

CONTENTS

INTRODUCTION

EDUCATION

RESEARCH

OPERATIONS

ION-DRI PROGRAMME



# UCL Queen Square Institute of Neurology

Annual Review 2022–23



QUEEN SQUARE  
INSTITUTE OF NEUROLOGY

## CONTENTS

### INTRODUCTION

### EDUCATION

### RESEARCH

### OPERATIONS

### ION-DRI PROGRAMME

<b>Introduction</b>	<b>3</b>
From the Director	4
From the Deputy Directors	7
This year at a glance	10
Our people	11
<b>Education</b>	<b>13</b>
Studying at the Institute	14
Student testimonial	16
<b>Research</b>	<b>18</b>
Research highlights	19
Our research impact	20
Translation in Action	22
Lab Life	24
Patient involvement	28

<b>Operations</b>	<b>33</b>
From the Institute Manager	34
Safety and sustainability	37
Equality, diversity and inclusion	39
2022 Annual Address and Inaugural Lectures	41
<b>ION-DRI Programme at Grays Inn Road</b>	<b>42</b>
Highlights	43
Programme highlights	45
Topping out	46
Public Art	47

CONTENTS

INTRODUCTION

EDUCATION

RESEARCH

OPERATIONS

ION-DRI PROGRAMME

# Number 1 for research power in psychology, psychiatry and neuroscience\*

\*UK's Research Excellence  
Framework 2021

From the Director

From the Deputy Directors

The year at a glance

Our people



**Professor Michael Hanna**  
Director of the UCL Queen  
Square Institute of Neurology

## **Dear colleagues, friends and supporters of the UCL Queen Square Institute of Neurology**

It is my pleasure to present the Institute's annual report, highlighting the amazing research and impact that our incredible teams have delivered over this past year. The Institute works in close partnership with the National Hospital for Neurology and Neurosurgery (part of UCLH), and together they support a unique ecosystem that has consistently translated neuroscience discovery research into clear benefits for patients for over 70 years. The co-location of clinical and research staff and students is a powerful force for innovation, driven by clinical questions, and is an inspiring training environment for our students. This partnership is recognised as a highly successful model internationally, and indeed centres around the world have tried to emulate the 'Queen Square' model of co-location of patients and researchers.

As we look forward to the next 70 years, our fantastic new £281m translational neuroscience facility on Gray's Inn Road will open in the 24/25 academic year. The close partnership between the Institute and the Hospital will be maintained, since the new building will include state-of-the-art outpatient and MRI facilities alongside world-class preclinical laboratories. This will ensure patients, carers, students, clinicians, professional service staff and researchers will continue to interact by chance, and have unplanned conversations, in the best traditions of the 'Queen Square' model.

From the Director

From the Deputy Directors

The year at a glance

Our people

It is a privilege to lead a fantastic team of researchers, clinicians, and professional services staff who are committed to advancing the understanding and treatment of neurological diseases. We are at the forefront of tackling some of the most challenging and complex diseases facing society. This includes dementia, Parkinson's disease, motor neuron diseases, multiple sclerosis, epilepsy, neuromuscular diseases and stroke that are a major personal burden on patients and families and place huge demands on our NHS.

Over the past year, we have made significant progress. We published over 1900 peer-reviewed articles, secured over £50m in new grants and currently hold over £350m in active grant funding. Our teams have global influence, presenting their findings at major international conferences and collaborating locally, nationally, and internationally. Examples of our accomplishments can be found in this report. We recently established a new Genetic Therapies Accelerator Group, led by Professor Francesco Muntoni, and recruited the first ION translational research manager; all to accelerate our mission of improving the lives of people with neurological diseases. We also welcome Professor Fiona Ducotterd as the new Chief Scientific Officer of the ARUK Drug Discovery Institute. We continue to work closely with the UK Dementia Research Institute (UK DRI), and welcome the appointment of Professor Siddharthan Chandran as the new UK DRI director, based at the UK DRI HQ at UCL.

[From the Director](#)

From the Deputy Directors

The year at a glance

Our people

We believe that education and research go hand in hand. We offer a wide range of programmes that attract students from around the world, providing them with the skills and knowledge to succeed. One of our most important areas of focus is equality, diversity and inclusion (EDI), which is essential to promote a vibrant successful and innovative scientific community. A welcoming and inclusive environment is essential for all staff and students to thrive, and our active EDI programme has implemented a number of initiatives to make this a reality. We also prioritise sustainability in all our activities. We understand that our research and education efforts have a significant impact on the world around us, and we're committed to minimising our environmental footprint.

I want to thank Professor Alan Thompson, Dean of the Faculty of Brain Sciences and all the Faculty team for their great support. It's great to see strong cross faculty collaborations and joint working. I would like to thank all of our supporters. Whether through research partnerships, financial contributions, or volunteering, your support is invaluable and greatly appreciated. I particularly want to thank all patients and families who are our partners in clinical research.

I am confident that the Institute will continue to lead internationally and make discoveries which we will translate into health benefits to improve the lives of people with neurological diseases.

I hope you find this report informative and enjoyable.

From the Director

From the Deputy Directors

The year at a glance

Our people



**Professor Gipi Schiavo**

*Deputy Director for Strategy*

The topping out of our new UCL Queen Square Institute of Neurology building is a major milestone in our journey to advance human translational neuroscience research. This state-of-the-art facility will provide researchers with the latest technology and resources to drive innovation and discoveries transforming the lives of our patients. It will serve as a hub for collaboration and knowledge-sharing, bringing together experts from across disciplines to tackle some of the most pressing challenges in translational neuroscience. We look forward to the many breakthroughs that will be made within these walls in the years to come.



**Professor Helene Plun-Favreau**

*Deputy Director for Equality, Diversity and Inclusion (EDI)*

We believe that promoting EDI is not only a moral imperative but also a fundamental component of our research excellence. We are committed to creating an environment where all individuals feel valued, respected, and supported to reach their full potential. By embracing and championing EDI, we aim to foster a culture of innovation, collaboration, and inclusivity that will drive forward our mission to advance understanding and treatments for neurological diseases.

From the Director

From the Deputy Directors

The year at a glance

Our people



**Professor Sanjay Sisodiya**

*Deputy Director for Sustainability and Climate Change*

It is essential that we consider the impact of climate change on people living with neurological disease. We are proud to be at the forefront of efforts to address this issue. This year, we hosted the first ‘Hot Brain’ conference, bringing together international experts to discuss the impact of climate change on neurological health. We recognise our responsibility as an institute to promote and implement sustainable research practices, including reducing our ultralow temperature freezers from  $-80$  to  $-70^{\circ}\text{C}$ . We remain committed to taking bold action to drive meaningful progress in this area.



**Professor Alex Leff**

*Deputy Director for Education*

Our educational mission is to provide the best quality learning experience for undergraduates, postgraduates and doctoral students in neuroscience. We offer an array of educational programmes that play to the translational strengths of Queen Square. In keeping with UCL’s tradition of inclusivity, we aim to attract globally diverse, hard-working students. This year we are offering a new intercalated BSc in Clinical Neurology & Brain Sciences to UCL medical students and next year we are welcoming our first cohort of undergraduates on our three-year Human Neuroscience BSc.



