



Annual University of Cambridge and AstraZeneca
PhD Symposium

AstraZeneca Discovery Centre (DISC)

12 May 2025

09:30 - 18:00



Cambridge Academy
of Therapeutic Sciences

AstraZeneca—University of Cambridge Annual PhD Symposium

12 May 2025

Time	Name	Title	Department
09:15 - 09:30	Registrations & Refreshments		
09:30 - 09:40	Welcome Address by Michael Tonge, Director, Global Graduate, PhD and Placement Programmes, AstraZeneca		
09:40 - 10:00	Emma Belcher	Interrogating the mechanism of signal transduction in the TGF-beta receptor superfamily	Biochemistry
10:00 - 10:20	Annabel Cardno	Cellular determinants of AURKA degradation by small molecule PROTACs	Pharmacology
10:20 - 10:40	Catriona Corbishley	Probing BAF complex contribution to normal mammary gland function and tumorigenesis	Pharmacology
10:40 - 11:00	Refreshment Break		
11:00 - 11:20	Sarah Han	CendR-independent novel design of de novo peptide binders of Neuropilin-1	Pharmacology
11:20 - 11:40	Thomas Harman	Mechanisms of allosteric modulation at the β 1-adrenergic receptor	Biochemistry
11:40 - 12:00	Galway Ivey	Developing bioorthogonal chemistry for the analysis of RNA methylation	Chemistry
12:00 - 14:00	Lunch & Poster Session in Conference rooms 2 & 3		
14:00 - 14:20	Maximilian Kadarauch	Enantioselective Arylative Dearomatisation via Electrostatically-Directed Palladium Catalysis	Chemistry
14:20 - 14:40	Oluwaseun Ogundele	The role of Sall4 in cell fate determination	Biochemistry
14:40 - 15:00	Daniil Soloviev	TBC	
15:00 - 15:20	Refreshment Break		
15:20 - 15:40	David Vahey	Anti-Friedel-Crafts alkylation via electron donor-acceptor photo-initiated autocatalysis	
15:40 - 16:30	PhD Alumni Panel Session, Scientific career pathways after an Industry funded PhD		
16:30 - 16:40	Concluding session by Meghana Patel, AZ PhD Program Manager & Executive Manager, CATS, University of Cambridge		
16:40 - 18:00	Reception—Drinks & Nibbles		

Poster Presentations

12:00 - 14:00

Poster Number	Name	Title	Department
Poster 1	Alexander Rowley	Solid-Phase Iterative Suzuki Cross-Coupling	Chemistry
Poster 2	Alyssa Nicholls	Ex vivo modelling of human lymphoid organs to interrogate the mechanisms of action of myeloid checkpoint inhibitors	Medicine
Poster 3	Anya Patel	VHHs for the prevention and control of Campylobacter spp	Veterinary Medicine
Poster 4	Beichen Zhang	Interactions of non-covalent biologics at the single molecule level	Chemistry
Poster 5	Caroline Wyatt	Membrane Anchors to Improve Biologic Affinity	Pharmacology
Poster 6	Chloe Burgess	Novel methods for the rational development of molecular glues	Pharmacology
Poster 7	Emma Reilly	Investigating the mutagenesis of nitrosamine-induced DNA damage and repair using 'ultra-sensitive' error-corrected NGS	Biochemistry
Poster 8	Georgie Bonney	A New Drug Paradigm: Chemical Antibodies	Chemistry
Poster 9	Grace Wilson	Functional interplay between PARP1 inhibition and microenvironment in glioblastoma	Clinical Neuroscience
Poster 10	Harry Weston	Deciphering MASLD Progression: A Systems Biology Approach	Biochemistry
Poster 11	Luke McCall	sRuPhos: A New Chiral Phosphine Ligand for Enantioselective Suzuki-Miyaura Couplings to form mino-Hydroxybiphenyls	Chemistry
Poster 12	Luke Paine	1- GPR68, a proton sensing GPCR, plays a key in acid-induced nociception in the gut	Pharmacology
Poster 13	Luke Paine	2- IL-17 mediates colonic nociceptor hypersensitivity	Pharmacology
Poster 14	Mary-Pia Jeyarajasingham	Novel antibody reagents to probe SNX9 function	Biochemistry
Poster 15	Matthew Edge	Best Column, First Time: Building Chromatographic Retention Models	Chemistry
Poster 16	Paula Perez	Boosting Immunogenicity: Engineering Novel Vaccinia-Based On-colytic Viruses	Pathology
Poster 17	Rose Montgomery Danagher	In Situ Magnetic Resonance Imaging Studies of Lyophilization	Chemical Engineering & Biotechnology
Poster 18	Samuel Nicholson	Microbial-neuronal interactions in visceral pain	Pharmacology
Poster 19	Sarah Phillips	Development of Cleavable Linkers for Polymer-Drug Conjugates	Chemistry
Poster 20	Xingze (William) Xu	Inflammatory Bowel Disease Prognosis Based on Gut Epithelium DNA Methylation	Cambridge Stem Cell Institute
Poster 21	Yanqi Cheng	You KAN Do It in a Single Shot: Plug-and-Play Methods with Single-Instance Priors	Applied Maths and Theoretical Physics
Poster 22	Yichen K Chen	Automated real and interpretable image biomarker discovery	Surgery
Poster 23	Emrys Thursfield	Optimising Renal Tissue Models for Organoid Testing of Therapeutic Products	Materials Science and Metallurgy

