight can ultimately reveal new possibilities for targeted therapies.



From molecular
structure to
understanding
human disease

THE KAVLI OXFORD LECTURE AWARD

recognises scientific leadership characterised by curiosity-driven research, interdisciplinary thinking and a commitment to translating fundamental discoveries into real-world benefit.

Interdisciplinary research published this year

Selected publications from the past year reflect the breadth of research at Kavli Oxford, and the different combinations of expertise, technologies and approaches behind it.

New insight into an early event in Parkinson's disease

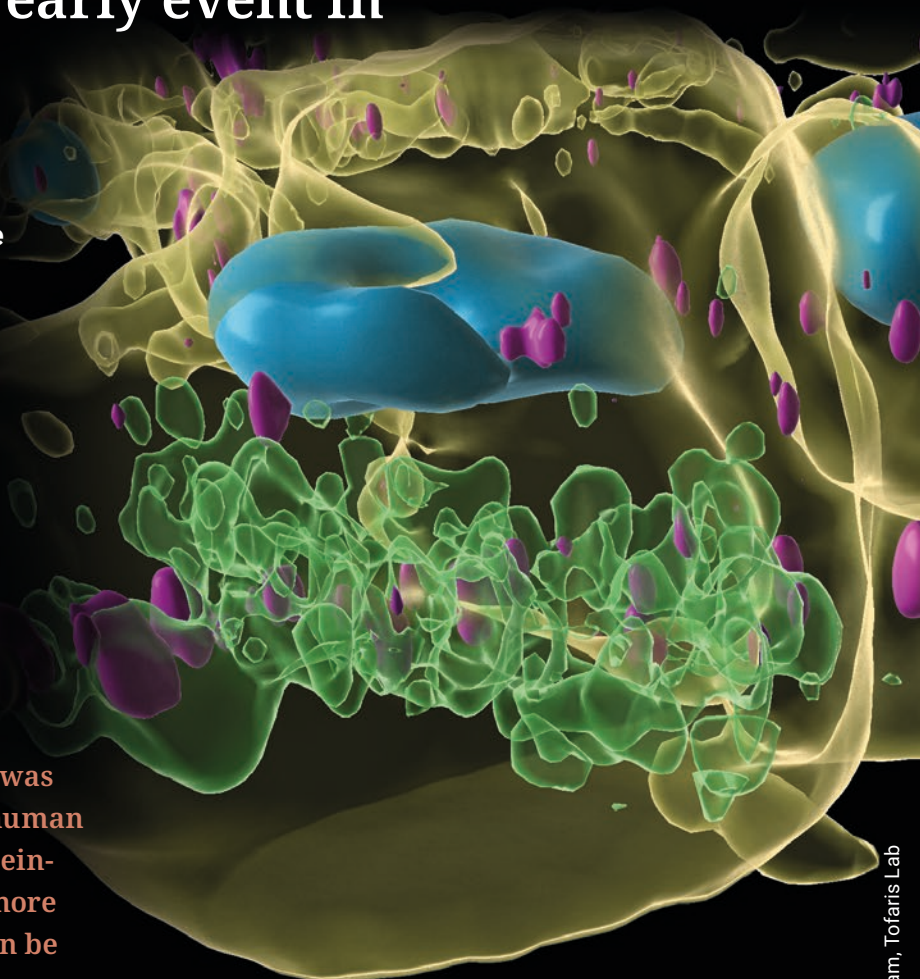
α -Synuclein blocks endoplasmic reticulum co-translational protein translocation early in Parkinson's disease

Nature Communications, 2026

Researchers from the Tofaris and Benesch groups, working with colleagues across Oxford, identified how α -synuclein can interfere with protein production at the endoplasmic reticulum, revealing a mechanism occurring early in Parkinson's disease. The insight contributes new information to explaining how the disease begins and offers a potential new route for treatment.

'Perhaps the most encouraging finding was that we could reverse these defects in human neurons by boosting the cell's own protein-clearance machinery. Although much more work is needed before this approach can be tested in patients, our findings provide a rationale for exploring this strategy as an early treatment for Parkinson's disease.'

— Professor George Tofaris



Pathological alpha-synuclein (magenta) interacts with the ER-associated Sec61A translocase (green) in human dopaminergic neurons (brown) interfering with co-translational translocation.

Image: Chor Lai Lam, Tofaris Lab

Finding what conventional analysis might miss

Uncovering hidden protein modifications with native top-down mass spectrometry

Nature Methods, 2025

Researchers across the Benesch and Robinson groups developed open-source software using native top-down mass spectrometry to uncover previously hidden protein modifications.

Machine learning meets mass photometry

Deep Learning-Based Event Classification of Mass Photometry Data for Optimal Mass Measurement at the Single-Molecule Level

ACS Nano, 2026

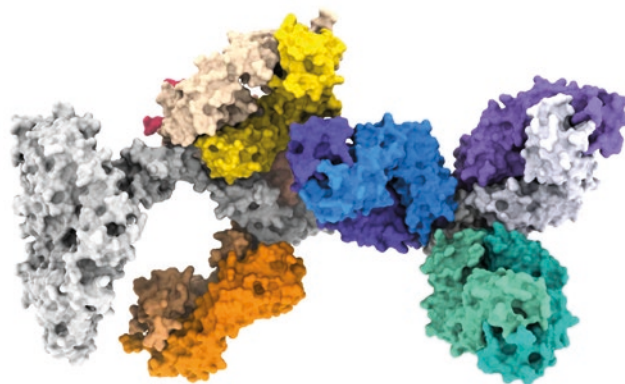
Combining mass photometry with deep learning, researchers across the Benesch and Kukura groups have developed a new approach to classifying single-molecule events and improving the accuracy of molecular mass measurements.