From the Director

From the Deputy Directors

The year at a glance

Our people



**Professor Dimitri Kullman**

Deputy Director for Translation and Enterprise

Translation and Enterprise plays a vital role in bridging the gap between scientific discovery and real-world impact, turning cutting-edge research into tangible solutions that can improve the lives of patients and their families. Through the appointment of Dr Eleonora Lugarà, Senior Translational Research Manager, we are accelerating partnerships with industry, investors and other stakeholders, as we strive to translate our world-leading neuroscience expertise into new treatments, therapies, and technologies. We are proud of the progress we have made and look forward to continuing to drive innovation and impact in the years ahead.



**Professor Selina Wray**

Deputy Director for Communications and Partnerships

It has been a pleasure putting together this annual review and seeing the amazing achievements of the Institute over the past year. It is with great pride we now share this with you; our community of colleagues, partners, and supporters. Our achievements are a testament to the power of collaboration and innovation and although only a fraction of our work is captured in these pages, we hope it gives a sense of the incredible impact we are making in translational neuroscience.

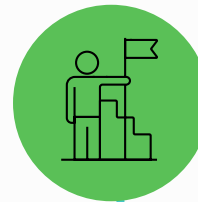
From the Director  
From the Deputy Directors  
The year at a glance  
Our people

**MARCH 2023**  
New funding secures the future of social mobility programme In2Research



**APRIL 2023**  
First gene-silencing drug in Alzheimer's disease shows promise

**FEBRUARY 2023**  
Early career researcher day hosted with Faculty of Brain Science



**MAY 2023**  
Topping Out Ceremony held at Grays Inn Road

**JANUARY 2023**  
£1 million award to our Motor Neuron Disease Centre to develop cutting-edge therapies



**JUNE 2023**  
Senior academic, research and teaching promotions announced for 2022-23



**DECEMBER 2022**  
Professor Sarah Tabrizi awarded MRC Millennium Medal



**JULY 2023**  
Success at UCL Sustainability Awards

**NOVEMBER 2022**  
Achievements celebrated at Annual Address



**SEPTEMBER 2023**  
David Cameron visits DDI & Gray's Inn Road

From the Director

From the Deputy Directors

The year at a glance

Our people

Principal Investigators	<b>141</b>	
Professors	<b>107</b>	
New starters between 1 Nov 22 – 31 Aug 23	<b>165</b>	
PhD students	<b>251</b>	
MSc/Diploma students	<b>327</b>	
Total staff	<b>763</b>	

From the Director

From the Deputy Directors

The year at a glance

Our people

**Senior and early career promotions  
(effective October 2023)**

**Professors**

Beate Diehl, *Clinical and Experimental Epilepsy*

Gabriele Lignani, *Clinical and Experimental Epilepsy*

Robert Pitceathly, *Neuromuscular Diseases*

Rimona Weil, *Neurodegenerative Disease*

**Professorial Research Fellows**

Declan Chard, *Neuroinflammation*

**Professors (Teaching)**

Tim Young, *ION Head Office*

**Principal Research Fellows**

Arman Eshaghi, *Neuroinflammation*

Keir Yong, *Neurodegenerative Disease*

James Sleight, *Neuromuscular Diseases*

Robert Wykes, *Clinical and Experimental Epilepsy*

**Associate Professors (Teaching)**

Saiful Islam, *IoN Central Administration*

**Senior Research Fellows**

Stefano Benvegna, *ARUK DDI*

Viorica Chelban, *Neuromuscular Diseases*

Emma Harding, *Neurodegenerative Disease*

Samuel Harris, *UK DRI at UCL*

Olga Kopach, *Clinical and Experimental Epilepsy*

Suran Nethisinghe, *Clinical and Movement Neurosciences*

Aitana Sogorb Esteve, *UK DRI at UCL*

Christina Toomey, *Neurodegenerative Disease*

Jenna Carpenter, *Clinical and Experimental Epilepsy*

Micol Falabella, *Neuromuscular Diseases*

**Research Fellows**

Naomi Hannaway, *Neurodegenerative Disease*

Rebecca Street, *Neurodegenerative Disease*

Claire Waddington, *Neurodegenerative Disease*

Olivia Wood, *Neurodegenerative Disease*

CONTENTS

INTRODUCTION

EDUCATION

RESEARCH

OPERATIONS

ION-DRI PROGRAMME

Our new undergraduate Human Neuroscience BSc programme will allow students to explore this exciting and fast moving field

Studying at the Institute

Student testimonial

Our mission is to provide the best quality learning experience for undergraduates, postgraduates and doctoral students wishing to pursue a career in neuroscience.

We offer some of the strongest and broadest basic and clinical neuroscience programmes internationally, with particular strength in translational neuroscience, with 327 students currently enrolled in MSc/Diploma courses and 251 PhD students. Further details on the specific programmes hosted at the Institute can be found [here](#).



Studying at the Institute

Student testimonial

Launching in 2024, our undergraduate Human Neuroscience BSc programme will allow students to explore this exciting and fast moving field with a focus on the human brain, studying how our brains enable us to perceive the world, move, influence our mental health, and how we communicate and interact with each other.

**Recent initiatives to improve the students' experience at ION**

- Harmonisation of marking across written assessments for masters students
- More structure to personal tutoring scheme for masters students now meeting as small groups
- Termly social events for masters students
- Peer-support training for all primary PhD supervisors curated by an external expert
- Yearly retreat for new PhD students (this year they went to Hastings)

## Studying at the Institute

Student testimonial

**Nivothiga Balendran**  
Advanced Neuroimaging  
MSc student

*1. What is your educational background?*

I was born here, but my parents are from Sri Lanka. My parents had given up a lot for my brother and me and believed that education was crucial to give me the advantage to live a secure life with financial stability, unlike the challenges they were confronted with. Despite several obstacles, I managed to complete a Neuroscience BSc with a first and am now studying Advanced Neuroimaging MSc at UCL.

*2. Why did you choose to apply to this programme?*

Looking back on my Neuroscience degree, it was clear that I was drawn to neurophysiology, where I could conduct and record electroencephalographs and visual evoked potentials. I appreciated the underlying mechanisms that show where these signals come from and how they are displayed for clinicians to interpret. Nevertheless, these old techniques have limited use today. MRI, CT, diffuse tensor imaging and a range of other modalities have widened research and clinical applications, which intrigued me to take on Advanced Neuroimaging.

*3. What have you enjoyed most about the programme so far?*

Even though I hadn't touched on any physics or IT in years, today I believe these are the lectures I look most forward to! I struggled at first; a lot of physics jargon terrified me and made me wonder if I had chosen the right master's program. However, I am proud that I used this opportunity to leave my comfort zone and ask for help. I was able to learn a lot more in an interactive way with the right supportive



## Studying at the Institute

### Student testimonial

material provided, reaching out to lecturers when I was completely clueless, and taking the initiative to reach out to my peers when they came from a physics background.

I also like how we are located near the National Hospital so that we can see what we learned in the lecture hall in real time and meet and ask questions to those who use the machines on a daily basis in workshops hosted by the hospital.