Presentations

Location: Discovery Centre

Talk 1

Name: Emma Belcher

Department: Biochemistry

Title: Interrogating the mechanism of signal transduction in the TGF-beta receptor superfamily



Biography

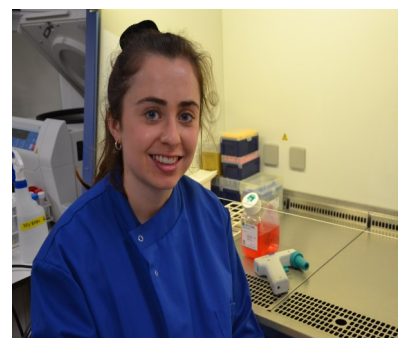
Emma is a final year PhD candidate supervised by Marko Hyvönen (Department of Biochemistry) and Taiana Maia de Oliveira (AstraZeneca). She became interested in using structural biology to answer mechanistic questions in the Sturrock Lab at the University of Cape Town. She completed an MSci degree at the University of Bristol, including a Lister summer studentship with Mark Dodding. Currently, she uses structural biology techniques and cell-based assays to investigate the mechanism of signal transduction in the TGF-beta receptor superfamily.

Talk 2

Name: Annabel Cardno

Department: Pharmacology

Title: Cellular determinants of AURKA degradation by small molecule PROTACs



Biography

Annabel is a final year PhD student. She obtained her bachelor's degree in Natural Sciences from the University of Cambridge and is completing her PhD in Dr Catherine Lindon's lab in the Department of Pharmacology. She is using cell and molecular biology techniques to characterise cellular determinants of PROTAC efficacy, a new modality of drug which recruit a protein of interest to the cellular protein degradation machinery to induce degradation of the target.

Presentations

Talk 3

Name: Catriona Corbishley

Department: Pharmacology

Title: Probing BAF complex contribution to normal mammary gland function and tumorigenesis

Biography

PhD student in the lab of Prof. Walid Khaled, Department of Pharmacology / Cambridge Stem Cell Institute. Currently investigating the drivers of chromatin remodelling during TNBC initiation.



Talk 4

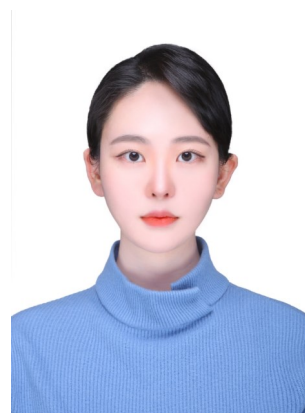
Name: Sarah Han

Department: Pharmacology

Title: CendR-independent novel design of de novo peptide binders of Neuropilin-1

Biography

Hyun-Jee (Sarah) Han is currently a PhD candidate in the Department of Pharmacology at the University of Cambridge, supported by an AstraZeneca studentship. Her research primarily focuses on structure-guided design of novel inhibitors targeting Neuropilin-1 (NRP1), utilising cutting-edge computational methodologies such as RFDiffusion, AlphaFold2 and AlphaFold3, molecular dynamics simulations, and computational binding affinity assessments. Sarah combines computational biology techniques with experimental validation, employing methods including surface plasmon resonance (SPR), ELISA, Western blotting, X-ray crystallography, and functional cellular assays. Sarah is driven and excited to deepening her expertise and exploring new directions within this dynamic and interdisciplinary field.