Discovering antibody combinations that block over 90% of malaria parasite growth

Analysis of monoclonal antibodies against the malaria invasion complex protein RIPR reveals the structural basis for synergistic antibody protection

Immunity, 2026

Researchers across the Draper, Minassian and Struwe groups combined antibody discovery, protein biophysics and computational approaches to reveal the structural basis for synergistic antibody protection



Above: RH5-Interacting Protein plays a critical role in the parasite's invasion of human blood cells. Image: see p.17.

against malaria. The study also involved collaborators in Oxford's Department of Statistics, Scripps Research and industry.

Improving the science behind rapid tests

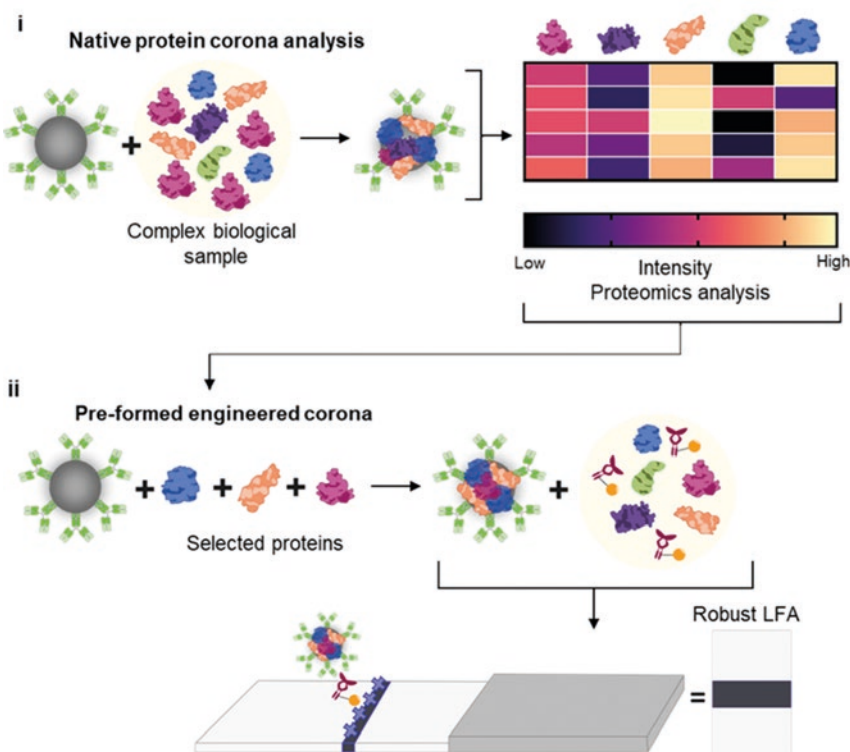
Bionano Interface Optimization for Rational Lateral Flow Assay Development

ACS Nano, 2026

Work spanning the Robinson and Stevens groups explored how controlling interactions at the bionano interface could enable more rational design of lateral flow assays.

Right: The BOLD method studies how proteins in human serum interact with nanoparticles, then uses that knowledge to engineer the nanoparticle surface and make lateral-flow tests more consistent between samples.

B Overview of BOLD Methodology



Source: Sadler et al., *ACS Nano* (2026), CC BY 4.0.

New human-based research models of pain

Chronic pain affects millions worldwide and remains one of the leading causes of disability. Effective treatments are limited because current models fail to fully capture pain biology.

An interdisciplinary team led by Kavli Oxford's Professor Zameel Cader is part of a major new initiative which aims to redefine human-based research models for greater understanding of disease and the acceleration of new medicines.

A joint £15.9 million investment by the UKRI Medical Research Council (MRC), Wellcome and UKRI Innovate

UK will enable the development of advanced, specific and highly reproducible human in vitro models with the aim of making them widely available to researchers in academia and industry.

By combining biological systems with molecular profiling and AI-based analysis, the research aims to reveal how pain arises and persists in human tissue. The models will serve as a powerful new platform for testing candidate therapeutics and reducing reliance on animal models in pain research.

Thinking beyond the science: embedding ethical considerations into the everyday life of scientists

Ethical questions about science often focus on its boundaries: what research society should fund, and how discoveries might ultimately affect patients, communities, and society. But for scientists engaged in fundamental, curiosity-driven research, those consequences may be decades away, and difficult to predict.



Oscillation Rotation X-Ray Diffraction Camera, 1926. The Royal Institution, London

Setting a Question

The X-ray diffraction camera was used for early x-ray crystallography, in which the molecular structure of crystals are measured via the diffraction of x-rays through the crystal. Using this method, scientists have revealed the structure and function of substances like penicillin, insulin, as well as other vitamins, proteins, and nucleic acids.

Understanding the structure of molecules is a key aspect of modern drug discovery and design. Based on knowledge of the three-dimensional structure of the biological target of interest, candidate drugs that are predicted to bind with high affinity and selectivity to the target can be designed. While these predictions are in part based on known structures, they also depend on the intuition of a medicinal chemist – from a range of reasonable options, one must be chosen for further testing (and this can come down to ‘non-scientific’ values).

What kinds of values inform your chosen approach to answering a scientific question?



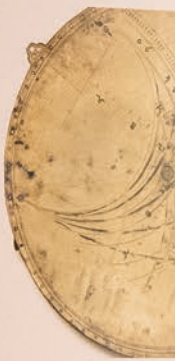
Edward Munch, Melancholy, 1894. Oil on canvas.

