Irish Association of Pharmacologists

Friday, 6th November 2026

QUEEN'S UNIVERSITY BELFAST

IRISH ASSOCIATION OF PHARMACOLOGISTS ANNUAL MEETING (IAP26)

Irish Association of Pharmacologists

Mission Statement

Our mission is to champion pharmacology and therapeutics as a cornerstone of scientific discovery, innovation and better healthcare across the island of Ireland. We bring together researchers, educators, clinicians, industry and the wider scientific community to share knowledge, nurture emerging talent, foster collaboration and create opportunities for national and international engagement. Through research, education, partnership and advocacy, the IAP seeks to shape the future of pharmacology and maximise its impact on health and society.

Who We Are

The Irish Association of Pharmacology (IAP) is a distinguished organisation dedicated to representing Pharmacology and Therapeutics on the island of Ireland. Founded in the mid-1990s by the esteemed late Professor John Feely, a visionary researcher and clinician, the IAP remains committed to fostering the advancement of pharmacology locally and globally. In 2016, the IAP gained formal recognition as an unincorporated association, solidifying its status as a reputable and influential entity within the field. Building upon the remarkable legacy of Professor Feely, our association strives to honour his ambitions and unwavering dedication to the development of pharmacology.

Our Future Aims

- **Advancing Pharmacology Research**: We wholeheartedly promote both basic and clinical pharmacology research throughout the island of Ireland, fostering scientific discoveries that drive medical advancements and improve patient outcomes.
- **Facilitating Exchange and Collaboration**: We provide a dynamic platform for scientists in Pharmacology & Therapeutics, as well as allied disciplines in research and industry, to exchange knowledge, ideas, and collaborate on innovative projects.
- **Forging International Connections**: As a member of esteemed international associations, we open doors to global forums and contacts, facilitating research, development, and fruitful international collaborations for our esteemed members.
- **Advocacy for Positive Change**: By becoming an effective advocate for the field, we champion the interests of pharmacologists and promote policies that drive progress, improve healthcare, and contribute to the betterment of society.

Executive Committee



President: Dr Monica de Gaetano
University College Dublin (UCD), Dublin, Ireland.

Dr Monica de Gaetano is an Assistant Professor in Pharmacology and a Principal Investigator of the Diabetes Complications Research Centre (DCRC) at University College Dublin. After obtaining her BSc in the School of Pharmacy in Italy, she moved to Ireland to pursue a PhD in Molecular Medicine and a PD training in Medicinal Chemistry. Her educational research-driven teaching consists in basic and advanced cardiovascular and renal pharmacology, with a focus on drug discovery and development, both at an undergraduate and postgraduate level. She is an international leader in Resolution Pharmacology, with a long-standing interest in the biology of the monocyte-macrophage-foam cell axis, in the context of progression and regression of atherosclerosis, where she has given an important contribution to characterise the plasticity of such pivotal cell axis. Her research is currently focusing on identifying novel theragnostic for chronic macrovascular diseases. Monica received a RI-Pathway, a UCD *Ad Astra* Research and a UCD School-funded PhD scholarships, through which coordinated a translational bioactive molecule screening programme for drug candidate discovery, using *in vitro*/*ex vivo* models of human atherosclerosis. She has patented two novel molecules with pro-resolving properties in the context of vascular inflammation. Her research group in the UCD Conway Institute is currently focused on tackling the 'residual inflammatory risk' in sub-cohorts of diabetes-associated atherosclerotic patients, in order to better tailoring therapeutic interventions. More recently, upon a UCD STEM Challenge award, she gained interest in exploring the delivery of resolving molecules to the site of inflammation, *via* lipid nano particles-based systems, with the idea –in future– to design a site-specific drug delivery to macrophages in athero-prone regions of the vessel walls. After serving as VP of the association for a year, she was appointed President of IAP in November 2024.



Vice President: Dr Cormac Kennedy
Trinity College Dublin / St James's Hospital, Dublin, Ireland.

Dr Cormac Kennedy is currently a Consultant Clinical Pharmacologist and Physician at St James Hospital as well as a Clinical Senior Lecturer at Trinity College Dublin. His experience gives him a perspective of the journey of medicines from the bench to the bedside including the pharmaceutical, regulatory, economic, policy and clinical contexts. Cormac is a graduate of UCD Medical School and the School of Pharmacy Trinity College. He completed a PhD at the Royal College of Surgeons in Ireland, the product of which was subsequently patented. He received a HSE-NDTP Management and Leadership

Scholarship to undertake a Master's in Health Economics, Outcomes and Management at the London School of Economics and was awarded a Distinction. Recently, he completed a Master's in Clinical Trials at Oxford University. His clinical interests include the specialist treatment of hypertension and lipid disorders, and he has presented internationally and published in these areas. His other research interests are across a spectrum of areas related to medicines including pharmacoepidemiology, pharmaco-economics and appropriate drug usage. He was appointed VP for IAP in November 2024.

Secretary: Dr Aisling Heeran
Royal College of Surgeons in Ireland (RCSI), Dublin, Ireland.



Dr Aisling Heeran obtained a BSc in Pharmacy and M. Pharm from RCSI. Following this she completed an MSc in Translational Oncology from Trinity College Dublin (TCD). Aisling was awarded an Irish Research Council Government of Ireland Postgraduate Scholarship to complete a Ph.D. on radiation bystander events in gastrointestinal cancers in TCD. After completing her Ph.D., Aisling continued her research in gastrointestinal cancers, specifically examining the role of FKBPL across the Barrett's oesophagus to oesophageal adenocarcinoma disease progression. Aisling is now a Lecturer in Pharmacy in the School of Pharmacy and Biomolecular Sciences in RCSI and the International College for Pharmaceutical Innovation, SUDA, Suzhou, China. She was appointed IAP Secretary in November 2024.

Treasurer: Ms Orla Murphy
University College Dublin (UCD), Dublin, Ireland.



Dr Orla Murphy brings over 30 years of financial management experience to the Irish Association of Pharmacologists, where, after a year as 'Finance Consultant', she was appointed 'Treasurer' in November 2025. She currently serves as 'Office Manager and Finance Specialist' at the Conway Institute, University College Dublin. Orla holds a Business Degree, a Certificate in Public Procurement, a UCD Graduate Certificate in Veterinary Practice Management, and is a member of the Institute of Banking. With extensive experience in financial administration within the academic sector, she is committed to supporting the Association's financial governance and long-term sustainability. Her role involves managing the financial aspects of the organization, contributing to strategic decision-making, and supporting initiatives that advance the goals of the Irish Association of Pharmacologists.

Partnership & sponsorship Manager: Dr Seema Nathwani
University College Dublin (UCD), Dublin, Ireland.



Dr Seema Nathwani is a Teaching Fellow in Pharmacology in the School of Biomolecular and Biomedical Sciences at University College Dublin (UCD), where she teaches across undergraduate and postgraduate modules. Her academic background is in pharmacology and toxicology, with research and teaching interests spanning drug development, cellular toxicity and the molecular mechanisms of disease. She is also interested in education-focused research, particularly in developing innovative teaching strategies that support learning in biomedical disciplines. Alongside her academic work, Seema is actively involved in initiatives that strengthen collaboration within the pharmacology and biomedical sciences community. She is particularly interested in building partnerships that connect academia, industry and professional organisations to support education, research and early-career development. In addition to her role as 'Sponsorship & Partnership Manager' for the Irish Association of Pharmacologists, she is also a committee member of the Irish Society of Toxicology.

Student Rep: Mr Luke Conroy
University College Dublin (UCD), Dublin, Ireland.



Final year PhD student in Dr Monica de Gaetano's lab in the Diabetes Complications Research Centre (DCRC) in the UCD Conway Institute. His research is focused on looking at novel inflammatory mediators, and their nano-delivery, in the context of diabetes-associated atherosclerosis. He works with cell-lines, primary cells, as well as with human atherosclerotic tissue.

He has presented several posters and oral talks at local and international conferences, including an oral presentation at last year's British Pharmacological Society Annual Meeting. Luke was also the recipient of a prestigious mobility grant from EU-Resolve to carry out functional analysis of nanoparticle samples in the D'Annunzio University (Chieti, Italy). Since November 2024, he covers the role of PG student representative at IAP. At IAP25, hosted at UCD, he was the head of the local committee to organise the events logistics.

Executive Advisors

Professor David Williams ***(Former President)***
Royal College of Surgeons in Ireland (RCSI)/Beaumont Hospital, Dublin, Ireland.



David Williams is Professor of Stroke Medicine at the RCSI University of Medicine and Health Sciences and Consultant Stroke Physician at Beaumont Hospital Dublin. He is Past President of the Irish Association of Pharmacologists (IAP) (2018-2021) and Past Vice-President (Clinical) of the British Pharmacology Society (BPS). He is a fellow of the Royal Colleges of Physicians of Ireland and Edinburgh, The British Pharmacological Society, The British and Irish Hypertension Society and the European Stroke Organisation. His research interests include stroke medicine, hypertension, patient safety and prescribing. He has served as Clinical Vice-President of the British Pharmacological Society between 2007-10 and is currently managing editor of the European Journal of Clinical Pharmacology (EJCP). He is currently the Irish National Speciality Director of training for Clinical Pharmacology and Therapeutics, National Director of the Irish Clinical Academic Training (ICAT) programme and co-director of the Irish Stroke Clinical Trials network. He was the Principal Investigator for the Irish National Adverse Events Study (INAES 1 and 2) and Co-Lead for the HRB-funded Collaborative Doctoral Award, iPASTAR which examined improved pathways for acute stroke care and rehabilitation.

Professor Christian Waeber ***(Former President*** & ***Feely Medal Awardee)***
University College Cork (UCC), Cork, Ireland



Prof. Waeber's research explores sphingosine-1-phosphate receptor signalling and its neuroprotective potential in stroke and brain injury. His work advances understanding of neuroprotection, immune regulation and repair mechanisms in stroke outcomes. His research also extends to age-related macular degeneration (AMD), with a focus on developing novel therapeutic approaches and improved drug formulations for retinal disease. He served as IAP President for three years (2021–2024). In 2025, he received the prestigious John Feely Medal in recognition of his outstanding achievements and contributions to pharmacology research and education in Ireland.

<u>Professor Martina Hennessy</u> *(Former VP)*
Trinity College Dublin (TCD) / St James's Hospital, Dublin, Ireland



Prof. Hennessy is a Clinical Pharmacologist and Consultant Physician in St James's Hospital Dublin with expertise in hypertension and cardiovascular risk. She is the Director of the Welcome-HRB Clinical Research Facility (CRF) in St James's Hospital, Dublin and, since 2023, Chief Academic Officer (CAO) for the Dublin Midlands Hospital Group (DMHG), leading research and education integration. The DMHG is composed of 7 hospitals (St James's Hospital Dublin, Tallaght University Hospital Dublin, The Coombe Women's Hospital Dublin, St Luke's Radiation Oncology Network at St James's Hospital, Naas General Hospital, Midland Regional Hospital Tullamore and Midland Regional Hospital Portlaoise). The CAO is responsible for developing a structured and integrated approach to research, innovation, education and training for all healthcare professionals. The DMHG, which includes its Academic Partner Trinity College Dublin (TCD), is one of the largest of 7 hospital groups established as a key transitional step in a Government initiative to reorganise the Public Health System. Prof Hennessy is also the Director of Internship in The School of Medicine. In addition, she is Associate Professor in Medical Education in the School of Medicine. Prof Hennessy was the first Fottrell post appointed as part of HEA curricular reform process in 2007 and responsible for directing reform of the undergraduate medicine curriculum.

<u>Professor Steven Kerrigan</u> *(IAP24 Local organiser)*
Royal College of Surgeons in Ireland (RCSI), Dublin, Ireland



Prof. Kerrigan is Deputy Head of the School of Pharmacy and Biomolecular Sciences (Research) and Professor of Precision Therapeutics at RCSI University of Medicine and Health Sciences. He leads the Cardiovascular Infection Research Group within the Irish Centre for Vascular Biology and is Co-founder and Chief Scientific Officer of *Inthelia Therapeutics*, an RCSI spin-out company developing host-directed precision therapeutics for infectious diseases. Professor Kerrigan is an internationally recognised pharmacologist whose research has advanced and helped redefine the pharmacology of host–pathogen interactions by identifying host physiological barriers, including the vascular endothelium and epithelium, as tractable therapeutic targets for host-directed intervention. His work identified integrin αVβ3 as a key therapeutic target exploited by bacterial, viral and fungal pathogens, establishing a new paradigm for host-directed pharmacology that shifts the therapeutic focus from targeting pathogens alone to protecting the host. Steve also pioneered the pharmacological repurposing of the integrin antagonist cilengitide as a novel host-directed therapeutic and the development of biomarker-guided precision medicine strategies. Through *Inthelia Therapeutics*, he is translating these discoveries into patented technologies, commercial innovation and clinical development. Professor

Kerrigan graduated with a BSc (Hons) in Pharmacology from King's College London, an MSc in Immunopharmacology from the University of Strathclyde and a PhD in Cardiovascular Infection from RCSI, before undertaking postdoctoral research at the University of California, San Francisco. He was appointed Lecturer in Pharmacology in 2008, promoted to Senior Lecturer in 2013, Associate Professor in 2017 and Full Professor in 2021.