#### *4. What are your future career goals?*

It is quite difficult to tell now, but I am thinking of becoming a science teacher. I enjoy sharing what I've learned with others and creating material to break down difficult concepts for an audience that may have no expertise in the field. Through my ways of learning material and my passion learn more, I plan to take steps in teaching as well as assist in research too.

#### *5. What would be your top tip for incoming students?*

It is okay to not know anything; it is about being resourceful! Also, rejection is not bad. As part of the course, you are to reach out to PIs who are conducting research. If you are rejected, it is more about what you are looking for that does not fit their research. You might not even find a research project you want to do; in that case, it is better to find a research project where you can acquire skills that would be useful when applying for PhDs or research assistant positions.

CONTENTS


INTRODUCTION

EDUCATION

RESEARCH

OPERATIONS

ION-DRI PROGRAMME

A man in profile, wearing a dark jacket, is looking towards the right. The background is a large, vibrant, abstract circular pattern of light streaks in various colors (red, green, blue, yellow, purple) that create a sense of depth and movement, resembling a tunnel or a complex data visualization.

We are at the forefront of the mission to translate neuroscience discovery into diagnostics and treatments for patients with neurological diseases

Research study using a novel form of visual stimulation which identified a role for the cerebellum in the brain's estimation of which way is up. This discovery could help improve understanding of balance disorders and potential treatment options.



QUEEN SQUARE  
INSTITUTE OF NEUROLOGY

## CONTENTS

### INTRODUCTION

### EDUCATION

### RESEARCH

### OPERATIONS

### ION-DRI PROGRAMME

#### Research highlights

Our research impact

Translation in action

Lab life

Patient involvement

Part of the Faculty of Brain Sciences, we are a global leader in neuroscience. You can read more about some of our our research impact [here](#).

We published 1,959 papers in 2022. Highlights include:

[On-demand cell-autonomous gene therapy for brain circuit disorders](#)

[Tau-targeting antisense oligonucleotide MAPT<sub>Rx</sub> in mild Alzheimer's disease: a phase 1b, randomised, placebo-controlled trial](#)

[Neurofilament light levels predict clinical progression and death in multiple system atrophy](#)

[Perivascular cells induce microglial phagocytic states and synaptic engulfment via SPP1 in mouse models of Alzheimer's disease](#)

[Boosting peripheral BDNF rescues impaired in vivo axonal transport in CMT2D mice](#)

[The human brain reactivates context-specific past information at event boundaries of naturalistic experiences](#)

[Brain tumour segmentation with incomplete imaging data](#)

[Pathological structural conversion of  \$\alpha\$  synuclein at the mitochondria induces neuronal toxicity](#)

Annual turnover  
2022–2023

**£102m**

679 currently active  
research projects

**£335m total**

Research highlights

Our research impact

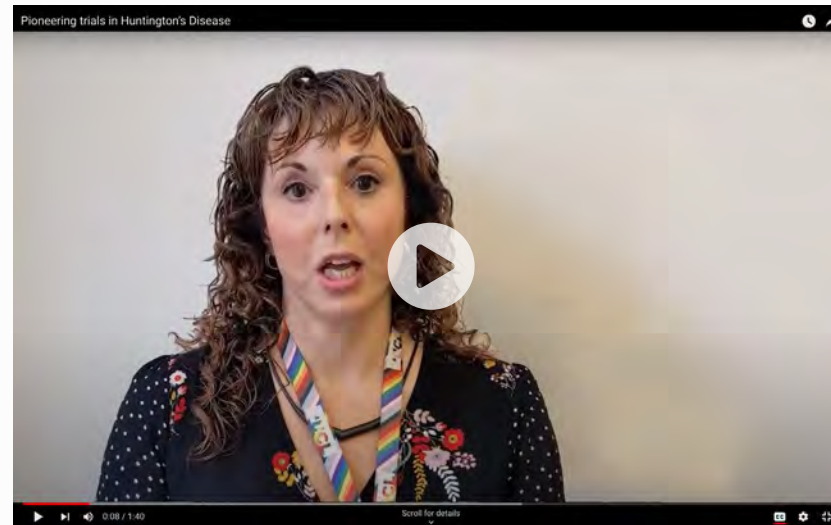
Translation in action

Lab life

Patient involvement

### Pioneering trials in Huntington's Disease [↗](#)

UCL researchers at the Huntington disease (HD) Centre have transformed understanding of how this fatal condition progresses. Professor Sarah Tabrizi's research has accelerated major industry-led trials of new treatments designed by her research team. The first in-human trials of new treatments targeting the genetic factor which causes HD have been carried out, with more planned.



Research highlights

Our research impact

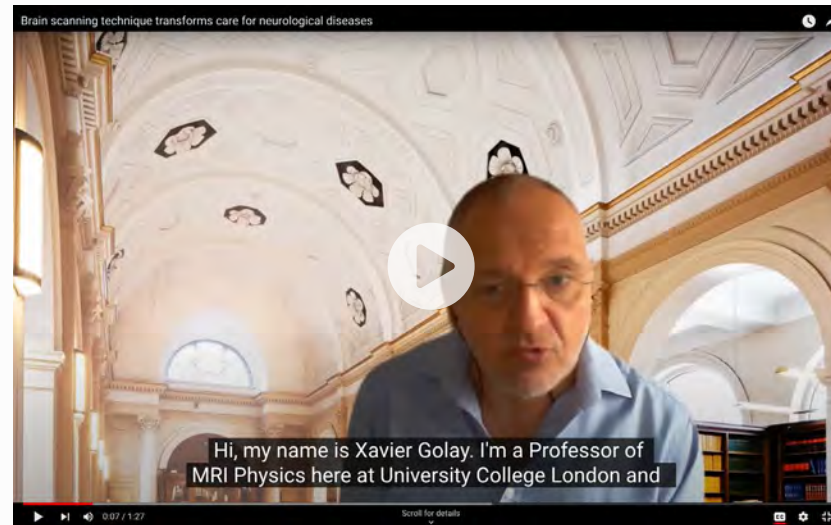
Translation in action

Lab life

Patient involvement

## Transforming the use of Arterial Spin labelling to measure blood flow in the brain in patient care and clinical trials [↗](#)

Arterial Spin Labelling (ASL) is a non-invasive MRI technique that measures blood flow within the brain. It is used to detect debilitating neurological diseases. Research at UCL has produced evidence-based, harmonised usage guidelines that mean this safe, cost-effective technique is now extensively used in clinical settings, including clinical trials to test new medicines.



Research highlights  
Our research impact  
Translation in action  
Lab life  
Patient involvement



**Professor Gabriele Lignani**  
Department of Clinical  
& Experimental Epilepsy

**Epilepsy affects millions of people globally, and despite optimal treatment, 30% of people with epilepsy continue to experience seizures. In these cases, the only option is to remove the part of the brain where seizures arise, which is risky and not possible in most cases. Targeting the neurons that cause seizures could prevent seizures from happening.**

**What did your research involve?**

My group studies epilepsy to develop innovative therapies for patients without any therapeutic options. We developed a gene therapy approach that can specifically target the neurons that cause epileptic seizures. This therapy turns off these neurons to prevent seizures from happening. Our group has researchers with complementary expertise that cover the preclinical process from idea to efficacy assessment.