The Object of Study

‘Melancholia’, or what we would ‘major depressive disorder’ today, has been described as a distinct disease since the 4th or 5th century BCE. Until the 18th century, it was believed to be the result of an excess of ‘black bile’. Today, major depressive disorder is thought to be a complex phenomena involving genetic, psychological and environmental factors.

How we conceive of our object of study can be influenced by our value presuppositions, such as our professional or moral relations to it. This can lead us to look for the kinds of evidence that fits our conception of the phenomena, or orient our research questions towards a particular endpoint (eg. that depression involves a particular area of the brain or a particular kind of neurotransmitter) to the exclusion of others.

How does your background conception of your object of study shape what you might discover?



The Physicians' Cabinet, c. 1600

Background

Medicine in the medieval period was fundamentally shaped by a different set of values. The concept of the ‘four humors’ was central to understanding health and disease. This approach to medicine was influenced by both scientific and non-scientific assumptions.

Research questions are necessarily ‘framed’ by background assumptions (‘Thomas Kuhn’s concept of ‘paradigms’) that define what is to be studied, which cannot be questioned by the research paradigm. This is influenced by our background assumptions, and is influenced by both scientific and non-scientific assumptions.

How do values inform assumptions?



As new technologies and discoveries create new possibilities, they also raise new questions. Dr Mackenzie Graham explains how Kavli Oxford’s work on ethics is creating space to consider those questions alongside the science – bringing researchers and different perspectives together at an early stage.



What questions are worth asking?

The Kavli Oxford project '**Embedding ethical considerations into the everyday life of discovery scientists**' starts somewhere different: inside scientific practice itself. Over the past 18 months, the interdisciplinary ethics team has explored how values enter ordinary decisions about what questions are worth asking, what counts as sufficient evidence, how uncertainty is handled, how credit is allocated, and how findings are communicated.

A central challenge has been making these abstract questions tangible to working scientists. Through nine **Ethics @ Work** sessions, Kavli Oxford researchers have explored topics including science communication, AI, authorship and research integrity, environmental sustainability, lab culture and commercialisation. These small-group discussions provide space for candid reflection, with participants describing them as thought-provoking and reporting that they have encountered new ways of thinking about familiar aspects of scientific practice.

In April 2026, the team launched '**Ethics in the Lab: An Exploration of Values in Science**', developed as part of the project for Kavli Oxford's fifth-anniversary symposium, using 12 posters displayed around the Institute's atrium to explore how values can arise at different stages of the research process. Pairing scientific artefacts and episodes from the history of science with questions directed back at today's researchers, the exhibit asked: What shapes your choice of methods? When should a hypothesis be considered confirmed? What values influence what you report? How should credit and responsibility be allocated?

Viewed by hundreds of symposium attendees and displayed throughout the remainder of April, the exhibition offered a different way of encountering ethics: not as rules or answers supplied from outside science, but as an invitation for scientists to examine assumptions

What values influence what you report?

embedded in research itself. The team is now exploring ways to expand

the exhibition and adapt it into smaller, portable formats that could circulate throughout the Institute.

The conversation has also grown beyond Kavli Oxford. The team presented to the University's Research Services, **Research Culture Community of Practice** on its interdisciplinary approach and the potential for ethics to provide a meeting point for different

disciplinary perspectives within basic-science institutes. In July, project co-lead Mackenzie Graham joined the international SEEDS webinar *Science for Whom: Ethics, Values, and the Work of Community Engagement*, speaking to several hundred participants about how ethical questions emerge in everyday scientific practice (<https://youtu.be/RMyC2H3ZY-w>). One lesson from the project is that asking scientists abstractly about the 'values' in their work may not immediately resonate; concrete cases and familiar research decisions can instead provide the tools and language through which researchers recognise these questions themselves.

What counts as sufficient evidence?

The project is also reaching science funders. In June, Graham participated in a **Trust in Science** session at an international meeting of science foundations, discussing what it means to embed ethics expertise within a basic-science institute and what would be needed to scale such approaches. A *Nature* commentary co-authored with Kavli Oxford Founding Director Professor Dame Carol Robinson has further contributed to wider discussion about values and trustworthiness in science (<https://www.nature.com/articles/d41586-026-02346-2>) and within the Institute, a Discovery Ethics fireside conversation between Robinson and Ethox Centre Director Professor Michael Parker explored communication, publishing pressures, public trust, commercialisation and the role of values in scientific research.

With six months remaining, Ethics @ Work will continue, alongside exploration of new formats for the exhibition and further development of the project's research. The team is also considering how the approach might grow beyond the current award, including a potential next phase examining what makes the autonomy enjoyed by basic science worthy of public trust, and the responsibilities scientists, institutions, funders, policymakers and publics share in sustaining it.

What began as an effort to bring ethics closer to discovery science is therefore pointing toward a broader question: what would it mean to build ethical reflection into the infrastructure of science itself?

Find out more at www.kavlinano.ox.ac.uk

Building international connections

Kavli Oxford's collaborative model increasingly reaches beyond the Institute itself. New international understandings are creating opportunities for researchers to share expertise and build connections that can support new science in the years ahead. Initiated by Professor Simon Newstead, a member of Kavli Oxford's Management Committee, two new Memorandums of Understanding were signed in 2026, with the Institute for Molecular Bioscience at the University of Queensland (Brisbane) and the Shenzhen Medical Academy of Research and Translation (SMART) (Shenzhen). A particular focus of both memorandums is on supporting early-career researchers through exchange, training and development opportunities.