Natalie O'Regan ***(Former Treasurer)***
University College Cork (UCC), Cork, Ireland



Natalie O'Regan served as the Treasurer for the Irish Association of Pharmacologists, bringing a wealth of experience and dedication to the role from 2022 until November 2025. As the Executive Assistant in the Department of Pharmacology and Therapeutics at University College Cork, Natalie plays a vital role in supporting the department's operations. With a keen eye for detail and a passion for fostering collaboration within the field of pharmacology, Natalie ensured the financial well-being of the association.

Website Redevelopment



The Irish Association of Pharmacologists (IAP) would like to acknowledge and sincerely thank Dr Jack Carey, from the Anytime Creativity team, for his invaluable support and contribution to the redevelopment of our website over the past year.

Please visit www.pharmacology.ie

Programme

Time	SCIENTIFIC PROGRAMME
9:00 (15')	**Registration** at reception desk Location: Outer foyer
9:15 (15')	**Opening Remarks** **IAP President, Dr Monica de Gaetano (UCD SBBS, Dublin)** Location: Basement Seminar Room
9:30 (1h 05')	***Session 1 (EXPERIMENTAL PHARMACOLOGY):*** *Next-Generation Experimental Pharmacology: Intelligent Drug Delivery, Therapeutics and Precision Medicine* Location: Basement Seminar Room Chair: Dr Christopher Grigsby, QUB, Belfast **9:30 – 10:00 (Keynote 1)** (2'+ 25'talk + 3'Q&A) = 30' **Prof. Silvia Giordani (School of Chem. Sc., DCU, Dublin)** *"Carbon Nano-Onions as Smart Nanocarriers for Targeted and Controlled Drug Delivery"* **10:00 – 10:15 (Selected Speaker 1):** (12'talk + 3'Q&A) = 15' **Prof. David Brayden, UCD** *"Pharmacokinetic assessment of the delivery of a GLP-1 RA semaglutide peptide analogue from a dissolving sub-lingual bilayer film in pigs"* **10:15 – 10:30 (Selected Speaker 2):** (12'talk + 3'Q&A) = 15' **Dr Ciarán Kennedy, UCD** *"Lipoxin A4 and synthetic mimetics remodel inflammatory pathways in human atherosclerotic plaques: Towards targeted nano-delivery"* **10:30 – 10:40 (5' Sponsor Flash talks)** ● **GPE Scientific (Conor Fennell) – *"Life Science Expertise. Local Support"*** ●

Time	SCIENTIFIC PROGRAMME
10:35 (45')	**Coffee Break & <u>Moderated</u> Poster Session 1** (Even numbers) <u>Location</u>: Inner & Outer foyer
11:20 (1h 05')	***Session 2 (CLINICAL PHARMACOLOGY):*** *<u>Advancing Therapeutic Care at Intersections of Pharmacology, Technology & Medicine</u>* <u>Location</u>: Basement Seminar Room <u>Chair</u>: Dr Aisling Croke, SETU, Waterford (Cork Road Campus) **11:20 – 11:50 (<u>Keynote 2</u>)** (2'+ 25'talk + 3'Q&A) = 30' **Clinical Prof. Richard Turkington (School of Medicine, Dentistry & Biomed. Sc, QUB, Belfast)** *"From Biomarker to Bedside: Precision Medicine in Drug Development"* **11:50 – 12:05 (<u>Selected Speaker 3</u>):** (12'talk + 3'Q&A) = 15' **Dr Raveena Dwarika, UCD** *"Guidelines can recommend a drug- but have prescribing habits changed? An analysis of cardiovascular drug prescribing (2008 - 2025) in Ireland, as it relates to the HSE Preferred Drugs Initiative"* **12:05 – 12:20 (<u>Selected Speaker 4</u>):** (12'talk + 3'Q&A) = 15' **Ms Anisha Pattanayak, TCD** *"Sick Day Rules in the Real World: Medication Use and Management in Acute Admissions"* **12:20 – 12:30 (5' Sponsor Flash Talks)** ● **Agilent (Nick Howe) – *"Seahorse and xCELLigence; Two Routes to Study Modes of Action"*** ● **GeneWiz (Katie Scholefield) – *"GENEWIZ – Your Multiomics and Synthesis Partner"***
12:30 (45')	**12:30 – 13:15 Lunch, Sponsored by <u>Novogene</u>** <u>Location</u>: Inner & Outer foyer
13:15 (45')	***John Feely Lecture & Award*** <u>Location</u>: Basement Seminar Room <u>Chair</u>: Prof. David Williams, RCSI/Beaumont, Dublin

Time	SCIENTIFIC PROGRAMME
	Awardee: **Prof. Alice Stanton (School of Med & Health Sc., RCSI) [Emeritus Prof. of Cardiovascular Therapeutics / Consultant in Healthy Sustainable Diets]:** (5' intro + 30' talk + 10' Q&A) = 35' *"Dose Response Curves, Food Systems Transformation and Nutritional Security"*
14:00 (45'h)	***Session 3 (EDUCATIONAL PHARMACOLOGY):*** *Re-imagining Pharmacology Education Through Connected Learning & Digital Innovation* Location: Basement Seminar Room Chair: Dr Rosemary Smyth, ATU, Sligo **14:00 – 14:30 (Keynote 3):** (2'+ 25'talk + 3'Q&A) = 30' **Prof. Sharon Haughey**, Dean of Education (School of Pharmacy, QUB) *"From Mechanism to Medicine: Bridging Pharmacological Theory and Clinical Practice Through Simulation"* **14:30 – 14:45 (Selected Speaker 5):** (12' talk + 3' Q&A) = 15' **Dr Katie Coubrough (Strathclyde, UK)** *"Bridging the Theory-Practice Gap: A Mixed-Methods Linguistic Framework for Analysing Undergraduate Practical Pharmacology Competencies"*
14:45 (35')	**Coffee Break & Moderated Poster Session 2** (Odd numbered) Location: Inner & Outer foyer
15:20 (40')	***'Educational Showcase'*** Location: Basement Seminar Room Chair: Mrs. Clare Murray, School of Pharmacy (QUB), Belfast, UK 'Elevator Pitch': [2 x 5'] **15:20 – 15:25 (Invited Speaker 1): Prof. Emeritus Cherry Wainwright (BPS President)** *"BPS Educational Initiatives 2026"* **15:25 – 15:30 (Invited Speaker 2): Dr Roisin Kelly-Laubscher (IPEN)** *"Creating a Community of Practice for Irish Pharmacology Educators"* Showcase: [2 x 10' + 5' Q&A]

Time	SCIENTIFIC PROGRAMME
	15:30 – 15:45 (Invited Speaker 3): Dr Jack Carey (Anytime Creativity) *"Beyond the textbook: turning pharmacology students into practitioners"* **15:45 – 16:00 (Invited Speaker 4): Azgi Almamedova (JoVE)** *"Bringing Science to Life: How JoVE Transforms Teaching, Learning and Research"*
16:00 (15')	**16:00 – 16:20 Annual General Meeting (AGM)** Location: Basement Seminar Room Chair: Dr Cormac Kennedy, IAP VP (TCD) Co-Chair: Dr Monica de Gaetano, IAP President (UCD)
16:15 (45')	**16:20 – 16:40 IAP X ANNIVERSARY:** ***"Reeling in the years... what's next?"*** Location: Basement Seminar Room Chair: Dr Monica de Gaetano, UCD (Current IAP President) Co-Chair: Prof. David Williams, RCSI/Beaumont (Former IAP President) *"A Decade of the Irish Association of Pharmacologists (IAP) Reflecting on Our Progress and Shaping the Next 10 Years"* **16:40 – 16:45 Prof. Emeritus Cherry Wainwright (BPS President)** *"The BPS and the Pharmacology Annual Meeting"* **16:45 – 16:55 BPS-sponsored Best Oral & Poster Presentation Prizes** (awarded by the BPS President) **16:55 – 17:00 Closing Remarks** by IAP President
From 18:00	**Networking Evening** *(Light Refreshments will be served)* Location: The Linen Hall Bar, Belfast

Attendees

Keynote Speakers

1. Prof. Silvia Giordani (Dublin City University)



Title: **Carbon Nano-Onions as Smart Nanocarriers for Targeted and Controlled Drug Delivery**

Abstract:

Carbon nano-onions (CNOs) are multi-layered fullerenes composed of concentric sp^2-hybridized carbon shells. They are emerging as versatile nanocarriers for targeted drug delivery due to their small size, high surface area, tunable surface chemistry, and biocompatibility. We have developed a reliable method for synthesizing pure, monodisperse CNOs and engineering their surfaces with receptor-targeting and imaging units. These modified CNOs display high photostability in aqueous media and selective uptake by cancer cells with minimal cytotoxicity. To achieve tumor-specific delivery, we employed supramolecular functionalization with a hyaluronic acid–phospholipid (HA-DMPE) conjugate, enabling selective recognition of CD44-overexpressing cancer cells. HA-DMPE–CNOs showed enhanced uptake and viability in CD44+ human breast cancer cells compared to CD44− ovarian cancer cells, while zebrafish studies confirmed strong biocompatibility in vivo. In parallel, boron nitride–doped CNOs functionalized with HA-DMPE enabled pH- triggered release of doxorubicin (DOX). This platform achieved superior uptake and anticancer activity in multiple breast cancer cell lines (MDA-MB-231, MDA-MB-468, MCF-7) compared to free DOX and Caelyx®, while significantly reducing cardiotoxicity in AC16 cardiomyocytes. Additionally, gemcitabineloaded HA-CNOs demonstrated potent cytotoxic effects against pancreatic adenocarcinoma cells. Folic acid–modified CNOs (FA-CNOs) were engineered for receptor-mediated targeting of folate receptor–positive cancer cells, enabling efficient DOX loading and controlled release. Comprehensive spectroscopic, microscopic, and thermal analyses confirmed successful surface modification and drug incorporation. In vitro assays demonstrated that FA-CNOs significantly improve cellular uptake and drug delivery relative to non-targeted controls. These studies establish CNO-based nanocarriers as safe, customizable, and effective platforms for targeted cancer therapy, underscoring their promise in advancing nanomedicine.

Biography:

Silvia Giordani is Professor and Chair of Nanomaterials at Dublin City University (DCU), where she served as Head of the School of Chemical Sciences from 2020 to 2023. She holds a degree in Pharmaceutical Chemistry and Technology from the University of Milan and a PhD in Chemistry from the University of Miami, USA. Throughout her career, she has held academic and research positions at Trinity College Dublin, the Italian Institute of Technology and the University of Torino, where she established and led internationally recognised research groups. Her research focuses on the design and development of nanomaterials and supramolecular systems for biomedical, environmental and energy

applications, with particular interests in nanomedicine and advanced drug delivery. She has authored more than 150 scientific publications in leading international journals, which have received over 12,000 citations, and holds a patent on carbon nano-onions. Her honours include the President of Ireland Young Researcher Award, the L'Oréal–UNESCO For Women in Science Fellowship and the DCU President's Research Award. She was recently appointed Ufficiale dell'Ordine al Merito della Repubblica Italiana (OMRI) by the President of the Italian Republic. The OMRI is one of Italy's highest national honours, recognising distinguished contributions to science, culture, public service and society. The honour recognises her scientific achievements and her contribution to promoting Italian scientific excellence internationally.

2. Clinical Prof. Richard Turkington (Queen's University Belfast)



Title: **From Biomarker to Bedside: Precision Medicine in Drug Development**

Abstract:

Modern drug development often requires the design and application of biomarkers to select a suitable patient population. Every promising biomarker faces the same question: can it be turned into a test that reliably guides decisions for patients in a clinical trial? Answering it takes careful, staged work. In this keynote presentation Prof Turkington, CLIA Laboratory Director, will walk through how Almac Diagnostic Services moves a biomarker from early research to a test ready for clinical use. Almac begin by choosing the right technology and designing the assay, then check that it performs consistently across different sample types and testing platforms. Next, the test is rigorously validated against international laboratory and regulatory standards and transferred to accredited laboratories around the world to support trials from early to late phases. For tests that progress to become companion diagnostics, we discuss the final steps of clinical validation, manufacturing readiness and regulatory submission. Using practical examples, Prof Turkington will explain how Almac Diagnostic Services design and deploy clinical trial assays on a global stage.

Biography:

Prof. Richard Turkington is Professor of Medical Oncology at the Centre for Public Health, Queen's University Belfast and Consultant at the Northern Ireland Cancer Centre with an interest in oesophago-gastric and pancreatic cancer. Having graduated in medicine from Queen's University Belfast he completed specialty training in Medical Oncology and was awarded a Cancer Research UK Bobby Moore Clinical Research Fellowship to pursue a PhD in novel drug target discovery in colo-rectal cancer. Prof Turkington's work has been published in high impact journals, and he has received research support from international funders including Cancer Research UK, UKRI/Medical Research Council, Wellcome and the European Commission. In his role as a CLIA Laboratory Director at Almac Diagnostic Services he is involved in the design and international delivery of clinical trials using biomarkers on behalf of multiple global pharmaceutical companies. As part of the Cancer Epidemiology and Data Research team at Queen's University

Belfast he seeks to transform the care of oesophago-gastric and pancreatic cancer patients through the integration of laboratory discoveries, translational science and clinical research.