Presentations

Talk 5

Name: Thomas Harman

Department: Biochemistry

Title: Mechanisms of allosteric modulation at the β 1-adrenergic receptor



Biography

Tom Harman is a final-year PhD student in the Nietlispach group in the Department of Biochemistry. His PhD research primarily focuses on solution studies of the β 1-adrenergic receptor through NMR spectroscopy, characterising the conformational equilibria changes that are induced upon binding of drugs to receptors. He also is interested in the roles of conformational dynamics in protein engineering and enzymatic catalytic efficiency.

Talk 6

Name: Galway Ivey

Department: Chemistry

Title: Developing bioorthogonal chemistry for the analysis of RNA methylation



Biography

Galway is a 4th year PhD student in the Department of Chemistry and studied Natural Sciences at Cambridge as an undergraduate, specialising in Chemistry. She is a member of the Bernardes research group, whose interests lie at the interface of Chemistry and biology. Her research involves using bioorthogonal chemistry to develop new strategies to analyse RNA modifications, aiming to understand how these modifications exert different biological functions.

Presentations

Talk 7

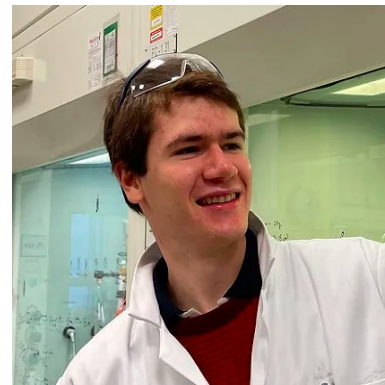
Name: Maximilian Kadarauch

Department: Chemistry

Title: Enantioselective Arylative Dearomatisation via Electrostatically-Directed Palladium Catalysis

Biography

Max is a final year PhD student in the Phipps group at Cambridge. His PhD has focused on the discovery of enantioselective Pd-catalysed reactions, most recently focusing on enantioselective Pd-catalysed arylative dearomatisation of phenols and naphthols. Max was an undergraduate at Oxford, where he did his Master's project in the Donohoe group.



Talk 8

Name: Oluwaseun Ogundele

Department: Biochemistry

Title: The role of Sall4 in cell fate determination

Biography

My research is focused on understanding how cells make decisions during early development. I use mouse embryonic stem cells, and gastruloids (an in vitro model of embryogenesis) to investigate different developmental contexts. Alongside this, I share my experience as a #blackgirlinscience on several social media platforms (@seuninscience), as well as offer advice and support for future postgrad students.



Presentations

Talk 9

Name: Daniil Soloviev

Department:

Title:

Biography

Talk 10

Name: David Vahey

Department: Chemistry

Title: Anti-Friedel-Crafts alkylation via electron donor-acceptor photo-initiated autocatalysis

Biography

I grew up in Fareham a town just outside of Portsmouth on the South Coast of the UK. I studied my undergraduate degree in Chemistry at Oxford University.

My master's project was in thiophene 1,1,dioxide cascade reactions under the supervision of Prof Ed Anderson. I am currently a PhD candidate under the supervision of Prof Erwin Reisner at the University of Cambridge investigating organic photochemical methodology – with a particular interest in sustainable photocatalysis and EDA triggered methodologies.



Poster Presentation (Time)

Location: Conference rooms 2 & 3

Poster 1

Alexander Rowley

Department:

Chemistry

Title:

Solid-Phase Iterative Suzuki Cross-Coupling



Biography

After a BA in Natural Sciences at the University of Cambridge, I took part in a Masters project with Jonathan Nitschke working on redox-active metal-organic cages. I then joined the Spring group in 2023, where I now am doing a 2nd year PhD focussing on solid-phase techniques and boronic acid protecting groups.

Poster 2

Alyssa Nicholls

Department:

Medicine

Title:

Ex vivo modelling of human lymphoid organs to interrogate the mechanisms of action of myeloid checkpoint inhibitors



Biography

Alyssa obtained a BSc in Biomedical Sciences with a Year in Industry from the University of York. She then moved to Imperial College London to complete her MRes in Cancer Biology, during which she worked at Imperial and the Institute of Cancer Research. Now on the AZ-UoC PhD scheme, she splits her time between the university, in Menna Clatworthy's group, and the CIOD team at AZ. Her work aims to improve modelling of myeloid checkpoint inhibitors, using human lymphoid tissue.