L-R: Dr Yue Liu (SMART) and Professor Nieng Yan (SMART), Professor Dame Carol Robinson, Professor Simon Newstead

Engaging wider audiences

Through school visits, public events, lectures and widening-participation initiatives, Kavli Oxford researchers shared their science with people of different ages and backgrounds throughout the year, creating opportunities to experience research first-hand and engage with the questions behind it.

INSPIRING CURIOSITY

Researchers from the Seiradake Group organised and funded a science activity at a local Oxford primary school, encouraging pupils to ask questions, solve problems and explore scientific ideas. At Science in the Park, researchers from the Stevens, Vyazovskiy and Wade-Martins groups contributed to a day of hands-on science activities for families in Oxford's University Parks.

The Kapanidis Group welcomed 90 school students to explore imaging, bacteria and antibodies, and learn about the global challenge of antimicrobial resistance (AMR). Additionally, an award-winning interdisciplinary University of Oxford iGEM team, supported by Kavli Oxford and hosted by the Kapanidis Group during their development of a proof-of-concept CRISPR platform addressing AMR, created educational resources for audiences ranging from young children to university students and organised BioXChange, an international conference that brought together more than 70 secondary school students from 12 countries to discuss AMR, synthetic biology and science policy.

OPENING UP RESEARCH

Professor Philipp Kukura delivered the Royal Society's Clifford Paterson Prize Lecture, 'Weighing molecules with light', sharing the science behind new ways of measuring individual molecules.

The Draper Group produced a public engagement video about a participant's experience through a malaria 'challenge' study.



Researchers from the Kyle, Ray, Stevens, and Wade-Martins groups took research into the centre of Oxford through public open days at the Westgate Centre, engaging visitors with Alzheimer's research and the science of sleep and circadian health.

INTERNSHIPS AND GRADUATE ACCESS

Associate Professor Mootaz Salman hosted an intern through the Health Data Science Black Internship Programme and now serves on the selection panel. The Becker Group hosted a student through UNIQ+, Oxford's graduate access programme, providing an opportunity to experience postgraduate research first-hand.



Health Data Science Black Internship Programme Intern Mariana Faty-Embalo (centre), with Luana Campos Soares, (left) and Mootaz Salman (right)

The wider Kavli Foundation network

Being part of the international Kavli Foundation network connects Kavli Oxford researchers with scientists tackling related questions around the world. From joint research to scientific exchange, these relationships are creating opportunities to share expertise, explore different approaches and develop new collaborations.

A collaboration takes shape

Kavli Oxford's first Kavli Institute Collaboration Kickstarter (KICK) project is approaching completion. Since receiving the \$80,000 Kavli Institute Collaboration Kickstarter (KICK) grant, researchers from the Kukura Group at Kavli Oxford and the Bjorkman Group at the Kavli Nanoscience Institute at Caltech have made significant progress towards developing a new method for characterising next-generation vaccines.

The team has demonstrated the approach, using mass photometry, enables quantitative measurement of antigen occupancy, providing information that is difficult to access using conventional characterisation techniques. Importantly, they have shown that particles displaying different populations and combinations of antigens produce distinct signatures. These characteristic 'single-particle fingerprints' provide a potential route to distinguishing and quantifying antigen populations at the single-particle level, establishing an important proof of principle for the original KICK project concept. Building on these results, the collaboration is now applying the method to complete vaccine candidates generated by the Bjorkman Group at Caltech. This next

stage will test the approach on realistic vaccine systems and establish its potential as a practical tool for guiding the design and characterisation of next-generation vaccines.

Connecting across the Kavli Foundation network

Three Kavli Oxford researchers joined scientists from nine Kavli Institutes for the inaugural Kavli Neuroscience Symposium, held at Columbia University in New York in May 2026.

Senior Research Scientist Tarick El-Baba and DPhil students Sophie Lawrence and Titas Radzevicius represented Kavli Oxford at the three-day meeting, which brought together graduate students, postdoctoral researchers and senior scientists working across neuroscience.

The Kavli Oxford team presented work on the development of mass spectrometry-based approaches for studying protein complexes implicated in brain disorders. The meeting created valuable opportunities to exchange ideas with researchers working across different areas of neuroscience and to strengthen relationships between the global Kavli Foundation institutes.



Kavli Oxford in the media

Kavli Oxford researchers and their work reached audiences beyond academia this year, through editorial features, film, broadcast and podcasts, alongside new opportunities for researchers to develop their skills in science communication.

Kavli Oxford in Focus

'The nanoscience institute built on curiosity'

Kavli Oxford partnered with Nature Custom Media to produce an article exploring the Institute's approach to curiosity-driven, interdisciplinary science.



'Where curiosity sparks collaboration'

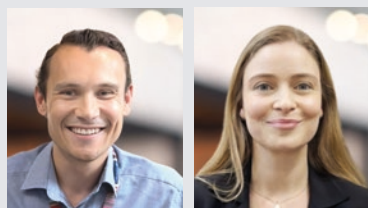
Commissioned by Kavli Oxford and produced with WebsEdge for Biophysical Society TV, the short film, *Where Curiosity Sparks Collaboration*, was presented at the 70th Annual Meeting of the Biophysical Society in 2026.