**What is gene therapy?**

Gene therapy alters a person's genes to treat a disease or condition. Our innovative gene therapy tool targets only the brain cells that cause seizures, leaving nearby healthy neurons unaffected. It uses activity-dependent promoters that switch on only in response to biochemical signals made by neurons when they fire intensely, such as during a seizure.

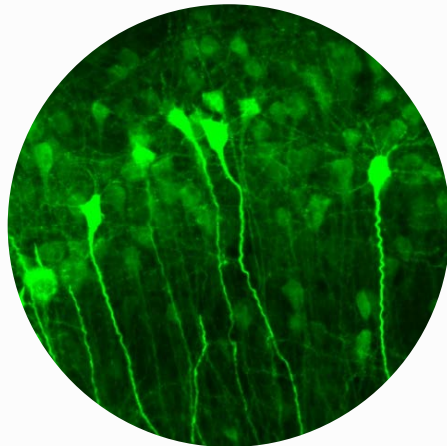
Research highlights

Our research impact

Translation in action

Lab life

Patient involvement



When neurons participate in a seizure (green), the new gene therapy activates to tamp down their future activity. Benito Maffei / University College London

### How long did your research take?

Our latest research (Qiu et al. 2022) took six years from ideation to publication of results, and it will likely take another five years to see the treatment applied to patients. The work was done by a PhD student, six postdocs, four PhD students, and a technician, with collaboration between different groups at ION and Institute of Child Health.

### What were the outcomes?

We tested the gene therapy tool in neurons grown in a dish, mice with drug-resistant epilepsy, and lab-grown human ‘mini brains’. In each test, we showed the therapy effectively calmed down overactive neurons involved in seizures while leaving healthy bystander cells unaffected. It only needs to be given once but has a lasting effect, possibly lifelong. The therapy didn’t affect the performance of the mice in tests of memory and other normal behaviour.

### What happens now?

This discovery not only has major implications for treating drug-resistant epilepsy, but it may also be used to treat other neurological conditions caused by overactive neurons, including Parkinson’s disease and migraines. We have a license with industry to move this therapy to patients, with several investors interested in financing this study.

- Research highlights
- Our research impact
- Translation in action
- Lab life
- Patient involvement



**Professor Fiona Ducotterd**  
Chief Scientific Officer of the  
Alzheimer’s Research UK  
Drug Discovery Institute

## Alzheimer’s Research UK Drug Discovery Institute at UCL (UDDI)

The UDDI has pharmaceutical industry-standard drug discovery capabilities in Medicinal Chemistry, High Throughput Screening and Pharmacology and Biology translating cutting-edge academic innovations into therapeutics for neurodegenerative diseases. The UDDI labs will relocate from the Cruciform building to the new, purpose-built Grays Inn Road UCL Neuroscience facility (GIR) in 2024.

There are almost 30 people in the UDDI team, including students and trainees, postdoctoral scientists, and industry experts.





Research highlights

Our research impact

Translation in action

Lab life

Patient involvement

**“The combination of talents is the UDDI superpower...  
Making medicines is a complex and multidisciplinary process and a collaborative, team-focused mindset is critical to our success. In drug discovery and development, we need to know who to ask for help, and when and how to identify the right experts – that is a skill we embed in our team from the start.’**

*Fiona Ducotterd*

The UDDI model is to find small molecule drug candidates for well validated therapeutic targets with actionable translational plans to move them into clinical trials and then partner with industry or spin out new companies for development. The first UDDI spin out, Astronautx, was founded in 2019. The UDDI uses the same precision and methodology as any pharmaceutical or biotechnology company, with the freedom to work on any potential drug targets the scientific data supports – we decide our own strategy and can truly follow the science! We work with academic innovators within UCL and beyond to build translational drug discovery projects around promising drug targets. The new centre on Grays Inn Road will enhance our collaborative working as we will be in the same space with UCL and UKDRI colleagues – we can’t wait to occupy the world class and unique, integrated facility.

Our partnership with ARUK is unique and enabling. The charity supports our work both financially and technically, and provides us with real patient insights that are an inspiring reminder of why we are here. The ARUK

## CONTENTS

### INTRODUCTION

### EDUCATION

### RESEARCH

### OPERATIONS

### ION-DRI PROGRAMME

Research highlights

Our research impact

Translation in action

Lab life

Patient involvement

Drug Discovery Alliance (DDA) with Cambridge and Oxford DDIs is the largest network of preclinical neuroscience drug discovery experts in the UK, maybe the world. The ARUK advisory board of industry experts provide expert input and keep us focused on the critical path to deliver medicines. Drug discovery is a long and challenging process.

It's vital that we have clear goals and focus on projects with the best chances of success because patients are waiting. Our project portfolio spans proteins or mechanisms involved in specific neurodegenerative diseases including Alzheimer's and other dementias, Parkinson's, Motor neurone, Huntington's. We apply a variety of model systems, including parental cell lines, over-expressing cell lines, primary rat astrocytes and microglia, and disease-model iPSCs and animal models for screening and secondary and tertiary assays and have screened over 20 drug targets to date. Our chemistry teams runs iterative design and synthesis to find selective and on target lead compounds with good in vivo and drug like properties.

Our high throughput screening platform uses automation and robotics to handle up to millions of chemicals to look for ones that hit our targets. We have incorporated liquid handling machines, like the ECHO and Integra, Opera Phenix and Seahorse and Pherastar plate readers to progress from early stage to development to Hit-To-Lead screening as efficiently as possible. Our goal at GIR is to screen more

## CONTENTS

### INTRODUCTION

### EDUCATION

### RESEARCH

### OPERATIONS

### ION-DRI PROGRAMME

Research highlights

Our research impact

Translation in action

Lab life

Patient involvement

targets and build more projects that can translate to patient benefit. Beyond screening, we build assays and platform technologies to test and compare compound efficacy on a target specific basis that include live cell imaging and multi-electrode array (MEA) assays and CRISPR platform to knock-down target proteins in primary rat astrocytes.

External engagement is critical to the UDDI. We present science at national and international conferences. The whole team spent a week in Brighton for the BNA2023 Festival of Neuroscience for a team-building trip. We take part in ARUK scientific and public networking events to help spread Alzheimer's awareness, raise money for the charity and network with existing and new collaborators.

**“I spent my career in the pharmaceutical industry. I was looking for the perfect job combining the precision of industry with my love of neuroscience, emerging innovation and technology and building transformative teams and partnerships to get new treatments to patients, then I saw the advert. I packed up my family and left the USA in a matter of weeks – that job is right here at the UDDI.”**

*Fiona Ducotterd*

- Research highlights
- Our research impact
- Translation in action
- Lab life
- Patient involvement



**Professor Rimona Weil**  
Neurologist at the National Hospital for Neurology and Neurosurgery, UCLH and Neuroscientist at UCL

### **Patterns of Perception in Parkinson's disease**

Professor Rimona Weil talks through her most recent collaborative project, which explores fears about dementia in the Parkinson's community. It was delivered in collaboration with people living with Parkinson's, healthcare professionals, researchers, engagement specialists, Parkinson's UK and artists at Central Saint Martins.