3. Prof. Sharon Haughey (Queen's University Belfast)



Title: **From Mechanism to Medicine: Bridging Pharmacological Theory and Clinical Practice Through Simulation**

Abstract:
How do we help students move from knowing how medicines work to making decisions about their use with real patients? As healthcare becomes increasingly complex, educators face the challenge of delivering transformative learning experiences that develop not only knowledge, but also confidence, clinical reasoning and professional capability. This keynote explores how simulation and immersive learning can bridge the gap between pharmacological theory and clinical practice. Students frequently learn mechanisms of action, pharmacokinetics and adverse effects as discrete concepts, yet struggle to apply that knowledge when faced with authentic clinical problems. Through high-fidelity simulation, interprofessional scenarios and student and patient-partnered curriculum design, learners can experience the realities of patient care in a safe and supportive environment where science becomes practice. This presentation will demonstrate how simulation enables learners to develop clinical judgement, collaborate across professional boundaries and appreciate the impact of medication-related decisions on patient outcomes. The session will illustrate how relatively small but intentional educational innovations can create meaningful learning experiences beyond graduation and prepare students to thrive in an evolving healthcare landscape.

Biography:
Professor Sharon Haughey qualified as a pharmacist in 1999 and began her career in Dublin, progressing to the role of Pharmacist Store Manager. In 2001, she joined the School of Pharmacy at Queen's University Belfast (QUB) as a part-time Teaching Fellow while continuing to practise as a community pharmacist with Boots. Following completion of her PhD, Sharon served as Director of Education (Pharmacy) from 2014-2021, providing strategic leadership during a period of considerable change within the profession and its educational requirements. She continues to teach and lead curriculum development in pharmacy law, ethics, and professional decision making. Her scholarly interests focus on interprofessional education and simulation-based learning. As a Faculty InterSim Champion within the KN Cheung SK Chin InterSim Centre, Sharon supports the integration of simulation across healthcare education programmes. Innovation in teaching, learning and assessment has been a defining feature of Sharon's work, contributing to the delivery of a modern MPharm programme and recognised within her Advance HE Principal Fellowship. In 2026, she was appointed Associate Dean of Education in the QUB Faculty of Medicine, Health and Life Sciences, where her current priorities include the development of micro-credentials, flexible learning opportunities, and educational innovation across the faculty.

Irish Association of Pharmacologists

Friday, 6th November 2026

QUEEN'S UNIVERSITY BELFAST

John Feely Medal

History



Prof. John Feely (1947 – 2009)
MB, BCh, NUI, BSc (1971), MRCPI (1974), MD (1979), FRCPI (1984), FRCP Edin (1992), FRCP (2000)

Professor John Feely was a leading Irish pharmacologist and international authority on hypertension and clinical therapeutics. A graduate of University College Dublin, he became Professor of Pharmacology and Therapeutics at Trinity College Dublin in 1984, where he built a department of global reputation. He published over 300 research papers, edited New Drugs (BMJ Publishing, 1991), and helped establish the National Medicines Information Centre and National Pharmacoeconomics Unit. As Chairman of the Irish Blood Pressure Council and Registrar of the RCPI, he advanced education, research, and patient care-leaving a lasting legacy in Irish medicine.

Significance

This medal will be awarded annually at the IAP annual meeting to a single individual chosen by a panel of their peers. It is awarded in memory of the contribution made by Professor Feely to the discipline of pharmacology. This medal will be awarded in recognition of the role of the successful candidate in the delivery of the service to the integrated disciplines of clinical therapeutics or basic pharmacology through their teaching, research, innovation, mentorship and or delivery of exemplary clinical care to patients. Candidates will normally be active on the island or Ireland, however, in exceptional circumstances, international candidates with strong links to the island of Ireland may be considered. The successful candidate will deliver a keynote lecture titled: "The John Feely Lecture".

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QUEEN'S UNIVERSITY BELFAST

2026 Awardee



Professor Alice Stanton, (RCSI, School of Med. & Health Sci.)

Lecture Title: ***"Dose Response Curves, Food Systems Transformation and Nutritional Security"***

Abstract:

The world in 2026 faces a climate and biodiversity crisis. The food system contributes importantly to both of these crises. Hence, there is indeed a need for transformation, so that all have access to healthy diets, while at the same time safeguarding the planet's health. The details of how that is best achieved is the subject of considerable debate – how much change should come from each section of the food system – how much change from food production, processing, distribution and retailing, and how much from consumption? Many recent publications have identified dietary shift as the key food system transformation. Doubling intakes of many plant-source foods (PSFs), and considerable reductions in, or even total exclusion of, animal-source foods (ASFs) from the human diet, have been proposed. In this presentation, the reliability of the claims for benefits for human health from universal adoption of such plant-based diets will be examined. The World Health Organisation describes healthy diets as "helping to protect against malnutrition in all its forms, as well as chronic noncommunicable diseases." With regard to protection against malnutrition, it is of concern that the most influential plant-based diet, EAT-Lancet's planetary health diet, aims for only 50% of the world's populations to consume sufficient micronutrients. The Global Burden of Disease (GBD) collaborators produce global health metrics which hugely influence scientists and governments, in making decisions for public health priorities. It is therefore of considerable concern that the dose-response curves underlying the GBD dietary metrics appear to dramatically overestimate the dangers for, and the protections from chronic non-communicable diseases, of consuming very small quantities of ASFs and PSFs, respectively.

Short bio:

Prof. Alice Stanton is a clinician-scientist. Current roles include; Professor of Cardiovascular Therapeutics at the RCSI University of Medicine and Health Sciences, and Consultant concerning Healthy Sustainable Diets. She served on the Committee developing "Ireland's Agri-food Strategy to 2030", and as an Assembly Member for the Horizon Europe Cancer Mission. She is a Member of the Irish Climate and Health Coalition, the World Action against Salt, Sugar, and Health (WASSH), Meat Technology Ireland, and the Scientific Council of World Farmers Organisation. She has authored in excess of 150 peer-reviewed published papers (Scopus h-index 60), and delivered many lectures concerning evidence-based healthy diets from sustainable food systems. Recently, she was lead author on a Lancet letter, which robustly questioned the reliability of the Global Burden of Disease 2019 collaborators' estimates of deaths attributable to

unprocessed red meat. As Professor of Cardiovascular Therapeutics, she contributes to all three pillars of RCSI's strategic plan; delivering a transformative learning experience, leading impactful research, and supporting healthcare and societal well-being in Ireland and internationally. As Director of Human Health, and a Leadership Team Member at Devenish, she contributed to the company's vision of being the leading provider of integrated environmental, animal and human health solutions - she was principal investigator on a range of human nutrition related research projects, and provided expert advice to a range of Devenish teams (Food Innovation, Agriculture & Sustainability, Regulatory Affairs, and Commercial Teams).

Partners

British pharmacological Society (BPS)



Professor Emeritus Cherry Wainwright (BPS President)

Cherry graduated from the University of Aberdeen with a BSc (Hons) in Pharmacology and subsequently the University of Strathclyde with a PhD in Cardiovascular Pharmacology. She is a Fellow of the British Pharmacological Society and the Higher Education Academy, and a member of the IUPHAR Natural Products Section Committee. Cherry spent over 20 years at Strathclyde as an academic involved in both teaching and research, before moving to the Robert Gordon University in Aberdeen in 2003 as a Research Professor, where she spent 8 years as the Director of the multi-disciplinary Institute for Health & Wellbeing Research (2007-2015). She is now the lead in Cardiometabolic Health Research and Co-Director of the Centre for Natural Products in Health, which focuses on the identification of novel pharmaceutical and nutraceutical agents from plant, marine algal and food processing waste-derived sources. Throughout her career Cherry's research has focused on mechanisms underlying the pathophysiology and the identification of novel therapeutic targets of cardiovascular diseases; and one of the main threads has been the evaluation of the role of endogenous biological mediators as both the perpetrators of, and protective substances against, cardiovascular disorders. For the last 16 years her emphasis has been on the role of the endocannabinoid system in cardiac (ischaemia/reperfusion) and vascular (atherosclerosis, restenosis) injury and energy regulation in the cardiovascular system. Her seminal paper on the cardioprotective effects of CBD opened up her current research programme that focuses on the role of the putative cannabinoid receptor GPR55 in regulating cardiovascular physiology and pathophysiology and the role this receptor plays in the relationship between obesity, metabolic syndrome and the development of cardiovascular disorders. Cherry has published over 90 full original articles, 200 conference proceedings, 7 invited reviews, 6 book chapters, edited one book and prepared 20 unpublished reports to industry. She also has 3 patent applications and has given over 30 invited symposium lectures.

Queen's University Belfast (IAP 2026 Host University)



Prof. Gavin Andrews (QUB Head of School of Pharmacy)

The School of Pharmacy at Queen's is acknowledged as a leading centre for Pharmacy teaching and research in the UK. Our School offers excellent, purpose-built teaching and research facilities, including over 40 modern laboratories that support hands-on learning and innovation.

https://www.qub.ac.uk/schools/SchoolofPharmacy/



Dr Fiona Furlong (Local Organiser)

Dr Fiona Furlong graduated from University College Dublin (UCD) with an honours degree in Pharmacology and subsequently completed a PhD in Cell Biology. Prior to joining Queen's University Belfast (QUB), she was awarded an Irish Cancer Society Career Development Research Fellowship, where she established her research in chemoresistance in ovarian cancer. Dr Furlong's work focuses on improving therapeutic outcomes for women with ovarian cancer through functional precision pharmacology. Her research integrates experimental cancer models with advanced drug-response profiling to better understand how tumours respond to treatment. Her group studies drug effects across 2D, 3D, and immune cell co-culture systems, enabling evaluation of treatment responses within biologically relevant microenvironments. A central component of her programme involves the development of high-throughput and high-content drug screening platforms using both established cancer cell models and patient-derived samples. At QUB, Dr Furlong leads a research programme in cancer pharmacology and biomarker development, aimed at characterising the mechanisms of action of anti-neoplastic agents and defining the molecular determinants of drug response and resistance. Current projects include combination drug screening to identify synergistic cytotoxic interactions, alongside investigations into the pharmacology of immunomodulating anti-cancer therapies and their impact on tumour–immune dynamics. Her expertise spans molecular pharmacology, drug mechanism studies, and downstream protein signalling pathways in cellular models of cancer. This work has contributed to a strong publication record in areas including combination drug strategies, biomarker analyses, and HDAC6 polypharmacology. Collectively, this work seeks to define more effective and mechanistically rational combination therapies to treat cancer.

Meet Our Chairs



Dr Christopher Grigsby – Experimental Pharmacology Session

Christopher Grigsby joined the QUB School of Pharmacy in 2023 as a Lecturer in Molecular Nanotherapeutics and was appointed a Queen's Illuminate Pharmacy Fellow in 2026. He earned a B.S. in Bioengineering from UC Berkeley and a Ph.D. in Biomedical Engineering from Duke University, where he was recognized with fellowships from the American Heart Association, Whitaker International Program, and the US Fulbright Program. He was a Whitaker postdoctoral fellow in the Stevens group at Karolinska Institutet. His research focuses on the development and translation of polymeric biomaterials for the delivery of macromolecular drugs for regenerative medicine and genome editing.

Applications have included gene transfer in diverse primary cells, tissues and in vivo models, nucleic acid vaccines, modeling nuclear protein transport in muscle, and the first report of nonviral direct reprogramming to functional neurons. He has developed quantum dot-FRET nanosensors for tracking intracellular unpacking, and microfluidic nanomanufacturing platforms to enable scalable production of polymer nanoparticles. His group's research applies a multidisciplinary approach using advanced techniques including super-resolution microscopy, microfluidics, organoids, and laboratory automation. His current focus is on the delivery of CRISPR-Cas genome editing for the treatment of inherited and acquired disease.



Dr Aisling Croke – Clinical Pharmacology Session

Dr Aisling Croke is a Lecturer in Pharmacy at South East Technological University (SETU), leading curriculum design, assessment and academic quality across the MPharm programme. She is a registered pharmacist with over 13 years' experience across community, hospital and general practice settings. She is a national pharmacy licensing examiner and honorary lecturer with the Irish Pharmacy Union and Irish College of General Practitioners. She has a PhD in Health Services Research evaluating pharmacist-led medicines optimisation in general practice. Her research involves complex polypharmacy, deprescribing and safe prescribing in multimorbidity, and she is a research affiliate of the Canadian Deprescribing Network.