Poster Presentations

Poster 3

Anya Patel

Department:

Veterinary Medicine

Title:

VHHs for the prevention and control of *Campylobacter* spp

Biography

I completed my undergraduate degree in Natural Sciences from Durham

University in 2019. Following this, I completed an MPhil in the Biochemistry department at the University of Cambridge. I then worked as a Research Associate for Isogenica, a biotechnology company with expertise in single domain therapeutics, where I worked towards developing VHHs as biotherapeutics for treating cancers. I am now undergoing an PhD where I aim to find VHHs to be used therapeutically to treat *Campylobacter* species.



Poster 4

Beichen Zhang

Department:

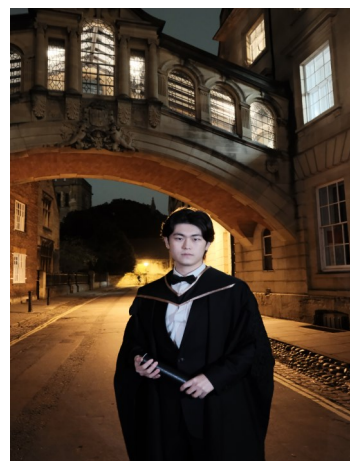
Chemistry

Title:

Interactions of non-covalent biologics at the single molecule level

Biography

I am a first year PhD student at TheLeeLab in The Centre for Experimental Biophysical Chemistry. Before coming to Cambridge, I completed my Master of Physics (MPhys) degree at University of Oxford, specializing in laser/optics and biophysics. My current research focus on developing single molecule imaging methods to characterize protein-protein interactions in biologic formulations. Single molecule level understanding of these interactions helps to build a developability assay for new antibody therapeutics.



Poster Presentations

Poster 5

Caroline Wyatt

Department:

Pharmacology

Title:

Membrane Anchors to Improve Biologic Affinity

Biography

While an undergraduate at Oxford, Caroline developed an interest in neuropharmacology, leading her to an MPhil to engineer GABA(A)R selective modulators in Dr Miller's group. She enjoyed this work so continued in the group on a PhD aimed to develop technology to broadly improve selective biologics for transmembrane receptors. Her PhD has also focussed on assay development to improve detection of biologic-receptor interactions, and the use of such formats to provide insights to possible receptor structural conformations.



Poster 6

Chloe Burgess

Department:

Pharmacology

Title:

Novel methods for the rational development of molecular glues

Biography

I began my PhD in Professor Laura Itzhaki's lab at the Department of Pharmacology in October 2023. My research is focused on the development of novel methods to identify molecular glue degraders. Before starting my PhD, I completed my BA in Natural Sciences at Cambridge, with a Part II in Pharmacology.



Poster Presentations

Poster 7

Emma Reilly

Department:

Biochemistry

Title:

Investigating the mutagenesis of nitrosamine-induced DNA damage and repair using 'ultra-sensitive' error-corrected NGS



Biography

Emma is an AZ-funded second year PhD student in Prof Sir Steve Jackson's lab, at the Cancer Research UK Cambridge Institute. During her PhD, she is using error-corrected sequencing to explore the mutagenicity of nitrosamines, compounds recently found in pharmaceutical products. Prior to her PhD, Emma has an integrated master's degree in Biochemistry from the University of Warwick, including a placement year at AstraZeneca in Data Science and AI department, and lab/computational research projects at the University of Warwick.

Poster 8

Georgie Bonney

Department:

Chemistry

Title:

A New Drug Paradigm: Chemical Antibodies

Biography

Georgie Bonney is a first-year Chemistry PhD student in the Spring Group, working on the development of "Chemical Antibodies" to create an improved drug paradigm for therapeutics. She graduated from the University of Leeds in 2022 with an Integrated Master's degree (MNatSc, BSc) in Natural Sciences, with Industrial Experience at GSK. Following her degree, Georgie joined the R&D Chemistry Graduate Scheme (2022–2024) at AstraZeneca, completing rotations across Peptide Chemistry, Synthetic Chemistry, and Computational Chemistry.