The team produced a pair of booklets for people with Parkinson's and healthcare professionals to open up discussions about Parkinson's dementia and improve care, information and support.

### **What's the motivation behind your research?**

Parkinson's is the second most common neurodegenerative disorder. People think of it as a movement disorder, but around half of all people diagnosed with Parkinson's are also affected by dementia within 10 years of their diagnosis. Dementia is often the aspect that most worries people living with Parkinson's.

The overall aim of my research is to understand how dementia happens in Parkinson's, and ultimately to develop treatments so that we can slow its progression.

## CONTENTS

## INTRODUCTION

## EDUCATION

## RESEARCH

## OPERATIONS

## ION-DRI PROGRAMME

Research highlights

Our research impact

Translation in action

Lab life

Patient involvement

The Patterns of Perception in Parkinson's (PoP-PD) project arose because I found that people living with Parkinson's did not want to talk about dementia, and that clinicians managing people with Parkinson's can also be reluctant to have these conversations. This is because of the taboo about talking about dementia, and the worry that it could cause undue anxiety in patients.

However, if people don't talk about Parkinson's dementia, they don't access the support and treatments that can make a difference to their lives. It also means they don't take part in research which is vital in understanding how and why it happens.

So, I decided to work together with artists at Central Saint Martins, experts at Parkinson's UK, the Department of Imaging Neuroscience Public Engagement team, and most importantly, people living with Parkinson's to unpack this problem. Our aim was to work together to better understand the discomfort about talking about dementia and to co-produce a pair of booklets to be used in the clinic to improve conversations about Parkinson's dementia. This work took place over 18 months and was funded through a Wellcome Research Enrichment Grant.

Research highlights

Our research impact

Translation in action

Lab life

Patient involvement

### **What did your project involve?**

We invited people with Parkinson's and their loved ones to take part in a series of creative workshops at Central Saint Martins, London. Designed and facilitated by artists Anne Marr and Ruairadh O'Connell, the workshops explored the taboo of dementia in Parkinson's, and how people living with Parkinson's and their families want to talk about dementia in a clinical setting. Creative techniques included collage and painting, and through the process of making, people were able to open up and talk more freely about Parkinson's dementia. Insights and outputs captured in these workshops were then used to co-produce a draft pair of booklets, designed for:

1. People living with Parkinson's and their families to provide information and support
2. Healthcare professionals to provide guidance on how to diagnose and manage Parkinson's dementia

We then ran a series of focus groups to co-develop and refine these booklets, both with people living with Parkinson's and Parkinson's healthcare professionals from a range of geographical and clinical settings. This meant that we had the latest clinical advice about managing Parkinson's dementia and insights from people living with the condition.

- Research highlights
- Our research impact
- Translation in action
- Lab life
- Patient involvement

We ensured the voices of people affected by Parkinson's were at the heart of this work. We involved people with lived experience of Parkinson's at every stage from planning the project, to involvement in the workshops, to co-designing and improving the toolkits. A team member whose research explores dementia within Black and Minority Ethnic populations ensured the project and resulting booklets were inclusive and accessible to underrepresented groups.

**What were the tangible outcomes?**

Our booklets have been adopted by Parkinson's UK as their leading resources to support people with thinking and memory problems in Parkinson's. Both booklets have been embedded within Parkinson's UK's online resources, and are freely available as printed booklets. This means they have wide reach for people worried about these symptoms, and for clinicians managing Parkinson's dementia. They were launched at an online event with participants, collaborators and partners in July 2023:

Thinking & memory changes in Parkinson's

A toolkit for detecting and managing Parkinson's dementia

- Research highlights
- Our research impact
- Translation in action
- Lab life
- Patient involvement

These booklets mean that people with Parkinson’s dementia can now access treatment and support that can make a meaningful difference to their lives; and they may be more open to taking part in research which aims to understand how dementia in Parkinson’s happens.

Over the coming months, we will continue to disseminate and promote the booklets with the Parkinson’s community, and will share lessons learned throughout this project with colleagues and peers working across Parkinson’s, art research and public engagement fields.





CONTENTS

INTRODUCTION

EDUCATION

RESEARCH

OPERATIONS

ION-DRI PROGRAMME

# Home to some of the world's most influential researchers



QUEEN SQUARE  
INSTITUTE OF NEUROLOGY

From the Institute Manager

Safety and sustainability

Equality, diversity and inclusion

2022 Annual Address and Inaugural Lectures



**Dr Helene Crutzen**  
Institute Manager

I am proud to lead dedicated and hard-working professional services staff (PSS), both in our Head Office and our Research Departments; they play a vital role in supporting the institute’s activities and mission and as illustrated by our monthly Thank You Fridays, an initiative we launched last year, this gratitude is shared across the Institute. Post-pandemic, we can finally get together again like at our away afternoon where we met new colleagues, renewed working relationships, and had fun! More recently, the team also had a tour of the new GIR Building, as we prepare for its opening in 2025.

Our HR team, led by Laura Allum, does an excellent job in recruiting and retaining top talent. They are a busy team, managing around 760 staff employed at ION and processing over 120 leavers, 190 new positions and 430 changes to contracts! Laura co-chairs the Athena Swan committee (together with Prof Gabriele Lignani), supported by our EDI project manager Dimitrios Zachos. Their commitment to diversity and inclusion has created a welcoming and supportive environment for all of our staff and students.

The finance team, led by Paul Swainsbury, works hard to manage the institute’s budget and income streams as well as our research grant income portfolio; their attention to detail and ability to work under tight deadlines is greatly appreciated. We continue to work closely with the UCL TRO on our industry-led awards and are expanding our enterprise and translational

From the Institute Manager

Safety and sustainability

Equality, diversity and inclusion

2022 Annual Address and Inaugural Lectures

research opportunities thanks to our Senior Translational Research Manager, Eleonora Lugarà.

The lab operations and health and safety, led by Steffy Czieso together with Sue Noy as deputy lab operations manager, who tirelessly maintain the institute's buildings and equipment, ensuring we have a safe and functional space to work in across a large and geographically complex space. Steffy led our successful T-100 H&S Management submission - the first Institute to achieve T-100 in the Faculty of Brain Sciences.

Our Education team manages an increasing large cohort of postgraduate taught and research students; and plans are well underway to launch our new undergraduate BSc in 2024. We bid farewell to David Blundred and Tracy Skinner this year, and we are grateful for everything they have done to support our students. We welcome Alex Addo as our new Education Manager, and thank Masuda Khanom for her outstanding work as interim Education Manager. Teaching activities are supported by our Medical Illustration team, led by Derek Tutssel, who also leads on our specialist medical illustration for our partner hospital NHNN, and the Queen Square Library, led by Sarah Lawson. Sarah also does an excellent job managing our communications, keeping the website and social media up to date, which helps raise awareness of the institute's research and clinical achievements. Medical

From the Institute Manager

Safety and sustainability

Equality, diversity and inclusion

2022 Annual Address and Inaugural Lectures

Illustration, Sarah and our Executive office team, Sandra Porteous and Navaeeda Naeem, also support our many events, notably our popular in-person Inaugural lectures.