Dr Rosemary Smyth – Educational Pharmacology Session

Dr Rosemary Smyth is a Senior Lecturer in Pharmacy and MPharm Programme Lead at Atlantic Technological University (ATU), Sligo. She has a PhD in Toxicology from University of London and has over 18 years of experience in pharmacy and drug discovery education. Prior to joining ATU in 2024 she was the Deputy Director of MSc Drug Discovery progammes at UCL School of Pharmacy in London. Her research background is in biomarkers of hepatic toxicity and disease.



Mrs Clare Murray – Educational Showcase Session

Clare Murray is a Lecturer in Education in the School of Pharmacy at Queen's University Belfast, where she combines clinical experience with a passion for teaching and educational development. A qualified pharmacist, Clare graduated from Queen's University Belfast with a First-Class Honours degree in Pharmacy in 2005 and has worked across community pharmacy and general practice throughout her career. She was appointed Lead General Practice Pharmacist in 2018 and maintains links with general practice alongside her academic role, drawing on extensive clinical experience to inform her teaching and educational practice. Clare is a Fellow of the Higher Education Academy (FHEA), a qualified Independent Prescriber and holds a distinction in the MSc in Advanced Clinical Pharmacy Practice. Throughout her career, she has supported learners and healthcare professionals, mentoring students and practitioners at various stages of their professional journeys. In addition to her university teaching responsibilities, she contributes to the education and assessment of pharmacist prescribers in Northern Ireland. Within the M Pharm programme, Clare teaches across a broad range of clinical and professional practice areas and is actively involved in curriculum delivery, student support, and postgraduate education. Her scholarly interests centre on pharmacy education, clinical reasoning, student engagement, and developing effective and inclusive learning environments. Her recent work has explored innovative approaches to teaching and learning, with a particular focus on supporting meaningful learning and preparing future pharmacists for contemporary healthcare practice. Clare's contributions to pharmacy and education have been recognised through several professional and institutional awards, including two Queen's University Belfast Teaching Awards, recognition as Young Community Pharmacist of the Year at the Pharmacy in Focus Awards, and the Northern Ireland Healthcare Award for Education and Self-Development within Pharmacy. She remains passionate about advancing healthcare education and supporting learners to develop the knowledge, skills, and confidence required to make a positive impact on patient care and professional practice.

Book of Abstracts

Oral Presentations

1. **Prof. David Brayden** (University College Dublin)

"Pharmacokinetic assessment of the delivery of a GLP-1 RA semaglutide peptide analogue from a dissolving sub-lingual bilayer film in pigs"

Karki. S [1] *, Otvos, J [2] *, Bahoun, F , Lorenz, S [2], Berthelsen, R [6], Pantazoglou, E [3], Sacramento, M [3,4], Nielsen, LH [3], Ismail, R [5], Rollet, N [6], Rodrigues, J [4], Mano, J [4], Ijaz, M [1], Buckley, ST [7], Alogna, A [2], & Brayden, DJ [1].

1. UCD School of Veterinary Medicine, University College Dublin, Belfield, Dublin, D04 V1W8, Ireland.
2. Department of Cardiology, Angiology and Intensive Care Medicine, Deutsches Herzzentrum der Charité, Campus Virchow-Klinikum, Augustenburgerplatz 1, 13353 Berlin, Germany.
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4. CICECO - Aveiro Institute of Materials, Department of Chemistry, University of Aveiro, Campus Universitário de Santiago, Aveiro, 3810-193, Portugal.
5. Labtec GmbH, Raiffeisenstraße 4, 40764 Langenfeld, Germany.
6. AdhexPharma, 42-44 Rue de Longvic, 21300, Chenôve, France.
7. Therapeutics Discovery, Novo Nordisk, Måløv, 2760, Denmark.

Oromucosal administration of peptides to the systemic circulation offers a complementary route to the oral route with the benefits of first pass avoidance, no food interactions, and an attractive dosage form for the elderly (1). The problem addressed was to take an oromucosal GLP-1 RA bilayer film and translate its ex vivo potential (2) into a large animal model for proof-of-principle for peptide administration. The 2.5 cm^2 bilayer film comprised a low potency analogue of semaglutide (10 mg) paired with a bile salt permeation enhancer, sodium glycodeoxycholate (GDC, 20 mg), in a mucoadhesive layer made from pullulan and carboxymethyl cellulose, with a backing layer made from Eudragit® RL PO polymer. Porcine buccal and sub-lingual mucosal regions are non-keratinised and similar to human (1).

We first evaluated co-presentation of the GLP-1RA with GDC as a mixture in a 1:2 ratio in 19 mm diameter Hilltop chambers (HTCs) comprising a cotton pad overlain with adhesive tape to either the buccal or sub-lingual sites of anaesthetised Cardio pigs. Sub-lingual administration in HTCs over 4 hours application produced 19% bioavailability (BA) for the GLP-1 RA versus 0.8% BA for buccal, indicating that the former is the preferred site. Next, we attached bilayer films to sub-lingual sites of pigs for 0.5, 1, 2, and 4 hours and achieved BA values of 8% (0.5 and 1h), 14% and 19% respectively, without damaging the mucosae. Since oral Ozempic® has a BA of ~1% in dogs and humans, these pig PK data offer an opportunity for convenient once weekly sub-lingual peptide dosing.

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2. **Dr Ciarán Kennedy** (University College Dublin)

"Lipoxin A4 and synthetic mimetics attenuate inflammatory pathways and remodel the proteomic and transcriptomic landscape of human atherosclerotic plaques"

Ciarán Kennedy[1*], Braden Millar[1*], Luke Conroy[1], Simone Marcone[2], Mary Barry[3], Edward Mulkern[4], Ciaran McDonnell[4], Martin O'Donohoe[4], Eoin Brennan[5], Catherine Godson[5], Monica de Gaetano[1]

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2 School of Biology and Environmental Science, University College Dublin, Dublin, Ireland
3 St Vincents University Hospital (Dept. of Surgery), University College Dublin, Dublin, Ireland
4 Mater Misericordiae University Hospital, Cardiovascular Surgery Department, Dublin, Ireland

Atherosclerosis is a chronic inflammatory disease characterized by progressive vascular impairment and remains the leading cause of cardiovascular mortality worldwide. Disease progression is dictated by the balance between pro-inflammatory pathways and active resolution [1]. Specialized pro-resolving mediators (SPMs) like Lipoxin A4 (LXA4) drive inflammation resolution without systemic immunosuppression, but poor metabolic stability limits clinical use [2]. Synthetic mimetics offer improved stability, presenting a viable translational strategy [3]. We utilized mass spectrometry-based proteomics and ex vivo human carotid plaque explants to interrogate how native LXA4 and mimetics (AT-01-KG, AT-01-CT) remodel human atherosclerotic plaques. Plaque explants (N=5 patients) were pre-treated with LXA4 (1nM), AT-01-KG (100nM), AT-01-CT (100nM), or vehicle (0.1% EtOH) before 24 h TNF (5 ng/ml) stimulation. Conditioned media and tissue lysates underwent LC-MS/MS proteomic profiling, GSEA, and bioinformatic analyses, with key targets validated via RT-qPCR, ELISA, and Western blot. In vehicle-treated plaques (EtOH + TNF), pro-inflammatory and thrombotic cascades were strongly enriched (NES > +1.8). LXA4 and mimetics strikingly reversed these profiles. AT-01-CT suppressed complement and inflammatory cascades (NES < -2.5) while upregulating oxidative phosphorylation and TCA cycle pathways (NES > +2.5). AT-01-KG blunted complement, coagulation, and NF-κB signaling. By RT-qPCR, LXA4 significantly reduced IL6 and OLR1 expression in TNF-stimulated plaques, with AT-01-KG showing increased repression. These data demonstrate that native LXA4 and synthetic mimetics actively reprogram the inflammatory landscape of human plaques ex vivo. By suppressing pro-inflammatory and thrombotic pathways while shifting metabolism toward tissue homeostasis, synthetic SPM mimetics represent promising therapeutic candidates for cardiovascular disease.

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3. **Dr Raveena Dwarika** (University College Dublin)

"Guidelines can recommend a drug- but have prescribing habits changed? An analysis of cardiovascular drug prescribing (2008 2025) in Ireland, as it relates to the HSE Preferred Drugs Initiative"

Raveena Dwarika[1], Lorna Williams[1,2], Collete Morris[1,3], Helen C. Gallagher[1]

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[2] Current address: Fiona Stanley Hospital, Perth, Western Australia.
[3] University Hospital Waterford, Co. Waterford.

Background: The Preferred Drugs Initiative (PDI) was introduced by Ireland's Health Service Executive Medicines Management Programme in 2013 to promote cost-effective, evidence-based prescribing by recommending a single preferred drug within a therapeutic class [1,2]. Previous evaluations were limited to data up to 2016 and reported mixed effects [1,3]. This study assessed the impact of the PDI on prescribing of five cardiovascular classes (statins, ACE inhibitors, angiotensin-II receptor blockers (ARBs), beta-blockers and calcium channel blockers (CCBs), from 2008 to 2025.

Methods: An observational drug-utilisation study was performed using Primary Care Reimbursement Service data for the General Medical Services (GMS) and Long-term Illness (LTI) schemes [4]. Annual reimbursed prescription counts for preferred and comparator agents were analysed by segmented linear regression and market-share calculations.

Results: Impact varied markedly. Simvastatin (preferred 2013) never exceeded 7% and declined in the GMS after designation (post-PDI –2,876/year). The 2020 replacement by atorvastatin aligned guidance with practice (prescribing rose from 59% to 62%). Candesartan remained a minor agent (peak 19%). Ramipril and bisoprolol, already dominant before selection, further increased their GMS shares to 68% and 82% respectively by 2025. Amlodipine's share fell despite rising volumes because of faster growth in lercanidipine. Large post-2013 LTI increases largely reflected scheme expansion rather than a PDI effect. Only ARBs and CCBs showed statistically detectable post-PDI accelerations.

Conclusions: Three preferred agents (ramipril, bisoprolol, atorvastatin) were already market leaders before designation, while simvastatin and candesartan remained among the least used. Observed trends primarily reflected pre-existing preferences, rising cardiovascular disease prevalence and changes in scheme eligibility. Limitations include incomplete population coverage and the absence of patient-level data. Greater engagement with prescribers and routine evaluation are required if national preferred-drug policies are to influence real-world practice.

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4. **Ms Anisha Pattanayak** (Trinity College Dublin)

"Sick Day Rules in the Real World: Medication Use and Management in Acute Admissions"

Anisha Pattanayak[1], Rohit Upadhyay[1], Thomas Joseph Hopkins[1], Dr Maria Coleman, Dr Cormac Kennedy[2]

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[2] Department of Pharmacology & Therapeutics, St James's Hospital, D08 D08 NHY1 Dublin, Ireland

The Authors have chosen not to publish their abstract

5. **Dr Katie Coubrough** (University of Strathclyde)

"Bridging the Theory-Practice Gap: A Mixed-Methods Linguistic Framework for Analysing Undergraduate Practical Pharmacology Competencies"

Katie Coubrough[1], Kirsty Tinto[2], Maheen Wahid[1], Nicholas Klemm[1], Annette Sorensen[1], Robin Plevin[1], Aidan Seeley[3], Betty Exintaris[4], Nilushi Karunaratne[4], Roisin Kelly-Laubscher[5], Margaret Cunningham[1]

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[2] School of Medicine, Dentistry & Nursing, University of Glasgow, Scotland, UK
[3] Swansea Worm Integrative Research Laboratory (SWIRL), Swansea University Medical School, Swansea University, Swansea, UK
[4] Faculty of Pharmacy and Pharmaceutical Science Education, Monash University, Melbourne, Australia
[5] Department of Pharmacology & Therapeutics, School of Medicine, College of Medicine and Health, University College Cork, Cork, Ireland.

Practical laboratory competence reinforces pharmacological reasoning [1]. Objective Structured Practical Examinations (OSPEs) assess competency, but traditional pass/ fail rubric marking describes where students falter, not why. We have developed a mixed-methods linguistic framework that treats OSPE free-text responses as evidence of how undergraduates construct pharmacological knowledge.

Following ethical approval and data anonymisation, this project collected 7,071 written responses from 442 second-year pharmacology students in three consecutive cohorts (2023–2026). A provenance-parsing step isolated 6,301 student-authored responses, maintaining non-response as its own outcome and linguistic analysis as restricted to verbatim student response. Thematic coding was combined with per-question chi-square testing (Benjamini–Hochberg corrected) and mixed-effects logistic regression with random intercepts for student and question.

Between-question variance exceeded between-student variance in attainment (SD 1.25 vs 0.92), indicating that difficulty is a property of the task rather than the individual's ability. Themes of misunderstanding recurred across all three cohorts (Figure 1). This recurrence is precisely what we want to explore by applying this mixed-methods analysis framework to national and international datasets. Through this cross-institutional application we can explore whether or not these themes are local or generalisable and, because the framework is method-driven rather than content-driven, it can be applied to any OSPE dataset.

Treating OSPE transcripts as analysable discourse provides a mechanism-level account of student under-attainment. Mapping these findings onto Kane's validity framework [2] demonstrates that student language itself authentically measures practical understanding. The pipeline will be released as an open-access R tool to enable automated, cross-institutional diagnostic assessment.