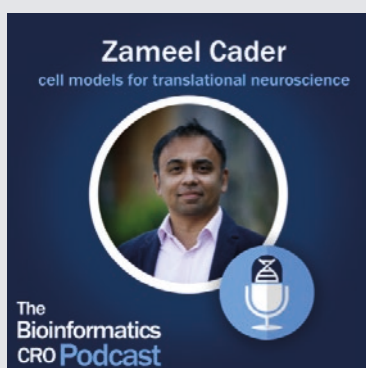
Kavli Oxford voices



Professor Dame Carol Robinson featured in *The Observer* as part of a feature on scientists using new technologies to transform medicine, and appeared on BBC Radio 4's Desert Island Discs.

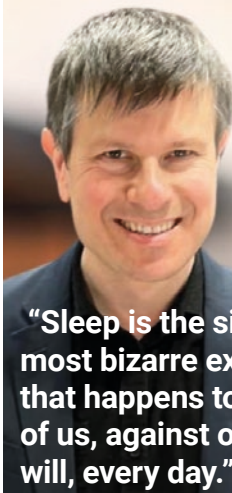


Professor Simon Draper and **Associate Professor Angela Minassian** were featured in *The Telegraph's* article, 'Inside the trial for a vaccine to end malaria'.



Professor Zameel Cader joined The Bioinformatics CRO Podcast to discuss his career, his spin-out Oxford StemTech, and research spanning pain, human genetics, stem-cell models, blood-brain barrier biology and drug discovery.





Professor Vladyslav Vyazovskiy's essay 'What sleep is', published in *Aeon*, has already attracted over **150,000** views.

"Sleep is the single most bizarre experience that happens to all of us, against our will, every day."



Developing new voices in science: From the laboratory to *New Scientist*

Sponsored by Kavli Oxford, Dr Sophie Farrow was selected as an Association of British Science Writers Media Fellows for 2026, and will be placed at *New Scientist*.

'The Fellowship will help me develop the skills and insight to communicate basic laboratory science clearly and responsibly beyond academia.'
— Dr Sophie Farrow



Our Kavli Oxford-funded doctoral cohort

Building a strong scientific environment means creating opportunities for people as well as ideas. Kavli Oxford studentships support emerging researchers to pursue ambitious questions and develop within an interdisciplinary environment. In October 2026, four Kavli-supported DPhil students will be pursuing research at the Institute.

Our first Kavli Oxford Studentships

Launched in January 2026, the Kavli Oxford Studentship scheme supports doctoral research that brings together different disciplines and expertise. The first two studentships have been awarded to Guillaume Macneil and Alexander Ridley, who will begin their DPhils in October.

GUILLAUME MACNEIL

Single-molecule and computational dissection of the histone code: chromatin mechanics and its impact on genetic and epigenetic inheritance



Guillaume will work with Dr Dominika Gruszka, alongside Professor Lars Jansen in Biochemistry and Professor Sonia Antoranz-Contera in Physics. Bringing together single-molecule approaches, computational analysis, chromatin biology

and nanomechanics, the project is a good example of the kind of research the new studentships are intended to enable. His studentship is jointly supported through an EPSRC Doctoral Landscape Grant held by Condensed Matter Physics.

‘I have spent this past year at Kavli Oxford immersed in a research culture that is fast-paced and exciting while remaining welcoming and friendly, and I cannot wait to continue my interdisciplinary journey here.’

ALEXANDER RIDLEY

Uncovering Molecular Mechanisms of Antibody Recognition to HIV-1 with Single Molecule Mass Imaging



Alex will join Associate Professor Weston Struwe’s group to investigate the molecular mechanisms underlying antibody recognition of HIV-1 using single-molecule mass imaging. His studentship is jointly supported by Oxford’s

Department of Biochemistry. Having previously spent a summer in the Struwe laboratory, Alex will return to Kavli Oxford to begin his DPhil in October.

‘Spending last summer in the Struwe Lab gave me a first-hand experience of the collaborative and intellectually vibrant culture at Kavli Oxford, and it quickly became clear that it was where I wanted to pursue my DPhil.’



MOLLY ROWLETT will become our first student supported through joint funding from Kavli Oxford and the Interdisciplinary Life and Environmental Science Landscape Award (ILES�A). Supervised by Professor Stephen Tucker, her DPhil will investigate structural and functional differences between native and recombinant lysosomal ion channels.



VLADYSLAV KIM, a Kavli Foundation Scholar supervised by Professor Vladyslav Vyazovskiy, enters the final year of his DPhil investigating the relationship between time perception and sleep homeostasis.

Spotlight on our doctoral researchers

Recognition

Elly Robles, supervised by Dr Brent Ryan, was named among *Forbes México's* 30 Under 30 in Science, recognising both her Parkinson's disease research and her commitment to patient advocacy and public engagement. During 2025–26 she also chaired the Parkinson's UK Oxford Branch, supporting awareness and engagement with the Parkinson's community.



Sophie Lawrence, supervised by Professor Dame Carol Robinson, received the 2026 Society of Chemical Industry Young Lipid Scientist Award, recognising emerging talent in lipid research across the physical and life sciences and engineering.



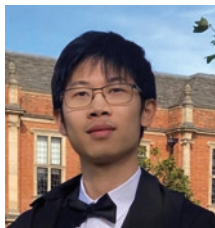
Sarah Almutawa, supervised by Professor Esther Becker, received support from the Oxford-Qatar Thatcher Graduate Scholarship at Somerville College and the Ministry of Education of the Kingdom of Saudi Arabia. She presented her research at Somerville's *Ideas in Action* showcase and is an Engagement Ambassador for the Department of Clinical Neurosciences.



Ritika Mukherji, supervised by Professor Vladyslav Vyazovskiy, was awarded the Alain Locke Studentship at Hertford College.