Last but by no means least, the Departmental Administrators and their teams, who manage each of our research departments, working together with our Head Office teams, are the glue that holds it all together!

We have achieved a tremendous amount over the past year, and I am confident that with the continued support of our professional services teams, we will be able to build on our many successes in the coming year.



From the Institute Manager

Safety and sustainability

Equality, diversity and inclusion

2022 Annual Address and Inaugural Lectures

## Health and safety

- Target 100 is a systematic way of measuring and planning for improvement opportunities in safety. T100 level 1 achievement is progressing well and should be finalised by the end of 2023.
- Major improvements made to ION's health and safety organisation and arrangements
- ION's health and safety committee is meeting quarterly and is chaired by Institute Manager Helene Crutzen.
- Appointment of Institute departmental safety officer in 2019 supporting all departments with Lab and office inspection programmes, safety training completion by staff and students, accident and incident investigation and risk assessment
- Useful documents such as ION's health and safety policy, emergency plans and new starter induction forms can be found on the intranet

From the Institute Manager

Safety and sustainability

Equality, diversity and inclusion

2022 Annual Address and Inaugural Lectures

## Sustainability

- ION received the Green Impact gold award for offices, 5 LEAF gold awards and 3 LEAF silver awards for lab sustainability in 2022
- We have organised an Institute Green Day together with an equipment repair workshop and introduced a sustainable travel policy.
- We held the first 'Hot Brain' conference on climate change and neuroscience
- 40% of our Ultra Low Temperature freezers are now at -70° – up from 0% in 2021!

## Estates

- Queen Square House Level 3 refurbishment is now complete, Teams from UK DRI have moved in mid-October 2022.
- Queen Square House ground floor work on new Infusion Suite for Leonard Wolfson Clinical Research Facility is in final stages.
- Major improvements to 1 Wakefield Street freezer store and power back up completed with more improvements to cooling and heating in planning stage.

From the Institute Manager

Safety and sustainability

Equality, diversity and inclusion

2022 Annual Address and Inaugural Lectures

L–R by row, top: Helene Plun-Favreau, Dimitrios Zachos, Laura Allum, Gabriele Lignani, Kangxin Chen Huang, Mena Farag; middle: Tricia Seow, Tracy Skinner, Tim Young, Conceicao Bettencourt, Harpreet Hyare, Lauren Byrne; bottom: Bilal Malik, Christina Toomey, Rina Bandopadhyay, Dervis Salih, Helene Crutzen

- 110 members of our staff are involved in EDI work
- We welcomed our new EDI Project Manager (PM), Dimitrios Zachos, and wished Ana De Sousa e Faro best of luck in her new job
- We now have 27 trained Mental Health First Aiders (MHFA) across the Institute
- We published our annual EDI report
- We organised and ran our first EDI Seminars, ‘Navigating intersectionality’ with guest speaker Baroness Oona King of Bow, and ‘Mental health in academia: break the silence’
- We launched a ‘Building your career at IoN’ website
- We ran our first Leadership Development Programme for Technicians and Research Assistants



From the Institute Manager

Safety and sustainability

Equality, diversity and inclusion

2022 Annual Address and Inaugural Lectures

- We produced a Pregnancy and Parental Leave Handbook
- We developed the ION Code of Conduct
- We ran our second student experience survey
- We awarded the James Risien Russell Scholarship to two students from underrepresented backgrounds
- The ION Wellcome Centre for Human Neuroimaging furthered our partnership with In2Science and has spearheaded In2Research: a project to narrow the BAME representation gap in post-graduate programmes
- We continued offering our mentoring schemes:
  - Academic Mentoring Scheme
  - Under-Represented Students Mentoring Scheme
- ION increased representation of women in leadership positions by 33% within the last 5 years. Currently, 55% of our Heads of Research Department are women
- ION narrowed the professorial pay gap: For every £1 earned by a male professor, their female counterparts were paid £1.01. For every £1 earned by a white professor, their ethnic minority counterparts were paid £1.04



## CONTENTS

## INTRODUCTION

## EDUCATION

## RESEARCH

## OPERATIONS

## ION-DRI PROGRAMME

From the Institute Manager

Safety and sustainability

Equality, diversity and inclusion

2022 Annual Address and Inaugural Lectures

Lecture speakers clockwise from top left: Dame Anne M. Johnson (centre), Professor Quentin Huys (centre), Professors James Jepson and Sallie Baxendale (centre), Professors Helene Plun-Favreau and Pietro Fratta (3rd and 4th from left), Professors Mike Lunn and Jonathan Rohrer (2nd and 3rd from left), Professors Sonia Gandhi and Ed Wild (2nd and 3rd from left)

Our inaugural lectures celebrate the stories and achievements of colleagues recently promoted to Professor.

Our annual address in November celebrates the achievements of the Institute: a review of the year was presented by Professor Michael Hanna, Director of UCL Queen Square Institute of Neurology, followed by the Annual Address lecture by Dame Anne M. Johnson, Professor of Infectious Disease Epidemiology, and President of the Academy of Medical Sciences.

All our past lectures can be viewed at our [YouTube channel](#).



CONTENTS

INTRODUCTION

EDUCATION

RESEARCH

OPERATIONS

ION-DRI PROGRAMME

# Building a world-class research and treatment centre to fight neurological diseases – now the world's leading cause of disability



## CONTENTS

### INTRODUCTION

### EDUCATION

### RESEARCH

### OPERATIONS

## ION-DRI PROGRAMME

### Highlights

Programme highlights

Topping out

Public Art

The ION-DRI Programme at UCL was set up with a vision to create the world's leading translational neuroscience centre, translating UCL research into breakthrough treatments to fight neurological diseases, like dementia, now the world's leading cause of disability.



Highlights

Programme highlights

Topping out

Public Art

We are building a technologically-advanced facility on Grays Inn Road to support our existing world-class facilities at Queen Square.

A partnership between UCL Queen Square Institute of Neurology, the UK Dementia Research Institute and UCLH National Hospital for Neurology and Neurosurgery. We are investing in innovation and collaboration, using cutting-edge technology, shared laboratory space, equipment and central services to create new and more efficient ways of working and bringing research scientists, clinicians and patients under one roof together to enable an active dialogue between individuals with neurological diseases, their doctors and researchers.