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Irish Association of Pharmacologists

Friday, 6th November 2026

QUEEN'S UNIVERSITY BELFAST

Posters

Even Numbers to present during first session (10:40 – 11:20 am)*
Odd Numbers to hang posters during second session (14:45 – 15:25 pm)

* Please remove your posters after your moderated session to allow people to hang posters for the next session*

Everyone must remove their posters at the end of the day!

1. Roisin Kelly-Laubscher
2. Jayce O'Shields
3. Blessing Airhihen
4. Ryan Fagan
5. Monica de Gaetano
6. Marwa Mustafa
7. Marwa Mustafa
8. Alan Keenan
9. Andrea Kwakowsky
10. Ruadhan O'Laoi
11. Lauren Ellis
12. Lauren Ellis
13. Thomas Joseph Hopkins
14. Adeela Masood
15. Richard Hurley
16. Richard Hurley
17. Rohit Upadhyay
18. Zahra Rajabally
19. Nishtha Pange
20. Lauren McCosh
21. Refik Kuburas
22. Luke Conroy
23. Ericka Janine Bonifacio
24. Camilla Maria Fontana
25. Ye Yang
26. Huiyuan Yang
27. Benjamin David Pepperrell
28. Kate Campbell
29. Yin Sing Low
30. Yingming Zhou
31. Jay Campbell
32. Braden Millar
33. Lucy McDonnell
34. Irwin Tze Yu Fong
35. Beril Güney
36. Samuel McDowell
37. Fionnuala Doran
38. Seema Nathwani
39. Diego Armando Acevedo Guzmán
40. Shashank Balaji

Poster Presentations

1. **Roisin Kelly-Laubscher** (University College Cork)

"Evaluation of Core Competency Development in Pharmacology Workshops"

Linda Katona[1], Roisin Kelly-Laubscher[1]

[1] Dept. Pharmacology & Therapeutics, School of Medicine, College of Medicine and Health, University College Cork, Cork, Ireland

While pharmacology education research has largely focused on Core Concepts, less attention has been given to core competencies. We therefore combined internationally recognised competency frameworks to develop one aligned with expectations for pharmacology students in our BSc Medical and Health Sciences programme. This framework was used to evaluate the intended and experienced competencies taught in two fourth-year module workshops: (1) data analysis and (2) ethical design of animal experiments. Student feedback was collected through an anonymous Microsoft Forms survey, alongside lecturer reflections.

The data analysis workshop was designed to develop competencies in the "data handling and analysis" and "experimental design" clusters, while also offering opportunities to practice skills in the "professional and team skills", "communication", and "information and critical thinking" clusters. However, the workshop proved too conceptually and practically difficult, limiting students' ability to engage independently.

The ethics workshop was designed to develop competencies in the "experimental design" cluster, while also supporting "information and critical thinking" and "communication" skills. Some students appeared disengaged, possibly because not all intended to work with animals and therefore did not see the workshop as directly relevant. Nevertheless, understanding ethical research processes remains important for all graduates.

Student feedback suggested that all intended competencies, except "experimental design," were developed through the data analysis practical. Although student feedback was limited, staff reflections and competency mapping provided useful insights to refine both workshops, improve engagement, emphasise the broader relevance of these competencies, and support alignment with international standards.

2. **Jayce O'Shields** (University College Dublin)

"Responses to Medication and Lifestyle Questionnaires In A Weight Loss Clinical Trial For Patients With Resistant Hypertension"

Jayce O'Shields[1], Cormac Kennedy[1,2], Martina Hennessy[1,2], Lauren Ellis[2], Louise Conway[2]

[1] Trinity College Dublin
[2] St. James's Hospital

Semaglutide has been shown to improve blood pressure (1). In preparation for a pilot feasibility study measuring the effect of semaglutide on blood pressure in patients with obesity and resistant hypertension (SUPPORT), we analysed pre-randomization survey data to characterize the sample's baseline.

Consented participants completed four instruments: EQ-5D-3L, Beliefs about Medicines Questionnaire (BMQ), Hill-Bone Compliance Scale (HB-HBP), and the Best Health Program Questionnaire (BHQ), assessing health-related quality-of-life, health beliefs, medication adherence, and health lifestyle behaviours. Likert scales were numerically coded; some scores were summated.

Twenty-eight participants returned surveys (53.6% male, median age 55 [50 – 63], 78.6% White Irish). Most reported no issues in most quality-of-life domains. BMQ responses indicated 53.6% indifference, 35.7% acceptance, 7.1% ambivalence, and no scepticism toward blood pressure medications. HB-HBP results suggested high medication adherence. BHQ findings showed 21.4 –25.0% of participants ate fruits and vegetables daily, 67.9% avoided sugary drinks, 39.3% ate convenience foods at least weekly, and 60.7% used screens while eating. Sedentary behaviours were prevalent; walking and housework/childcare were the most reported (92.9%) forms of exercise. Most participants reported positive mood, and 50% got at least 6 hours of sleep per night. Interpretation of some HB-HBP items could vary, highlighting potential limitations.

In this pre-intervention cohort, health-related quality-of-life, medication adherence, and health beliefs were favourable, while lifestyle behaviours varied. These findings support feasibility in larger trials. Both supplemental lifestyle interventions and pleiotropic effects of semaglutide will likely influence secondary endpoints alongside semaglutide's primary effects on blood pressure, weight, and appetite.

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3. **Blessing Airhihen** (Nottingham Trent University)

"Siponimod as a Novel Therapy for Ocular Neovascular Diseases: Mechanistic Characterisation and Development of a Sustained Ocular Delivery System"

Blessing Airhihen

[1] Nottingham Trent University, Nottingham NG1 4FQ, UK.

The higher education sector is undergoing rapid change and student engagement remains a challenge. The students, too, are not left out of the pinch. The impact of digital saturation and artificial intelligence on metacognition and attention span of students, the need for rapid turnaround times for coursework submission and fragmented attention are reshaping metacognition and reducing the mental space students have to deeply engage with complex concepts. The pressure is amplified for those from social-mobility backgrounds, those with limited social capital, and diverse learners. The cognitive demands of scientific learning can be enormous, impacting their ability to understand scientific concepts.

Traditional lecture-based delivery may be contributing to low student engagement due to heavy content and a fixed way of teaching with no consideration for diverse learner needs.

We demonstrate an emerging innovation developed at Nottingham Trent University. This approach is grounded in relational pedagogy, which emphasises key elements such as power sharing, psychological safety, connection and belonging, presenting care as a key factor for student engagement. Interventions such as emoji-based emotional check-ins and low-stakes multiple-choice questions were embedded in lectures to reduce cognitive load, acknowledge wellbeing, and enhance confidence.

Preliminary data show student engagement with these micro-interventions. Surveys indicate relative mapping to core competencies including engagement, confidence building and subject knowledge. Peer Observation of Learning independently rated the session as "inspiring," highlighting the method's originality. These findings suggest that embedding care-centred innovation can enhance engagement and belonging for diverse learners.

4. **Ryan Fagan** (Wellcome-HRB Clinical Research Facility, St. James' Hospital)

"Open-Label Extension Uptake as a Measure of Participant Engagement: Early Findings from the SUPPORT Semaglutide Trial"

Lauren Ellis[1], Ryan Fagan[1], Michelle Louise Conway[1], Catriona Ryan[1,2], Kenji Miyauchi[1], Martina Hennessy[1,2], Cormac Kennedy[1,2]

[1] Wellcome-HRB Clinical Research Facility, St. James's Hospital, Dublin 8
[2] Trinity College Dublin, Dublin 2, Ireland

Open-label extension (OLE) studies provide follow-up beyond blinded trials (1). Uptake may reflect participant engagement, although motivations for continued participation vary (2). We evaluated OLE uptake in the SUPPORT Study.

SUPPORT is a multicentre randomised controlled trial of semaglutide in adults with overweight or obesity and resistant hypertension. After the blinded phase, eligible placebo recipients were offered semaglutide, while semaglutide recipients transitioned to usual care with off-treatment follow-up. Trial completion, retention, OLE enrolment and available reasons for declining were reviewed descriptively.

Of 46 randomised participants, 11 withdrew or were lost to follow-up. At analysis, 26 of the remaining 35 had completed the blinded phase; 24 (92.3%) enrolled in the OLE and two declined. Uptake was high across sites and included participants offered semaglutide and those transitioning to usual care. Preliminary review suggested that declining participation primarily reflected individual circumstances rather than treatment or procedural concerns.

High OLE uptake suggests sustained research engagement. Anticipated semaglutide access may have supported retention among placebo recipients, particularly if observable effects enabled participants to infer allocation. Participation among those transitioning to usual care suggests that continued clinical contact and monitoring may also motivate engagement; these explanations remain untested. The extension provides a structured bridge to usual care and an opportunity to assess outcomes after treatment withdrawal. OLE uptake may complement retention measures, but cannot independently establish treatment acceptability. These preliminary findings support the feasibility of continued follow-up in this population.

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5. **Monica de Gaetano** (University College Dublin)

"Evaluating the Nature–Action–Consequence (NAC) Framework to Support Pharmacology Learning"

Monica de Gaetano, Seema Nathwani, Orina Belton

[1] UCD *School of Biomolecular and Biomedical Science, University College Dublin, Belfield Dublin 4.*

Pharmacology students must integrate large volumes of information about drugs with their molecular mechanisms and clinical consequences. While various pedagogical approaches aim to improve engagement [1], some, such as traditional flashcards, may reinforce fragmented recall rather than conceptual integration. We introduced the Nature–Action–Consequence (NAC) framework to address this gap, scaffolding learning through Nature (what the drug/class is), Action (its molecular or physiological mechanism) and Consequence (therapeutic and pleiotropic effects, adverse effects and contraindications). This study evaluated students' perceptions of NAC in supporting understanding, revision and application of pharmacological knowledge.

NAC was incorporated into Stage 2 and 3 pharmacology modules serving Science, Medicine and Nursing/Midwifery students. Following module completion, students were surveyed across three cohorts (n=6–14 respondents per cohort). 83–100% agreed or strongly agreed that NAC supported understanding of drug mechanisms, while 79–100% agreed or strongly agreed that it supported examination revision. Students also indicated that they would use NAC in future pharmacology learning and found it useful for applying pharmacological knowledge. Qualitative feedback highlighted its value in structuring learning, with one student suggesting that NAC should be "implemented across the module".

These preliminary findings suggest that students across different disciplines perceive NAC as a useful learning/revision tool for structuring and integrating pharmacological knowledge. Further evaluation will explore its impact on learning and application of knowledge.

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1. Rubaiy HN. 2021. Strategies to Inspire Students' Engagement in Pharmacology Courses. Pharmacy (Basel). doi: 10.3390/pharmacy9020070.

6. **Marwa Mustafa** (University Hospital Limerick)

"Assessing Compliance with Structured Medication Review Documentation Among ICPOP Patients Aged 65 Years and Older Prescribed Five or More Regular Medications"

Marwa Mustafa, Arslan Zahid, Jawad Shehzad, Alan Keenan, Khalid Umar, and Fatimah Zahra Rajabally

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[2] St Camillus Hospital

Aim: To assess whether ICPOP patients aged 65 years and over prescribed five or more regular medicines had a documented structured medication review.

Standard: NICE Guideline NG5 recommends considering structured medication review for older people and those taking multiple medicines. For this audit, the local standard was that all eligible ICPOP patients should have a documented structured medication review addressing their medicines, indication, effectiveness, safety, adherence, patient priorities, monitoring requirements and agreed actions (1).

Method: A retrospective audit of 30 ICPOP patient records was undertaken from the month of July to September 2026. Patients aged 65 years and over with prescribed five or more regular medicines were included. Records were reviewed for an up-to-date medication list, documentation of a structured medication review, medication related problems, and a documented action, monitoring plan, referral or rationale for no change.

Results: Of 30 records reviewed, 24 patients met the inclusion criteria. A current medication list was documented in 24/24 records. A structured medication review was documented in 23/24 records. Medication related problems were identified in 12/24 records, including high risk medicines, possible duplicate therapy, unclear indication, adherence concerns or requirements for monitoring. A documented clinical action, such as deprescribing, dose adjustment, monitoring, referral or a rationale for continuing treatment, was recorded for 12/12 patients with an identified medication related problem.

Conclusion: ICPOP demonstrated high compliance with structured medication review documentation for older people with polypharmacy. The single missing review identifies an opportunity to introduce a standardised medication review section in the ICPOP assessment template, ensuring consistent documentation for every eligible patient. Re-audit should be undertaken following implementation.