Chor Lai Lam, in Professor George Tofaris' group, received two stipendiary awards in support of his doctoral research, from the Great Britain-China Educational Trust and the Henry Lester Trust.



Joanna Komorowska, also a DPhil researcher in Professor George Tofaris' group, was awarded the Gustav Born Scholarship in Biomedical Sciences at St Peter's College.



Communicating research

KAVLI OXFORD RESEARCHERS TAKE ALL THREE BEACONSFIELD PRIZES

This year, all three winners of the Peter Beaconsfield Prize came from Department of Physiology, Anatomy and Genetics laboratories hosted within Kavli Oxford. Mingcheng Xuan, from Professor Dame Molly Stevens' group, was awarded first place, with runner-up prizes going to Rea Tresa, also from the Stevens Group, and Sarah Franks, from Dr Brent Ryan's group. The competition challenges postgraduate researchers to translate their DPhil work into an accessible 1,000-word essay, communicating both its wider significance and its potential to bridge basic and clinical science.



L-R: Mingcheng Xuan, Rea Tresa, Sarah Franks

Taking research further

Harriet Greene, supervised by Professor Zameel Cader, was selected for the Federation of European Neuroscience Societies Early Career Training Programme. Following FENS2026 in Barcelona, she undertook an internship with Professor Arantxa Tabernero at the University of Salamanca, studying glioblastoma and developing new research connections.



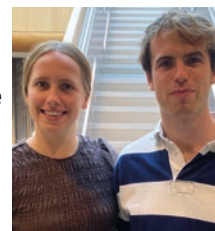
Kevin Giraldo, supervised by Professor Dame Molly Stevens, received the Hester Cordelia Parsons Development and Collaboration Award. His research with Professor Tess Lambe at Oxford's Pandemic Sciences Institute combines materials science and immunology to explore new approaches to mucosal vaccines. The award will support a visit to Karolinska Institutet, where he will explore circular RNA vaccine strategies and develop new collaborations.



Raman van Wee, supervised by Professor Philipp Kukura and Professor Richard Wade-Martins, was one of three Oxford students selected to attend the Global Young Scientists Summit in Singapore, supported by the Analytical Chemistry Trust Fund and a Messel Travel Bursary.



Jack Bennett and **Sophie Lawrence**, with the support of Kavli Oxford's **Associate Professor Weston Struwe** and Professor of Microvascular Pharmacology, **Kim Dora**, convened the inaugural interdisciplinary *Uncovering Hidden Biology* Conference at Worcester College.

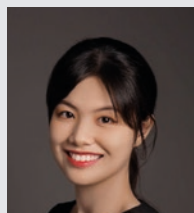


Dan Loewenthal and **Raman van Wee** were selected to participate in ConceptionX and the Oxford Venture Builder, two entrepreneurship programmes designed to support academics to translate their research into real-world applications.



Spotlight on our postdoctoral researchers

New fellowships



Dr Jingjin Fan, from the Rauschenbach and Robinson groups, was awarded a

Wellcome Early-Career Award. Her current project is *Capturing Hidden Regulatory Mechanisms of Human Membrane Proteins via Soft-Landing Mass Spectrometry-Guided Cryo-EM*.



Dr Helen Rowland, from the Buckley Group, was awarded an Alzheimer's Research UK Race

Against Dementia Fellowship. Her research explores how viral infections affect different brain cell types, and how the major genetic risk factor APOE4 may influence the brain's response.



Dr Daniel Reumann, from the Stevens Group, was awarded a Wellcome

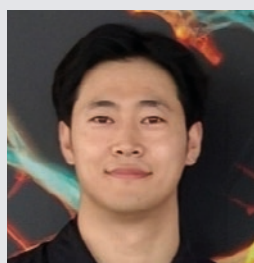
Early-Career Award. His current project is titled *Neural Sheets*.

Recognition and connections



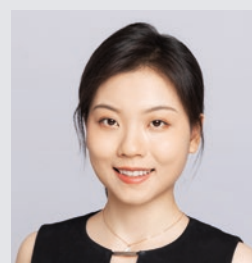
Dr Francesca Donnellan, from the Draper Group, was appointed a Junior Research Fellow at Kellogg College, Oxford.

Dr Ana Aragón-González, from the Tofaris Group, chaired the 13th Society of Spanish Researchers in the United Kingdom International Symposium, *Collaborate to Innovate*, in June 2026.



Dr Wenjie Liu, from the Kukura Group, was nominated to attend the 75th Lindau Nobel Laureate Meeting in Germany in June 2026, joining young scientists from around the world for interdisciplinary scientific exchange with Nobel Laureates.

Dr Xiau (Cher) Zhou, from the Vyazovskiy Group, received the New Investigator Award for best presentation and poster at the 2025 World Sleep Congress in Singapore.



Spotlight on our technical and professional colleagues

The achievements of Kavli Oxford's technical and professional colleagues this year span technical leadership, connections with industry and sporting success on an international stage.

Developing technical leadership

CHARLIE BENNETT-FROUDE

Laboratory and Facilities Technician Charlie Bennett-Froude, from the Wade-Martins Group, completed the 2026 Herschel Programme for Women in Technical Leadership, a national six-month programme supporting women in technical roles to develop their leadership skills and potential.



‘The Herschel Programme taught me that I am most definitely not “just a technician”, but can be a confident leader with the right tools to hand. The guidance it provided has been invaluable, and I hope it will benefit me throughout my career as a technician.’