256 Grays Inn Road,  
October 2023



Highlights

Programme highlights

Topping out

Public Art

Some highlights from this year's activity include:

- Topping Out Ceremony, marking the highest point in the building, held in May 2023
- Launched Trellis: Arbor – a knowledge-exchange programme for staff and researchers at the Queen Square Institute of Neurology and artists and communities
- Created a visitor space in former Eastman Dental Institute and hosted hardhat tours, site visits, rooftop viewings and team meetings
- Launched monthly newsletter, *The ION-DRI Dispatch*
- Partnered with UCL's Advanced Research Computing team to develop a scientific IT platform for the dual hub to utilise
- Piloted new technologies, processes and systems to create collaborative, efficient and sustainable ways of working including new delivery processes, lab consumable vending machines, a new specialist chemical management tool and a booking and cross charging solution to allow high-cost equipment across the institute to be shared and maintained
- For more information on the ION-DRI programme visit our [dedicated website](#)

## CONTENTS

### INTRODUCTION

### EDUCATION

### RESEARCH

### OPERATIONS

## ION-DRI PROGRAMME

### Highlights

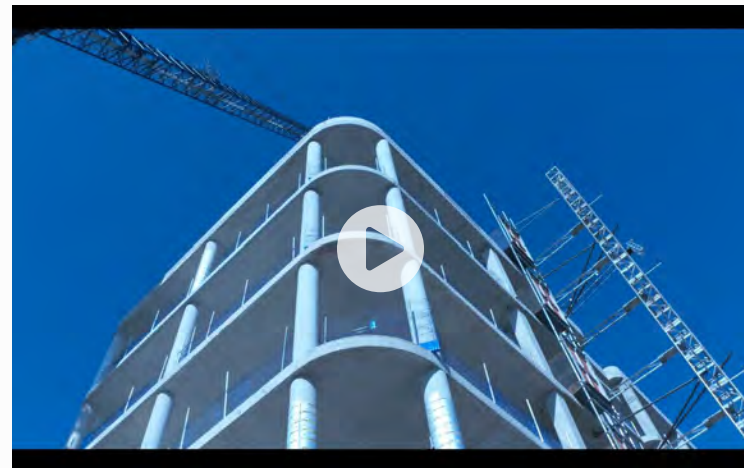
### Programme highlights

### Topping out

### Public Art

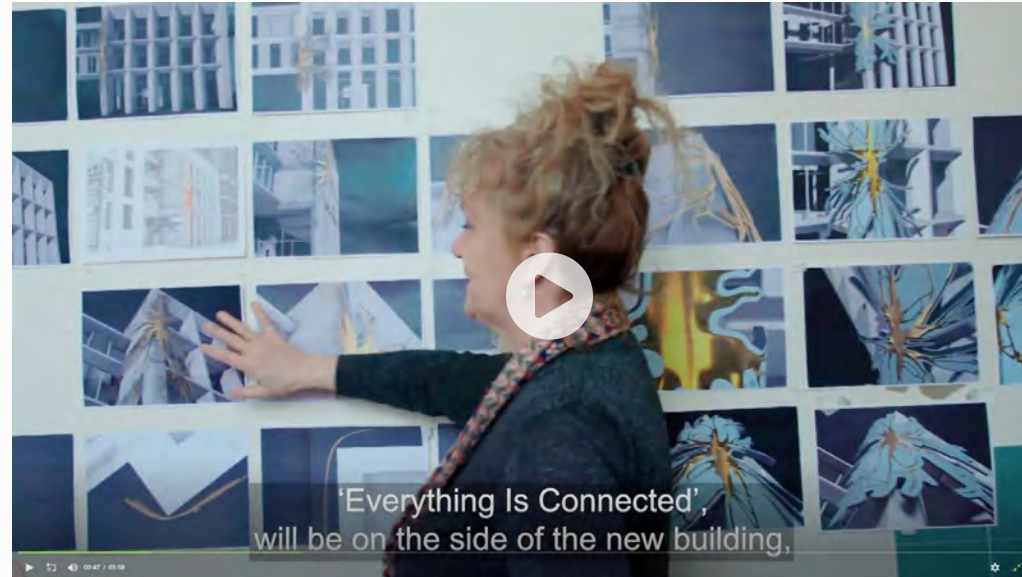
UCL's new world-class neuroscience building reached the highest point construction milestone in May 2023, celebrated with a 'Topping Out' ceremony. Attendees heard speeches by UCL's President & Provost Dr Michael Spence, Dean of the Faculty of Brain Sciences, Professor Alan Thompson, Chairman of UCL Council, Victor Chu and Director of the UCL Queen Square Institute of Neurology, Professor Michael Hanna. They were then taken 25m above ground to the highest point of the building where early career researcher Dr Micol Falabella tightened the final bolt to conclude the ceremony.

There was also a science fair with seven stands, where early career researchers showcased their work on topics such as neuroimaging, stem cells, bioinformatics and Down syndrome, and the two on-site artist studios were open for guests to view the works ION-DRI's public art programme.



Highlights  
Programme highlights  
Topping out  
Public Art

UCL Public Art's programme of arts activities has been designed especially for the IoN-DRI programme.



**Annie Cattrell, Lead Public Artist**

Annie has been commissioned to make a series of major public artworks for 256 Grays Inn Road:

*Everything is Connected*

A highly visible sculptural artwork, set on the corner of the new building, gilded in 24-carat gold, and based on ideas of dendritic growth formations and seismic change, inspired by the magnitude of the neurological research and clinical treatments that will take place in the centre.

Highlights

Programme highlights

Topping out

Public Art

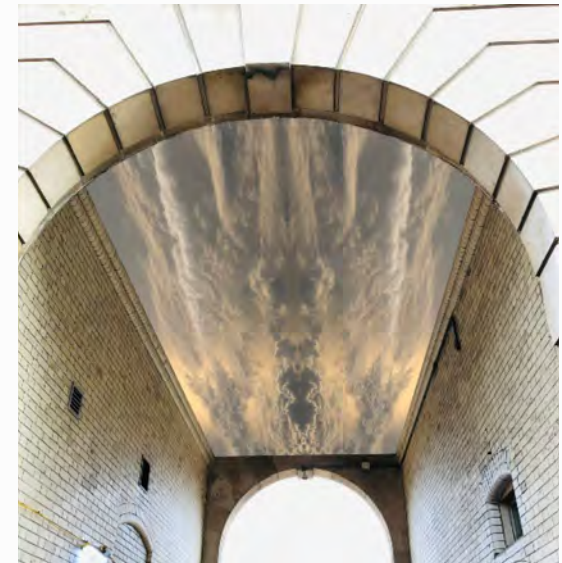
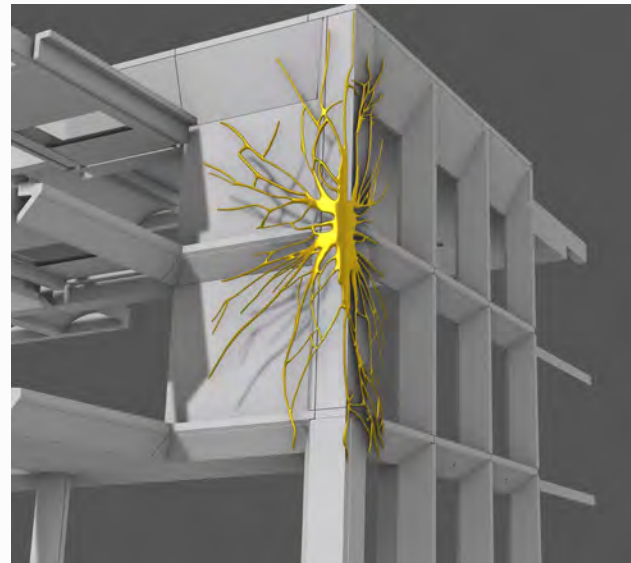
*Mirror*

A sculptural bas-relief on the archway ceiling of the main entrance from Grays Inn Road, to reflect the importance and significance of the centre, based on ideas of care, skill and interconnectedness.