Poster Presentations

Poster 19

Grace Wilson

Department:

Cambridge Stem Cell Institute

Title:

Functional interplay between PARP1 inhibition and microenvironment in glioblastoma



Biography

I'm a second year PhD student in the Bulstrode Lab at the Cambridge Stem Cell Institute. Before I started my PhD, I completed an integrated masters in Biochemistry at the University of Oxford and then worked as a Research Assistant at the University of Edinburgh. My project is exploring whether DNA damage repair inhibition by AZD9574, a PARP1-selective inhibitor, can enable repolarisation of the glioblastoma myeloid microenvironment. The overall aim is to assess whether PARP1 inhibition could therefore enhance immunotherapy.

Poster 10

Harry Weston

Department:

Biochemistry

Title:

Deciphering MASLD Progression: A Systems Biology Approach



Biography

I am a Clinical Biochemistry/Bioinformatics PhD student at AstraZeneca, University of Cambridge, and the European Bioinformatics Institute. My research focuses on Metabolic Dysfunction-Associated Steatotic Liver Disease, a condition with global prevalence, no non-invasive biomarkers, and limited therapeutic interventions. Using a combination of network-based approaches and high throughput perturbation screens, we aim to shed light on the mechanisms responsible for disease progression and identify stage specific targets.

Poster Presentations

Poster 11

Luke McCall

Department:

Chemistry

Title:

sRuPhos: A New Chiral Phosphine Ligand for Enantioselective Suzuki-Miyaura Couplings to form Amino-Hydroxybiphenyls



Biography

Luke obtained an MChem degree from Durham University in 2023. During his third year, he completed a summer internship at Ryerson University in Canada, working on the synthesis of MRCK inhibitors. For his Master's research, he investigated asymmetric nickel catalysis under the supervision of Professors Fèlix Urpí Tubella and Pedro Romea at the University of Barcelona. He is currently pursuing a PhD in the group of Professor Robert J. Phipps, focusing on enantioselective Pd-catalysed reactions.

Posters 12 & 13

Luke Paine

Department:

Pharmacology

Title:

(12) 1- GPR68, a proton sensing GPCR, plays a key in acid-induced nociception in the gut

(13) 2- IL-17 mediates colonic nociceptor hypersensitivity



Biography

Luke is a PhD student in the Department of Pharmacology at the University of Cambridge. He previously completed an MSc in Pharmacology at the University of Oxford, with a focus on Neuropharmacology. His research investigates neuroimmune interactions that drive visceral pain in gastrointestinal disease, using approaches ranging from molecular biology and functional assays to behavioural studies, to advance the development of novel visceral analgesics.

Poster Presentations

Poster 14

Mary-Pia Jeyarajasingham

Department:

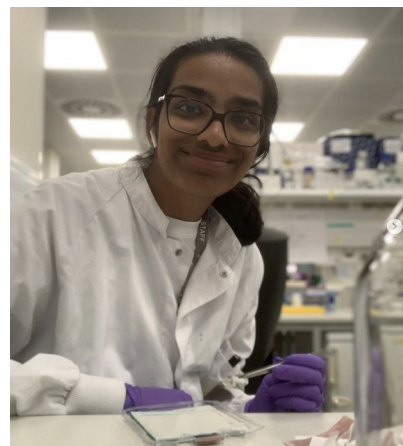
Biochemistry

Title:

Novel antibody reagents to probe SNX9 function

Biography

During my undergraduate Biomedical Science degree at St George's, University of London, I developed a strong interest in research while studying chemotherapeutic resistance in pancreatic cancer with Dr. Androulla Elia. This led to a placement at GlaxoSmithKline, where I characterised a novel metabolic assay for mitochondrial function. I later completed a masters combining epidemiology and wet lab research, investigating the role of arsenic exposure in prostate cancer development with Dr's Ferran Valderrama and Clara Cieza-Borrella. In 2022, I moved to Dr Jenny Gallop's lab, working 50% with Dr Stacey Chin.



Poster 15

Matthew Edge

Department:

Chemistry

Title:

Best Column, First Time: Building Chromatographic Retention Models

Biography

I am a third year PhD student working in the Goodman group at the Yusuf Hamied Department of Chemistry. My research is focused on using chem-informatics and machine learning techniques to model chromatographic behaviour and apply these models to help streamline chromatographic workflows across academia and industry.