Charlie Bennett-Froude

Connecting research and industry

DR MEGAN CULLY

Research Commercialisation Manager in the Stevens Group, Dr Megan Cully organised *Engaging with the Pharmaceutical Industry*, a panel event hosted at Kavli Oxford in May as part of the inaugural OxTech Week. Chaired by Professors Dame Molly Stevens, Richard Wade-Martins and Dame Carol Robinson, three panel sessions explored how early-, mid- and late-stage ideas in life sciences and biotechnology can progress through partnerships between researchers, industry and the wider innovation ecosystem.



Going for gold

MARK SELWOOD

Away from the laboratory, Robinson Group Laboratory Technician Mark Selwood represented Great Britain and Northern Ireland at the World Transplant Games in Dresden, Germany, in August 2025, returning with three gold medals and one silver.

Recognition and awards

Throughout the year, Kavli Oxford faculty have received recognition for their research, leadership and wider contribution to science, through awards, honours, appointments and invitations to take on new roles.

Achillefs Kapanidis

- Member, ERC Consolidator Grant panel, 2025–26 cycle

Angela Minassian

- Co-lead, EDCTP3-funded 2nd Generation Malaria Vaccine Consortium (MVC-2G)

Becky Carlyle

- Appointed Associate Professor

Brent Ryan

- Member, Cure Parkinson's Research Committee
- Award winner and podium speaker, SLAS 2026, Boston, for 'High-content deep-mitochondrial phenotyping at scale'

Carol Robinson

- Co-chair, UK–South Korea Bilateral International Meeting, Royal Society, London, 2026
- Chair, Royal Society Newton International Fellowship Programme, 2026
- Honorary Professorship, Tsinghua University, Beijing, 2025

David Ray

- Joined the MRC College of Experts, 2026

Elena Seiradake

- Election to EMBO membership, 2026

Esther Becker

- 2025 Rare Disease Scholar Award

Matthew Higgins

- Wellcome Discovery Award
- 40th Gresham Professor of Physic at Gresham College
- Elected to EMBO membership, 2025

Molly Stevens

- Academy of Pharmaceutical Sciences Medal, 2025
- Royal Academy of Medicine in Ireland (RAMI) Section of Bioengineering International Recognition Award, 2026

- ILESIA Doctoral Training Centre, University of Oxford, Outstanding Supervisor Award, 2026
- International member of the US National Academy of Medicine, 2025

Mootaz Salman

- Awarded the title of Associate Professor
- Group Leader within the BHR-UK DRI Centre for Vascular Dementia Research
- Biochemical Society Inspiration and Resilience Award, 2026
- Bayliss-Starling Prize Lecture, 2025
- Geoffrey Burnstock Prize, 2025

Philipp Kukura

- Fellow of the Royal Society, 2025
- Royal Society Clifford Paterson Medal and Lecture, 2026
- Wellcome Discovery Award

Richard Wade-Martins

- Announced as Head of the Department of Physiology, Anatomy and Genetics for 2026–27.

Ruxandra Dafinca

- Dementia Research Leader Fellowship
- Biomedical Research Advisory Panel for the MND Association, September 2026, for three years
- Board of Examiners for the MSc in Neuroscience, University of Oxford, for three years from September 2025

Simon Draper

- Executive Committee of the new global Malaria Vaccine Alliance (MalVax)
- Associate Head of the Department of Paediatrics (Research Delivery)

Simon Newstead

- Wellcome Discovery Award, 2025

Vladyslav Vyazovskiy

- Keynote lecture, Sleep Science Day, University of Pennsylvania, May 2026

With thanks

We thank the colleagues leaving Kavli Oxford this year for the contributions they have made to our science and culture, and wish them well for the future.

Professor Colin Espie retires this year. We thank him, especially, for his support and contribution to Kavli Oxford since the Institute opened its doors in April 2021, and wish him well in his retirement.



Dr Björn Vahsen has been appointed SSIG Lecturer in Neuroimmunology at the University of Aberdeen. Based at the Institute of Medical Sciences, he will establish a research group investigating the role of microglia in neurodegenerative disease.



Dr Corinne Lutomski is moving to the University of California, San Francisco, where she will take up an Assistant Professorship in the Department of Pharmaceutical Chemistry. Her research will focus on developing and applying native top-down proteomics to understand how changes in protein composition affect protein-protein and protein-ligand interactions in health and disease.



Dr Tarick El-Baba is also moving to the University of California, San Francisco, taking up an Assistant Professorship in the Department of Anesthesia and Perioperative Care and the Institute for Neurodegenerative Diseases. His research will use anaesthetics to perturb molecular interactions and investigate their relationship with behaviour, with the aim of better understanding mechanisms involved in anaesthesia, neurodegenerative disease, psychiatric disorders and cognitive processes.



Dr Alex Cook has been awarded a Wellcome Career Development Award to establish his own laboratory at the University of York, where his research will explore new approaches to treating inflammatory diseases and vaccination against parasites.



Life beyond the lab

Connections across Kavli Oxford are built outside the laboratory as well as within it. The annual Dorothy Crowfoot Hodgkin Building Games brought colleagues together for friendly competition, creativity and some rather less scientific challenges.

DCHB GAMES 2026

Organised by Tarick El-Baba and Raman van Wee, the DCHB Games brought colleagues together over five consecutive weeks for a series of challenges around the Dorothy Crowfoot Hodgkin Building. The competition began with a Halloween pumpkin-carving challenge, inviting teams to put a scientific spin on their designs. For the second year running, researchers from Professor Andy Baldwin's group took the title with the 'Beckman Ghoulter' – a rotating tribute to the ghouls, gargoyles and ghosts of Oxford.