*Wise Words*

Researchers, scientists, clinicians and staff working across the project responded to a questionnaire that Annie circulated. Their thoughts, hopes and expectations, for the new centre, will be reflected in a series of quotes that will be positioned on the walls around the staff areas.

Left: Everything is Connected  
Right: Mirror (concepts)  
Annie Cattrell





Highlights

Programme highlights

Topping out

Public Art

**Freya Gabie, Artist in Residence**

Freya has been commissioned to explore the unique history of the site itself and its significance as a hospital, creating an archive of research as well as public artworks.

*Laertes Atlas*

Celebrating scientific discoveries of the past alongside today's ground-breaking research, 12 stained-glass drawings will be lit, using the light of a day in 12 places across the globe, around 12 months of the year, which change on each encounter. The piece is inspired by the 1739 star atlas by Dr John Bevis, who found the historic, health-giving wells beneath the site.

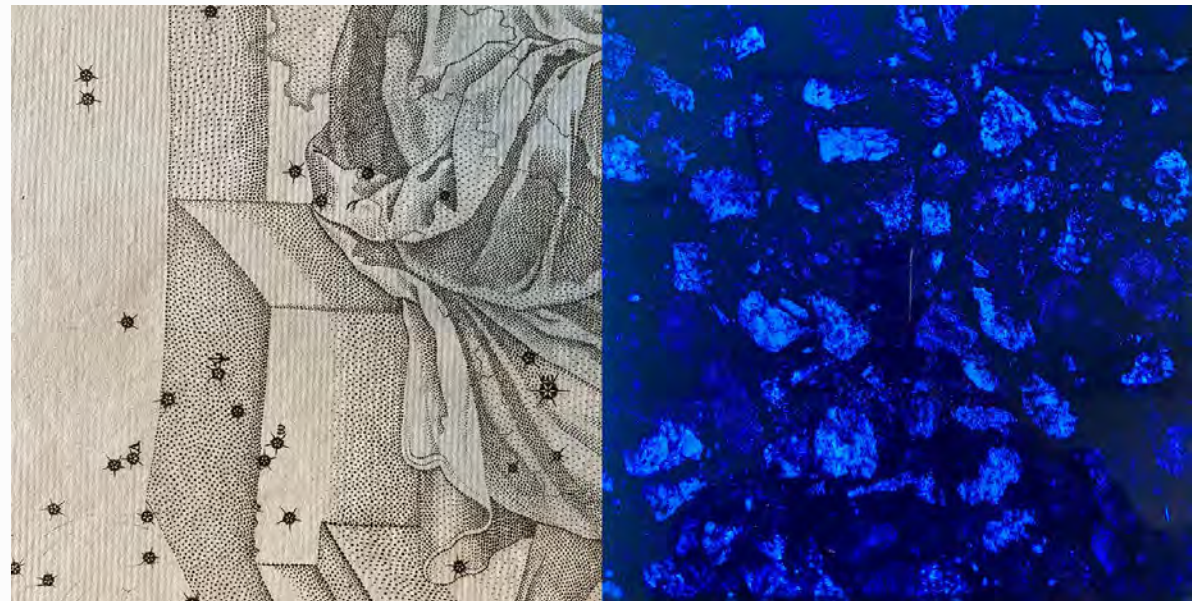
Left: *Uranographia Britannica*,

John Bevis, c.1750

Right: Drawing for 'Laertes'

Atlas' on stained glass

Freya Gabie



Highlights

Programme highlights

Topping out

Public Art

*Furtive Ground*

Using magnetite and calcium – both compounds found in our brains and in excavated material from site, two clods of earth will be cast in chalk (calcium carbonate) from 35m below the site, and magnetite. Suspended through the building, the magnetite clod will become a compass, and always find magnetic north.

*Downstream*

A collaboration with the British Library’s ‘Water Library’ and co-created with a neurologist and AI developer, Downstream is a participatory, unfolding sound work for the MRI suite, inviting people to take a journey through other people’s memories of sound, accumulating as a collective woven river of sound.

Furtive Ground: archaeological core sample of Lambeth Red and site manager John Mitchell with clod sample  
Freya Gabie



Highlights

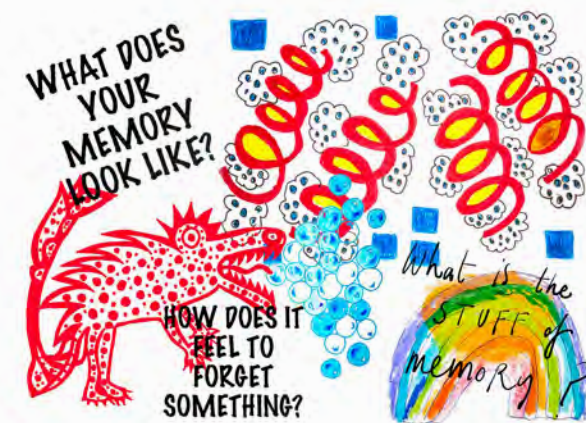
Programme highlights

Topping out

Public Art

**Trellis: Arbor Art Programme**

A knowledge-exchange programme for staff and researchers of the Queen Square Institute of Neurology, artists and communities



Left: Walking in your footsteps

Right: Drawing the Stuff of Memory

**Walking in your Footsteps**

A collaborative project between Dr Natalie Ryan, artist Briony Campbell and members of the Rare Dementia Support Familial Alzheimer's disease support group to develop creative collage workshops where people can connect and share their stories and experiences.

**Ebb & Flow**

Neuroscientists Dr Tatiana Alvarez Giovannucci and Mar Estarellas and artist Lucy Steggals connect artists, scientists and people with lived experience of dementia and their carers together to share experiences of uncertainty, using the metaphor of the sea.

Highlights

Programme highlights

Topping out

Public Art

### **Drawing the Stuff of Memory**

Neuroscientist Dr Kirsty Lu and artist Maria Teresa Ortoleva take a compassionate look at the lived experience and fear of memory loss, exploring the phenomenon of memory and how it is perceived, through drawing.

### **How to Swim on Land**

Researcher Louie Lee and artist Caroline Wright explore the unique relationship that people living with neuromuscular diseases have with water.

### **I Hear You: a Soundscape of the Unheard World of Parkinson's**

Neuropsychologist Dr Jennifer Foley and artist Alison Carlier explore the unheard voices of younger people affected by Parkinson's, combining stories, sounds of rhythmical motor symptoms with ambient sound and music, to build a textured soundscape of what it feels like to live with the disease.

### **In Search of Lost Time**

Clinician scientist Dr Tom Miller and artist Lynn Dennison look at memory loss in patients to give a voice to patients with LG11-limbic encephalitis to describe and capture the first-person experiences of amnesia using storytelling, moving image, audio and photography.

CONTENTS

INTRODUCTION

EDUCATION

RESEARCH

OPERATIONS

ION-DRI PROGRAMME

[UCL Queen Square Institute of Neurology](#)

[X Twitter.com/UCLION](#)

[YouTube Channel](#)

[Our people](#)

[Contact](#)

Designed by  
[Design Science](#)