Poster Presentations

Poster 16

Paula Perez

Department:

Pathology

Title:

Boosting Immunogenicity: Engineering Novel Vaccinia-Based Oncolytic Viruses



Biography

I am a PhD student in Brian Ferguson's lab in the Department of Pathology, focusing on engineering novel oncolytic viruses in collaboration with AstraZeneca's Cell Immunology and Microenvironments team. I hold a BSc in Biotechnology from the University of Surrey. Before my PhD, I joined AstraZeneca's R&D programme, gaining experience across multiple projects, including engineering of T-cell engagers and novel kill switches, as well as carrying out bioinformatic analyses to investigate immunotherapy resistance.

Poster 17

Rose Montgomery Danagher

Department:

Chemical Engineering & Biotechnology

Title:

In Situ Magnetic Resonance Imaging Studies of Lyophilization

Biography

Rose is a second year PhD student at the University of Cambridge in the department of Chemical Engineering and biotechnology. She is supervised by Professor Mick Mantle. She previously completed an integrated master's in chemistry at the University of Leeds.



Poster Presentations

Poster 18

Samuel Nicholson

Department:

Pharmacology

Title:

Microbial-neuronal interactions in visceral pain

Biography

Cambridge Astra-Zeneca PhD student studying the role of the gut microbiome in visceral pain. The end goal of this research is to help develop better treatments for diseases of the gut, so that people can live their everyday lives pain-free. Previously, I spent three years at New York University, researching the molecular mechanisms of oral cancer pain. This experience revealed the deep impact of the opioid epidemic and the global need for better pain treatments in general.



Poster 19

Sarah Phillips

Department:

Chemistry

Title:

Development of Cleavable Linkers for Polymer-Drug Conjugates

Biography

Sarah is a third year PhD student in the Department of Chemistry, supervised by Professor David Spring, and her industrial supervisors, Richard England and Richard Brewster. Her research centres around the development of linkers for the use in polymer-drug conjugates, in order to generate more targeted drug delivery systems for oncology. Her broader research interests also include other targeted biotherapeutics, such as antibody-drug conjugates.



Poster Presentations

Poster 20

Xingze (William) Xu

Department:

Cambridge Stem Cell Institute

Title:

Inflammatory Bowel Disease Prognosis Based on Gut Epithelium DNA Methylation

Biography

Xingze Xu completed BA Mathematics and MSci Systems Biology at University of Cambridge. He joined the Zilbauer group at Cambridge Stem Cell Institute and the Han lab at the Milner Institute. As a computational biologist, his scientific aim is to investigate intestinal epithelium and epigenetic modifications in the Inflammatory Bowel Diseases (IBD). Based on patient-derived organoid models, his translational aim is to develop DNA methylation clinical biomarker, IBD subtyping model, patient stratification solutions and eventually precision treatments for IBD.



Poster 21

Yanqi Cheng

Department:

Applied Maths and Theoretical Physics

Title:

You KAN Do It in a Single Shot: Plug-and-Play Methods with Single-Instance Priors

Biography

Yanqi's research lies at the intersection of applied mathematics and machine learning for large-scale real-world problems. In particular, Yanqi is interested in designing novel knowledge-driven and data-driven models to solve inverse problems, with areas of interest including optimisation, machine learning, and mathematical modelling. You are welcome to visit <https://yc443.github.io> to see more of the research Yanqi is doing.



Poster Presentations

Poster 22

Yichen K Chen

Department:

Surgery

Title:

Automated real and interpretable image biomarker discovery

Biography

I am a third-year PhD student at University of Cambridge. I have been working on developing models to assist the prediction (forecasting) of drug-induced pneumonitis. The first part of my PhD resulted in a neural network for predicting the first onset time of different disease severities from real-world data (see publication list). The second part of my PhD focuses on developing an interpretable biomarker discovery model for medical imaging data. My poster will be on the biomarker discovery model.



Poster 23

Emrys Thursfield

Department:

Materials Science and Metallurgy

Title:

Optimising Renal Tissue Models for Organoid Testing of Therapeutic Products

Biography

I am a physical scientist by background. For both my undergraduate and master's degree, I studied physical natural sciences at the University of Cambridge, focusing on chemistry and materials science during my undergraduate, and materials science during my master's. My work in biomaterials started with my master's project – optimising adhesion between 3D-printed implants and collagen scaffolds. My PhD project explores the optimisation of scaffolds for renal tissue models, some of which was presented at the World Congress of Biomaterials 2024.