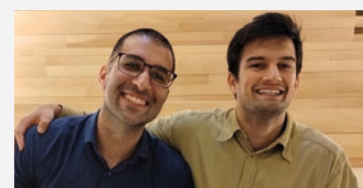
The games continued with tug of war, won by the Kukura Group, a pub quiz and a building-wide scavenger hunt, both won by the Baldwin Group, and a debate, won by the Robinson Group, giving colleagues from across the DCHB plenty of opportunities to compete – and connect – away from their day-to-day work.



Carol Robinson inspects the winning pumpkin, 'Beckman Ghoulter' with Ben Naylor.



Tug-of-war winners: the Kukura Group



DCHB Games organisers Tarick El-Baba and Raman van Wee

From our faculty

“Being co-located with established Kavli Oxford groups has been highly valuable, enabling exceptionally close and productive interactions. Regular meetings, shared discussions, and informal catchups have made it easy to exchange ideas quickly, troubleshoot challenges, and identify opportunities for collaboration at an early stage. This proximity has strengthened day-to-day scientific exchange, accelerated progress on ongoing work, and fostered a highly connected and supportive research environment.”

Professor Dame Molly Stevens

“Being in Kavli Oxford has kept me exposed to new ideas and potential collaborations, which is scientifically invigorating and motivating. For my group, the interest from other groups in collaborative work ensures that they have opportunities to grow and develop outside of their main research project. They learn to work collaboratively and discuss science across disciplines, bettering understanding of their and others’ assumptions and perspectives.”

Associate Professor Lindsay Baker

“Co-location within Kavli Oxford has continued to facilitate close interactions with other research groups... these interactions have contributed to the development of new ideas and enabled experiments which would not have been possible otherwise.”

Professor Vladislav Vyazovskiy

“We continue to be inspired by the breadth and quality of research in Kavli Oxford, this is particularly important for junior researchers to be

exposed to multiple methods and approaches. We learn from these approaches and it has broadened our own approach to problem solving and method development. We are also much more aware of opportunities to apply our approaches outside of our research question.”

Dr Brent Ryan

“We have gained very valuable collaborations by being in the Kavli Institute for Nanoscience Discovery. We are growing our network of collaborators, which now spans computational biology, ultrastructural imaging (cryo-ET) and native mass spectrometry. Integrating these techniques with our own expertise on differentiating human induced pluripotent stem cells from patients to cortical and motor neurons provides us with a stronger toolset to answer questions in subcellular neurobiology.”

Dr Ruxandra Dafinca

“The Kavli Oxford environment is a major asset, as it strongly supports interdisciplinarity and new technologies. The environment is enjoyable. The colleagues are inspirational. The facilities are amazing. The events are inclusive, and the working modus of kindness and inclusion really encourages flourishing of research.”

Professor David Ray

“Having the opportunity to collaborate provides the confidence to test new ideas and/or perform unique measurements.”

Associate Professor Weston Struwe

Acknowledgements

Thanks to all Kavli Oxford researchers, students, and technical and professional colleagues who provided information and images for this report.

Photography: John Cairns: inside front cover, pp. 2, 3 and 6 (Sarah Almutawa; ethics exhibit posters); Kavli Oxford / WebsEdge Ltd: p. 10 (still from *Where Curiosity Sparks Collaboration*); Kavli Institute for Brain Science, Columbia University: p. 9; Victor Chan: p. 12 (Kevin Giraldo); Flora Lihua Chen: p. 12 (Sarah Almutawa); Hugo Coria, SRUK/CERU: p. 13 (Collaborate to Innovate delegates); FisherStudios: p.13 (Dan Loewenthal and Raman van Wee); Cyrus Mower: p. 3 (Daniel Skovronsky); Mark Selwood: p. 14.

Scientific images: Page 4: Pathological alpha-synuclein (magenta) interacts with the ER-associated Sec61A translocase (green) in human dopaminergic neurons

(brown) interfering with co-translational translocation. Image credit: Chor Lai Lam, Tofaris Lab. Page 5: Inhibition of the malaria RH5-Interacting Protein by antibodies. Image credit: Barnabas G. Williams, Draper Group, and Jordan R. Barrett, Draper Group and the Scripps Research Institute. Page 5: BOLD methodology schematic, cropped from Figure 1 in Sadler et al., *ACS Nano* 20 (2026), 13897–13912. DOI: 10.1021/acsnano.6c04136 © 2026 the authors, CC BY 4.0.

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Design: Catherine Jennifer www.catherinejennifer.com

The Kavli Institute for Nanoscience Discovery is a groundbreaking interdisciplinary science institute focused on world-class nanoscience research. Established in April 2021 as the 20th institute funded by the esteemed Kavli Foundation, we are proud to be the University of Oxford's first institute spanning the life, medical, and physical sciences.

Cover image: Created by the Salman Group at Kavli Oxford, this image depicts the neurovascular interface as a dynamic connection between the brain and its vasculature. Inspired by the group's research into restoring blood-brain barrier integrity after hypoxia, published in *The Journal of Physiology* (DOI: 10.1113/JP291064), the image was also selected for the journal's front cover (DOI: 10.1113/tjp.70738). Image courtesy of the Salman Group and reproduced with permission.

Kavli Institute for Nanoscience Discovery

Dorothy Crowfoot Hodgkin Building

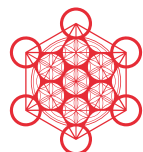
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