Reference: National Institute for Health and Care Excellence. Medicines optimisation: the safe and effective use of medicines to enable the best possible outcomes. NICE Guideline NG5. 2015. Available at: https://www.nice.org.uk/guidance/ng5

7. **Marwa Mustafa** (University Hospital Limerick)

"Orthostatic hypotension detection and medication review in an older people falls clinic: a clinical audit"

Marwa Mustafa, Jawad Shehzad, Arslan Zahid, Shiji Paulose, Alan Keenan, Khalid Umar, and Fatimah Zahra Rajabally

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Background and aim: Orthostatic hypotension (OH) is an important, potentially medication modifiable cause of falls in older adults. This audit assessed the completeness and technical quality of lying and standing blood pressure (BP) assessment in an Integrated Care Programme for Older People (ICPOP) falls service, and whether abnormal findings generated documented clinical follow up relevant to medication safety. Standards were based on HSE falls guidance, NICE NG249, the Royal College of Physicians (RCP) procedure for orthostatic BP measurement and pre-specified local process standards for proposed prospective targets for QI/re-Audit.

Methods: A retrospective first-cycle clinical audit reviewed 30 de-identified records of adults aged ≥65 years who attended ICPOP during July and August 2026 for falls or falls-risk assessment. Documentation of lying blood pressure, standing blood pressure at one and three minutes, pulse, standing symptoms, orthostatic hypotension, medication review and subsequent clinical response was assessed against predefined audit criteria. Pulse documentation was evaluated as an additional evidence-based quality-improvement criterion. Orthostatic hypotension was defined as a reduction in systolic blood pressure of ≥20 mmHg and/or diastolic blood pressure of ≥10 mmHg at one and/or three minutes after standing, compared with the lying measurement.

Results: Assessment was completed or a valid reason documented in 29/30 records (96.7%). Complete timed BP readings were recorded in 28/29 initiated assessments (96.6%; target 90%), and standing symptoms in 29/29 (100%; target 90%). OH, was identified in 11/28 complete assessments (39.3%); 9/11 (81.8%) were asymptomatic. Overall, 17/29 patients (58.6%) had OH and/or standing symptoms, and all had a documented clinical response (100%; target 100%) including medication review or further cardiovascular assessment where indicated. Complete lying and standing pulse documentation was present in only 2/28 assessments (7.1%; proposed target 90%), the proposed target was set using pre-specified local process standards for proposed prospective targets for QI/re-Audit.

Conclusion: Routine objective orthostatic BP assessment identified predominantly asymptomatic OH and prompted documented clinical review with potential medication safety implications. A standardised template incorporating BP, pulse, symptoms, interpretation and medication action is recommended, followed by re-audit.

References

1. Health Service Executive. *Falls Reduction Workbook for Clinicians*. 2022.
2. National Institute for Health and Care Excellence. *Falls assessment and prevention in older people*. NG249. 2025.
3. Royal College of Physicians. *Procedure for measuring lying and standing blood pressure*. Updated 7 February 2025.
4. HSE Clinical Audit Guide, 2025

8. **Alan Keenan** (University Hospital Limerick)

"Anticholinergic Burden in Older People undergoing Comprehensive Geriatric Assessment within ICPOP"

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[2] Department of Geriatric Medicine, University Hospital Limerick, HSE Midwest

Aim:

To determine whether anticholinergic burden was explicitly documented or considered during comprehensive geriatric assessment in active ICPOP patients, and to retrospectively quantify ACB using a standardised scoring system.

Clinical Significance:

Identifying significant ACB may support medication optimisation, reduce anticholinergic-related risks, and promote safer, individualised prescribing in older adults.

Methods:

A retrospective audit was conducted among 30 active ICPOP patients who had undergone CGA. Clinical records were reviewed for explicit ACB documentation. Current medicines were scored using a standardised ACB calculator. The predefined review threshold was an individual medicine score ≥2 or a cumulative ACB score ≥3.

Results:

ACB was explicitly documented in 1/30 patients (3.3%). Retrospective assessment showed a mean ACB of 3.63 and median of 3.5. 17 patients (56.7%) met the predefined review threshold, including 12 (40.0%) with ACB ≥5. Thirteen patients (43.3%) had at least one medicine scoring ≥2, while four patients (13.3%) met the threshold through cumulative burden alone. Antidepressants were the most frequent contributors, accounting for 28.0% of ACB-positive prescriptions and 22.9% of burden. Urinary antimuscarinics and antipsychotics made disproportionately large contributions to total burden. 76 % of ACB contributors had a score of 1 reflecting cumulative burden potential.

Conclusion:

ACB was substantially under documented despite clinically relevant exposure being common in this older, polypharmacy population. A standardised ACB assessment should be incorporated into the ICPOP CGA or medication-review template, with documentation of the score, contributing medicines and benefit risk review when ACB the defined threshold. Re-audit should assess progress towards the proposed 100% documentation standardization standard.

9. **Andrea Kwakowsky** (University of Galway)

"Caffeine consumption in Ireland and its link with cognitive performance"

Aoife Troy[1$], Clare M. McGuinness[1$], Nirupam M. Srinivasan[1], Gabrielle Li Ann Ang[1], Carmel P. Geoghegan[2], Tom Burke[3], Ciara Egan[3], Andrea Kwakowsky[1*]

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We surveyed caffeine intake in 1,444 adults living in Ireland and cognition was assessed using the Cognitive Failures Questionnaire (CFQ). We report that CFQ scores were not significantly correlated with total caffeine (N=902, r=0.060, p=0.074) or coffee intake (N=903, r=0.053, p=0.113). CFQ scores had very weak positive correlations with caffeine intake from chocolate (N=903, $\rho = 0.130$, $p < 0.01$) and energy drinks (N=903, $\rho = 0.114$, $p < 0.01$), and a very weak negative correlation from tea (N=903, $\rho = -0.060$, $p = 0.070$). Regression identified total caffeine intake and leaving certificate-level education as significant positive predictors of CFQ, while age groups 51-70 and 71+ were significant negative predictors. Moderate positive correlations between CFQ and both caffeine and coffee intake were observed in underweight participants (Body Mass Index (BMI) < 18.5), with a weaker positive correlation in the class II obesity group (BMI 35 to <40).

In conclusion, caffeine intake positively predicted CFQ, excessive caffeine intake negatively affected cognition and younger adults reported more cognitive failures than older adults. These findings provide insight into caffeine intake, cognition, confounding factors, and contemporary caffeine consumption among the Irish population.

10. **Raudhan O'Laoi** (Trinity College Dublin)

"Methionine supplementation in nitrous oxide toxicity: a variable practice internationally"

O Laoi, Ruadhan[1,2]; Hennessy, Martina[1,2]; Kennedy, Cormac[1,2]

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Question: Chronic recreational use of nitrous oxide can result in oxidation and functional inactivation of vitamin B12 - a necessary co-enzyme in the conversion of homocysteine to methionine[1]. Inhibition of this pathway plays an important pathophysiological role in the subsequent development of neuromyelopathy[2]. There is insufficient evidence regarding the benefits of methionine supplementation alongside standard management principles in this cohort[3]. This study aimed to identify usual clinical practice regarding the use of methionine supplementation in patients with nitrous oxide toxicity across English native-speaking countries.

Methodology: Internet searches were performed using Google Advanced search. Mandatory search terms 'nitrous', 'oxide', 'toxicity' and 'guidelines' were used in combination with the following regional settings: Ireland, United Kingdom, Canada, United States, Australia and New Zealand. The first twenty results for each permutation were reviewed for relevance.

Results: National or clinical guidelines from Emergency Medicine, Neurology or Clinical Toxicology associations were readily available in Ireland, United Kingdom and Australia. Methionine was not recommended in guidelines in Ireland or the United Kingdom, nor was it recommended in relevant available articles in the United States. Methionine 1g three times daily for 7-14 days was commonly recommended across various Australian guidelines. Methionine 1g three times daily for at least 4-6 weeks was recommended in a relevant review in the Canadian Medical Association Journal. There was no online evidence of usual practice or clinical guidance for this poisoning in New Zealand.

Discussion: Relevant clinical guidelines on the management of nitrous oxide toxicity were inconsistently available across the studied countries. Available online evidence suggests significant international discrepancy regarding the use of oral methionine as a management component in nitrous oxide induced myeloneuropathy. A systematic review of available evidence on this topic may provide further clarity to relevant healthcare professionals.

References:

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2. Pema PJ, Horak HA, Wyatt RH. Myelopathy caused by nitrous oxide toxicity. *Am J Neuroradiol* 1998; 19:894-896
3. Chiew AL, Raubenheimer JE, Berling I et al. Just 'nanging' around: harmful nitrous oxide use — a retrospective case series and review of Internet searches, social media posts and the coroner's database. *Intern Med J* 2022;52:1724–32

11. **Lauren Ellis** (Trinity College Dublin)

"Can Home Blood Pressure Monitoring Replace Ambulatory Monitoring in Resistant Hypertension?"

Lauren Ellis[1], Cormac Kennedy[1,2], Martina Hennessy[1,2]

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The SUPPORT trial is a randomised, double-blind study investigating whether semaglutide reduces blood pressure (BP) in adults with resistant hypertension. During the 4-week run-in period, BP is assessed using both 24-hour ambulatory blood pressure monitoring (ABPM) and home blood pressure monitoring (HBPM). ABPM is widely regarded as the gold standard for out-of-office BP assessment, while HBPM is often promoted as a practical alternative due to its convenience and accessibility [1]. However, evidence suggests that resistant hypertension may represent a distinct clinical population in which HBPM performance warrants further evaluation [2,3]. This analysis examined whether HBPM approximated ABPM closely enough to be considered a reasonable substitute in SUPPORT participants.

Participants received standardised training and written guidance on HBPM technique. HBPM values submitted by phone or email were compared with ABPM summaries collected during the run-in period.

HBPM demonstrated a moderate correlation with ABPM measurements (r = 0.68). Substantial individual-level variation was observed, with a median discrepancy of 18 mmHg between methods. This variability may reflect the physiological complexity associated with resistant hypertension and obesity, alongside factors such as medication timing, day-to-day activity variation, stress responses, and adherence to HBPM protocols.

In this cohort, HBPM did not demonstrate the strong agreement with ABPM reported in broader hypertensive populations [1]. Our findings suggest that HBPM may be less reliable as a substitute for ABPM in individuals with resistant hypertension and obesity. Further analysis following completion of trial recruitment will clarify the roles of obesity and polypharmacy in these observed differences.

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2. Nagai M, Dote K. *Treatment-resistant hypertension assessed by home blood pressure monitoring: a new target for intervention?* Hypertens Res. 2022;45:167-169.
3. Kim HM, Shin J. *Role of home blood pressure monitoring in resistant hypertension.* Clin Hypertens. 2023;29:2.

12. **Lauren Ellis** (Trinity College Dublin)

"Understanding Participant Experiences of Weekly In-Person Trial Visits: Findings from a Study Within A Trial (SWAT) Embedded in the SUPPORT Trial"

Lauren Ellis[1], Cormac Kennedy[1,2], Martina Hennessy[1,2]

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Participant retention is critical to the success of clinical trials [1], yet study visit burden may affect engagement and continued participation. The SUPPORT Trial was originally designed around home self-administration of study medication. However, because a matching placebo device was unavailable, participants attended weekly dosing visits at the Clinical Research Facility (CRF). This provided an opportunity to evaluate participant experiences of regular face-to-face contact and its impact on satisfaction, burden, and retention. This Study Within A Trial (SWAT) aimed to evaluate experiences of weekly in-person visits and identify factors influencing attendance and retention [2].

A mixed-methods SWAT was embedded within the SUPPORT Trial. A participant focus group informed development of a post-trial survey, ensuring issues identified as important by participants, including burden, communication, convenience, support, and satisfaction, were explored. Participants who completed the trial were invited to complete an electronic survey assessing study experience, communication, satisfaction with weekly visits, perceived benefits and burdens, barriers to participation, follow-up preferences, willingness to participate in future research, and recommendations for improving trials.

Sixty participants consented to the SUPPORT Trial, 46 were randomised, and 27 of 33 eligible participants completed the survey (81.8% response rate). Overall satisfaction was high, with participants reporting positive relationships with the study team and feeling well supported. Weekly visits were valued for providing reassurance, opportunities to ask questions, and increased engagement. Although travel, time commitments, and competing responsibilities were identified as challenges, most participants felt the benefits outweighed these inconveniences. Findings suggest that flexible, participant-centred face-to-face visits may support engagement and retention. Embedding participant involvement ensured the evaluation reflected participant priorities and experiences [3].

References

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2. Planner et al., 2019 (Trials) - participant experience in clinical trials. [pmc.ncbi.nlm.nih.gov]
3. Crocker et al., 2018 (BMJ) - patient/public involvement and retention. [bmj.com]

13. **Thomas Joseph Hopkins** (Trinity College Dublin)

"Polypharmacy in Acute Emergency Department Admissions: Prevalence, Exposure to Sick-Day-Rule Medications, and Association with Acute Kidney Injury"

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Background: Polypharmacy is prevalent and associated with adverse clinical outcomes. Sick-day-rule (SDR) medications (sulphonurea, ACE inhibitors/ARBs, NSAIDs, diuretics, metformin, SGLT2 inhibitors) are linked to an increased risk of acute kidney injury (AKI) during episodes of acute illness (1,2).

Objectives: This study aimed to look at the prevalence of polypharmacy, its association with AKI, and exposure to SDR-relevant medication among acute admissions to St James's Hospital ED.

Methods: A retrospective observational study over two 1-week periods included patients aged ≥16 years, admitted via the ED with acute illness, and with available admission documentation (n=694; psychiatry admissions excluded; available medication list n=693). Polypharmacy and hyperpolypharmacy were defined as ≥5 and ≥10 medications, respectively. Crude odds ratios (OR) were calculated using contingency tables, adjusted ORs were calculated using multivariable logistic regression, and trends were assessed using Cochran-Armitage tests.

Results: Polypharmacy occurred in 53.7% (95% CI 50.0–57.4%) and hyperpolypharmacy in 26.0% (95% CI 22.8–29.4%) of admissions. Patients taking ≥1 SDR medication rose with increasing medication burden from 16.5% (0- 4 medications) to 77.2% (≥10 medications). Each additional five medications were associated with 38% higher odds of documented AKI (adjusted OR 1.38, 95% CI 1.02–1.87, p=0.037). One-third of hyperpolypharmacy patients (33.3%) had no medication review documented.

Conclusion: More than half of acute ED admissions met criteria for polypharmacy and showed a risk gradient for AKI. Ten or more medications may be a practical threshold for structured medication review at admission.

References:

1. Think Kidneys. "Sick day" guidance in patients at risk of Acute Kidney Injury: a Position Statement from the Think Kidneys Board [Internet]. 2018 Jan [cited 2026 Sept 21]. Available from: https://www.thinkkidneys.nhs.uk/aki/wp content/uploads/sites/2/2018/01/Think-Kid neys-Sick-Day-Guidance-2018.pdf

2. World Health Organization (WHO). Medication Safety in Polypharmacy [Internet]. World Health Organisation. 2019 [cited 2026 Sept 21]. Available from: https://www.who.int/docs/default-source/patient-safety/who-uhc-sds-2019-11-eng.p

14. **Adeela Masood** (St. James' Hospital)

"Opioid Associated Constipation Prophylaxis in Hospitalized patients: A clinical Audit of Prescribing and Bowel monitoring"

Anastasia Saleh, Adeela Masood, Patricia O'Connor.

St. James's Hospital, Dublin.

Background: Opioid-induced constipation is a common and predictable adverse effect of opioid therapy and can affect patient comfort and quality of life. Appropriate prophylaxis and monitoring of bowel function are therefore important components of safe opioid prescribing. HSE guidance recommends prophylactic laxative therapy when regular opioids are commenced unless contraindicated (1).

Methods: A retrospective cross-sectional clinical audit was undertaken across randomly selected adult inpatient wards at St James's Hospital, Dublin, over four days. Electronic medication records and clinical documentation were reviewed for adult inpatients prescribed opioid therapy. Laxative prescribing, timing, regimen, prescription type and bowel monitoring were evaluated.

Results: Forty-nine patients were included; 31 (63.3%) were receiving opioids for acute indications and 18 (36.7%) were chronic opioid users. Thirty-three patients (67.3%) were prescribed laxative prophylaxis, while 16 (32.7%) received none. Among those prescribed laxatives, 28/33 (84.8%) received them within 24 hours of opioid initiation. Combination stimulant and osmotic therapy was the commonest regimen (23/33; 69.7%), while 4/33 (12.1%) received PRN-only therapy. Bowel-chart monitoring was documented in only 8/49 patients (16.3%). Immediate-release oxycodone was the most frequently prescribed opioid.

Conclusion: Almost one-third of opioid-treated inpatients received no laxative prophylaxis, below the audit target of 100%. Bowel monitoring was also poorly documented. When prophylaxis was prescribed, it was generally started promptly. Prescriber education, electronic prescribing reminders and improved bowel-chart documentation may improve practice, with re-audit planned following these interventions.

Reference:

(1) Health Service Executive (HSE). *Management of Constipation in Adult Patients Receiving Palliative Care: National Clinical Guideline No. 10.* Dublin: Health Service Executive; 2015.

15. **Richard Hurley** (University Hospital Limerick)

"Advance Care Planning and End-of-Life Care for Older Adults in the Emergency Department"

R.Hurley[1], T. Naidoo[2], M.O'Connor[1]

[1] University Hospital Limerick
[2] Children's Health Ireland at Temple Street

Background

End-of-life care in the emergency department (ED) should prioritise comfort, dignity, communication and avoidance of non-beneficial intervention. This secondary analysis examined patients aged ≥65 years from an audit of 23 ED deaths following end-of-life decisions, using the IAEM End-of-Life Care in the Emergency Department Guideline.

Methods

We performed a retrospective descriptive subgroup analysis in an Irish tertiary ED(7/2022-6/2023). Variables included demographics, presentation time, comfort-medication prescribing and correctness, advance directive or escalation-plans, family involvement, side-room access, holistic care and palliative-care involvement. Descriptive statistics were used. Missing data were retained as missing.

Results

Twenty-two patients were aged ≥65 years (95.7%); 20/22 were ≥75 years (90.9%). Mean age was 83.2 years (range 68–97). Sixteen patients (72.7%) presented overnight. Comfort medication was prescribed in 13/22 cases (59.1%),12/13 prescriptions followed the guideline. Preadmission advance directives or escalation plans were documented in 14/22 cases (63.6%), family involvement in 21/22 (95.5%), side-room access in 11/22 (50.0%), holistic care in 4/22 (18.2%) and palliative-care involvement in 5/22 (22.7%); one palliative-care field was missing.

Conclusion

ED end-of-life care predominantly involves older adults, who are known to carry the greatest multimorbidity and palliative prescribing complexity. Most presented overnight, when ED teams must deliver specialist palliative care amid competing demands. As gatekeepers, EDs need hospital-wide change ensuring rapid, 24-hour access to subspecialty expertise, including palliative care, and infrastructure that prioritises end-of-life care. There is further exploration needed in assessing the barriers in accessing known pathways in the emergency department.

16. **Richard Hurley** (University Hospital Limerick)

"Adherence to End-of-Life Comfort-Medication Prescribing in the Emergency Department"

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[1] University Hospital Limerick
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Background

Timely symptom control is central to dignified end-of-life care in the Emergency Department (ED). The Irish Association for Emergency Medicine recommends proactive, individualised symptom management and appropriate as-required medication. This audit assessed comfort medication prescribing and adherence to IAEM End-of-Life Care in the Emergency Department

Methods

We analysed anonymised data from a registered retrospective audit in the ED of a Model 4 hospital in Ireland with overnight specialist palliative-care access. We reviewed adults who died between 08/2022-06/2023 in whom further active treatment was deemed non-beneficial and/or an advance care directive was in place. Patients dead on arrival, those undergoing active resuscitation without an end-of-life decision, and palliative patients subsequently admitted were excluded. Two independent reviewers recorded comfort-medication prescribing and its guideline adherence, in-hours or out-of-hours attendance, and palliative-care involvement.

Results

Twenty-three patients were included; mean age was 82 years, 12 were female and 11 male. Comfort medication was charted in 14/23 cases (60.9%). Of these, 13 (92.9%) were correct and one (7.1%) incorrect while 9/23 (39.1%) had no documented prescription. Prescribing was documented in 5/6 daytime presentations (83.3%) versus 9/17 nighttime presentations (52.9%). All six patients with documented palliative-care team involvement had comfort medication charted, versus 8/17 without documented palliative involvement.

Conclusion

Although recorded prescribing accuracy was high, almost 40% of patients had no documented comfort-medication prescription. The principal deficit was inconsistent initiation, more frequently overnight. A standardised ED end-of-life prescribing pathway could prompt access to overnight specialist palliative-care expertise when required.

17. **Rohit Upadhyay** (Trinity College Dublin)

"Do acute admissions relevant to Sick Day Rules differ between winter and summer?"

Rohit Upadhyay, Anisha Pattanayak, Thomas Joseph Hopkins, Maria Coleman, Cormac Kennedy

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Sick Day Rules (SDR) aim to reduce medication-related harm during acute illness. Winter respiratory infections might be expected to increase the number of admissions where SDR are relevant, but seasonal differences in acute hospital populations have not been well described (1). This study compared admissions during winter and summer.

A retrospective observational study was carried out at St James' Hospital over two one-week periods in January and June 2026. Consecutive adult (≥16 years) acute admissions through the emergency department were reviewed; psychiatric admissions were excluded. Admitting specialty, selected comorbidities, documented AKI and acute illness features comprising vomiting/diarrhoea, reduced oral intake, marked hypotension and sepsis were compared between periods.

There were 331 admissions in January and 363 in June. The groups were similar in median age (63 versus 60 years), medical admission (74.6% versus 72.7%), CKD, diabetes or heart failure (26.3% versus 25.6%), any acute illness feature (28.7% versus 28.4%) and documented AKI (7.9% versus 7.2%). Vomiting or diarrhoea was more common in June (19.6% versus 12.4%, p=0.010). Recorded chronic respiratory disease was more common in January (8.8% versus 4.7%, p=0.033), although respiratory-specialty admissions were numerically higher in June (15.7% versus 11.2%, p=0.096).

There was no clear winter increase in SDR-relevant comorbidity, acute illness features or AKI. SDR-relevant presentations occurred during both periods, and longer sampling would be needed to establish whether a seasonal pattern exists.

Reference

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18. **Zahra Rajabally** (University College Cork)

"DOAC Dosing Appropriateness in Elderly Patients with Atrial Fibrillation: A Baseline Audit"

Rajabally FZ [1], Elsadig H [1], Ibrahim N [1], Fernandez I [1], Bacilios A [1], Zahoor M [1], Mustafa M [1], Maroof A [1], Ahmad K [1]

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Background: Direct oral anticoagulants (DOACs) require dose adjustment based on age, weight, renal function, and interacting medications. Inappropriate dosing in elderly patients with atrial fibrillation (AF) carries significant clinical consequences: under-dosing raises stroke risk, over-dosing raises major bleeding risk. Irish and international data indicate inappropriate DOAC dosing, particularly under-dosing, is common in this population (1,2).

Aim: To determine the proportion of AF patients aged ≥75 years prescribed a DOAC who receive a dose consistent with current product label and guideline criteria.

Methods: A retrospective, single-centre audit was conducted in the department of Geriatric Medicine, University Hospital Limerick. Patients aged ≥75 years prescribed apixaban, rivaroxaban, edoxaban, or dabigatran were identified via pharmacy dispensing records and the AF/anticoagulation clinic list. Data collected included age, sex, weight, serum creatinine, DOAC and dose prescribed, and interacting medications. Dosing appropriateness was assessed against the product SmPC and 2021 EHRA Practical Guide criteria (1).

Results: Of 51 patients audited, 38 (74.5%) were correctly dosed. Thirteen (25.5%) had a dosing discrepancy: 9 under-dosed and 4 over-dosed. Under-dosing occurred predominantly in apixaban patients dose-reduced on the age criterion alone, without confirming the required ≥2-of-3 SmPC criteria. Over-dosing occurred exclusively in rivaroxaban patients with renal impairment (CrCl 15-49 mL/min) whose dose was not reduced accordingly.

Conclusion: Baseline DOAC dosing accuracy was 74.5%, with under-dosing the predominant error pattern. These findings support a targeted prescribing intervention and re-audit to improve compliance with dosing guidelines in this vulnerable population.

References:

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19. **Nishtha Pange** (University College Cork)

"Neuroanatomical and pharmacological mapping of distinct vagus-innervated brainstem pathways coordinating memory and social behaviours"

Nishtha Pange[1,2], Mélanie M. Depret[1,2,3], Léa Roussin[2,4], John F.Cryan[2,3], Colin G. McNamara[2,4], Linda Katona[1,2]

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Emerging evidence suggests the vagus nerve not only relays peripheral information guiding autonomic physiological responses but also regulates central nervous system (CNS) function(1)(2)(3) relevant to mental health. Given its ability to modulate body-brain communication, vagus nerve stimulation is emerging as a promising therapeutic strategy currently under FDA investigation for a range of neuropsychiatric and cognitive disorders. However, there are limited number of studies elucidating the specific vagus-innervated CNS pathways, the selective neurotransmitter systems and the precise receptor mechanisms involved in this regulation, specifically in the context of memory and social behaviours. Here, we employed cutting-edge recombinant adeno-associated viral neuronal tracers injected in vivo into specific brain regions of interest in C57BL/6J female and male mice to investigate the central and peripheral nodes of this body-brain communication, sex independently. Post expression, ganglionic, gut and brain tissue processing using immunohistofluorescence and confocal microscopy showed: (1) selectively labelled pseudounipolar vagal sensory neurons with somata in the jugular-nodose ganglion complex, bodily vagal nerve afferents in the gastrointestinal tract and central vagal nerve afferents in the brainstem nucleus tractus solitarius (NTS), the key CNS recipient of vagal signalling; (2) NTS projection neurons to the paraventricular hypothalamic nucleus, central region driving social behaviour; (3) previously undefined NTS projection neurons to the medial septum, key region for memory. In addition, our results are revealing glutamatergic, GABAergic and noradrenergic neurons participating in these vagal-innervated NTS pathways. These preliminary findings establish a framework for guided neuron type-specific and pharmacological circuit analyses of vagal gut-brain circuits in memory and social behaviours.

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20. **Lauren McCosh** (University College Cork)

"Discovering CTSV Interactors: A Proximity-Dependent Biotinylation Assay"

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The Authors have chosen not to publish their abstract

21. **Refik Kuburas** (Queen's University Belfast)

"Engineering Patient-Derived Vascularised Cardiac Organoids as a Novel Advanced Pre-Clinical Model for Type 2 Diabetes and Novel Cardiovascular Signalling Investigations"

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In-vitro cell culture studies fail to demonstrate endothelial-cardiac interactions, patient epigenetic influence & vascular integration, crucial to the investigation of the cardiovascular system and T2DM (1, 2). We addressed this using the novel donor iPSC-derived vascularised cardiac organoid (VCO), derived from T2DM and non-diabetic (ND) donors. iPSCs from donors (3 individual donors, n3) were differentiated over a 20-day protocol, allowing for self-assembly of mesodermal bodies programmed for either vascular or cardiac specific lineage commitment. We further investigated T2DM-associated mitophagy impairment, donor-influenced RNA signalling and mitochondrial dysfunction, all coincided with cardiac toxicity (3). T2DM- and ND-VCOs successfully demonstrated consistent expression of key cardiac- and endothelial-cellular markers with no significant differences in characterisation gene or protein expression between groups. RNA sequencing demonstrated the T2DM profile, with a sub population of cardiac myocytes expressing inflammatory markers, with significant changes AMPK, mTOR, ANP & BNP expression. Mitochondrial-targeted functional assays demonstrated T2DM-induced mitochondrial-associated depolarisation, ROS increase and calcium influx within the cardiac endothelial cell population. Impaired mitophagy & lysosome clearance, coinciding with overexpression of mitochondrial-surface bound TINF2, was revealed for the first time in cardiac cells. ShRNA knock down of TINF2 significantly reversed the demonstrated effects of T2DM, cardiac toxicity and mitochondrial loss of function. Restoration of mitophagy signalling was achieved and reversed associated loss of key signalling pathways. Here we set the foundation for a novel therapeutic target for T2DM & aim to expand the use of the VCO model as a novel pre-clinical model for pharmacological investigations.

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22. **Luke Conroy** (University College Dublin)

"Characterization of Glucose-Conditioned Macrophages and the Evaluation of Novel Inflammatory Modulators"

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Diabetes is a chronic metabolic disease which greatly enhances the risk of developing cardiovascular disease, by promoting atherosclerosis through sustained glucose dysregulation, hyperlipidaemia and chronic inflammation.

Monocytes and macrophages are pivotal in the development of diabetes-associated atherosclerosis (DAA). Therefore, using an *in vitro* diabetic macrophage-based model, I assessed the therapeutic role of specialised pro-resolving mediators (SPMs), specifically *Lipoxin-A4* (LXA_4), and GLP-1 receptor agonists (Liraglutide) by measuring the efficacy of both compounds alone and in combination.

To this aim, monocytes were challenged with high-glucose and pro-inflammatory cytokines to model DAA. Subsequently, macrophages have been treated with LXA_4 and/or Liraglutide to evaluate whether these drugs can attenuate the inflammatory responses.

High-glucose alone had pronounced effects on cell functions, by altering gene expression, cytokine secretion and enhancing monocyte migration and. LXA_4 treatment increased transcription of inflammatory markers, upregulating *IL-1β* and *TRAIL*, and enhancing IL-1β and IL-18 secretion in macrophages. LXA_4 also attenuated monocyte and macrophage migration in glucose-challenged cells.

Liraglutide reduced pro-inflammatory gene expression (i.e. *MCP-1* and *TNF*). It also downregulated cytokine secretion (i.e. IL-1β) in LPS-stimulated macrophages. Liraglutide showed no effect on monocyte migration, however, it dampened metabolic activity in glucose-challenged monocytes. This data demonstrates Liraglutide displaying some potent anti-inflammatory effects in macrophages. Additionally, the combination of LXA4 and Liraglutide significantly reduced CD163, MCP-1 and TNF.

In summary, I have successfully developed a macrophage-based model of DAA, showcasing the promising effects of LXA_4 and Liraglutide. Hence, highlighting how the combination of LXA4 and Liraglutide may be a potential therapeutic avenue for the management of DAA.

23. **Ericka Janine Bonifacio** (University College Dublin)

"Epigenomic Profiling of iPSC-derived Renal Fibroblasts Unveils a Superenhancer Driving TGFβI-induced Myofibroblast Activation in Diabetic Kidney Disease"

Ericka J. Bonifacio, Sara Knežević, Matthew Nally, Ivan Krupa, Darrell Andrews, Alison Murphy, Catriona Scaife, Gerard Cagney, Jessica L. Davis, John Crean, Keith Murphy

The Authors have chosen not to publish their abstract

24. **Camilla Maria Fontana** (University College Dublin)

"Cannabinoid receptor 2 inverse agonisms as a novel therapeutic strategy against metastatic uveal melanoma"

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Uveal melanoma (UM) is the most common primary intraocular malignancy, with Ireland reporting the highest incidence worldwide. Despite excellent local control, about 50% of patients develop metastases within 5–7 years of diagnosis, resulting in a median survival of only 13 months. Available systemic therapies have limited efficacy.

Cannabinoid receptors demonstrate a complex role in cancer biology. Expression correlates with improved survival in some cancers and poor prognosis in others. This study investigates the role of cannabinoid receptors in UM and explores their therapeutic potential in metastatic disease.

The bioactivity of CB_1 and CB_2 agonists and inverse agonists was assessed using long-term proliferation assays and wound healing assays in primary (Mel270) and metastatic (OMM2.5, MM28) UM cell lines via the Incucyte Live Cell Analysis System. CB_2 inverse agonist toxicity was evaluated in zebrafish embryos by assessing vitality, development, and morphology.

Targeting CB_1 did not potently alter UM proliferation nor viability, whereas CB_2 inverse agonism significantly reduced cell proliferation. Notably, SR144528 (10 µM) markedly inhibited proliferation without cytotoxicity, GP1a displayed moderate inhibition and toxicity at higher concentrations (20 µM), and JTE-907 showed limited efficacy. Among the two metastatic cell lines tested, while SR144528 has a lower IC_{50} in MM28 compared to OMM2.5, it only significantly reduced wound healing ability in the OMM2.5 line. In zebrafish assays, SR144528 caused no developmental abnormalities, while GP1a and JTE-907 induced toxicity and developmental delays, respectively.

In conclusion, CB_2 inverse agonism represents a promising therapeutic approach for metastatic UM.

25. **Ye Yang** (Royal College of Surgeons Ireland)

"Platelet STING Palmitoylation: A Molecular Link Between Cerebral Injury, Thrombosis, and Thrombolytic Resistance in Acute Ischemic Stroke"

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26. **Huiyuan Yang** (University College Cork)

"Neuroprotective effect and therapeutic mechanism of recombinant Pregnancy-specific glycoprotein-1 (rPSG1-Fc) on Intracerebral hemorrhage"

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27. **Benjamin David Pepperrell** (Queen's University Belfast)

"A Case Report showing Successful Use of Ranolazine for Symptomatic Bradycardia as an Alternative to Beta Blocker"

Benjmain Pepperrell, Yu Sun, Fiona Furlong

High-grade serous ovarian cancer (HGSOC) remains a major cause of cancer mortality, and new therapeutic approaches that engage anti-tumour immunity are urgently needed (1). Immunogenic cell death (ICD) enhances anti-cancer immune responses through the release of damage-associated molecular patterns, including extracellular ATP (eATP), HMGB1 and calreticulin (2). However, identifying novel ICD-inducing compounds at scale remains challenging. Here we show that real-time monitoring of eATP release can be used to screen for possible ICD-inducing drugs in HGSOC cell models. RealTime-Glo eATP assay demonstrated that paclitaxel induced significant eATP release in OVCAR3 cells but not in the more resistant Kuramochi and OVCAR4 lines, consistent with decreased cytotoxicity. Screening of more cytotoxic compounds in the resistant cell lines, revealed marked heterogeneity in eATP-release kinetics between drugs and cell lines. Cardiac glycosides and proteasome inhibitors produced the strongest eATP release, in which Lanatoside-C induced rapid and substantial release in OVCAR3 and OVCAR4 cells despite similar cytotoxic across all cell lines. Lanatoside-C and Paclitaxel also promoted HMGB1 release, further supporting potential ICD. To test the immunomodulatory activity of ICD inducing drugs *in vitro*, HGSOC cells were co-culture with peripheral blood mononuclear cells (PBMCs). Neither Lanatoside C nor paclitaxel synergised with the PBMCs to promote greater cytotoxicity towards the HGSOC cells. In conclusion, these findings establish eATP-based screening as a useful platform for identifying candidate ICD inducers in HGSOC. However, full activation of an anti-tumour immune response *in vitro* may require additional factors to explore the immunomodulatory activities of these agents.

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28. **Kate Campbell** (Queen's University Belfast)

"Pharmacological METTL3 inhibition disrupts m6A methylation and reduces viability in triple-negative breast cancer cells"

Kate Campbell[1], Benjamin Pepperrell[1], Yu Sun[1], Michael Glenn[2], Stephen Bridgett[2], David Simpson[2], Fiona Furlong[1]

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Triple-negative breast cancer (TNBC) is defined by the absence of oestrogen receptor (ER), progesterone receptor (PR) and human epidermal growth factor receptor 2 (HER2) expression. Its aggressive biology and limited molecular targets result in reliance on cytotoxic chemotherapy and result in poor prognosis. N6-methyladenosine (m6A), the most abundant internal RNA modification, is deposited by methyltransferase-like 3 (METTL3) and governs RNA fate, including transcript stability and translation. m6A is frequently dysregulated in cancer, and pharmacological inhibition of the m6A machinery has emerged as a candidate therapeutic strategy. This study evaluated the effects of the selective small-molecule METTL3 inhibitor STM-2457, alone and in combination with standard-of-care chemotherapy, on TNBC cell toxicity, and assessed resultant changes in m6A methylation and gene expression. TNBC cells were treated with STM-2457, and effects on viability were assessed by MTT, CellTOX Green and long-term growth assays. Total RNA was characterised by Oxford Nanopore Technologies direct RNA sequencing to define gene expression and quantify per molecule levels of m6A methylation. STM-2457 reduced TNBC cell viability as a single agent and produced a greater reduction in viability when combined with standard-of-care chemotherapy than chemotherapy alone. Treatment reduced m6A methylation within 6 hours and altered the expression of 207 genes. These findings indicate that pharmacological METTL3 inhibition modifies the epitranscriptomic and chemoresponses of TNBC cell lines, and support further investigation of the epitranscriptome as a therapeutic target in this disease.

29. **Yin Sing Low** (Queen's University Belfast)

"Investigating the relationship between Cathepsin V expression and chemotherapy response in Estrogen Receptor-Positive Breast Cancer"

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30. **Yingming Zhou** (Queen's University Belfast)

"Investigating The Functional Role Of Cathepsin V In Pancreatic Cancer"

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31. **Jay Campbell** (University College Dublin)

"A Proteomic study of the role of SRF as a potential pharmacological target in Triple Negative Breast Cancer"

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Breast cancer is the leading cancer diagnosis in women. Triple-negative breast cancer (TNBC) accounts for 15-25% of cases and is associated with poor prognosis. Data by our group shows that SRF expression is upregulated in TNBC and is associated with increased disease recurrence. The aim of this research was to determine whether proteins under SRF control are viable therapeutic targets in TNBC, both singly and in combination with existing treatments.

Cell viability was assessed in MDA-MB-231 monolayer cells using acid phosphatase assays and in MDA-MB-231 spheroids using CellTiter-Glo® 3D assays. SRF inhibitors (lestaurtinib and CCG-1423) were evaluated to determine their IC_{50} for subsequent experiments. In parallel, IC_{50} values were established for standard TNBC therapies (olaparib, enzalutamide, palbociclib, and paclitaxel) in both monolayer and spheroid models to support future combination studies with inhibitors targeting novel proteins regulated by SRF.

To elucidate the molecular mechanisms of SRF in TNBC and identify potential target proteins, mass spectrometry was performed on MDA-MB-231 cells treated with lestaurtinib, CCG-1423 and SRF-siRNA. 39 proteins were differentially expressed across these conditions. Of these proteins, 20 were affected in the same manner across the three conditions, and 12 were differentially expressed in TNBC patients, according to the OncoDB database. Validation of these proteins using Western Blotting is currently underway, with downregulation of RANGAP1 and upregulation of Lamin A following treatment already being validated in MDA-MB-231 cells.

In conclusion, 39 proteins are differentially expressed by SRF inhibition in TNBC cells and may be potential therapeutic targets for this disease.

32. **Braden Millar** (University College Dublin)

"Specialised Pro-resolving Mediator Action in an In Vitro Model of Early Atherosclerosis"

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Atherosclerosis is driven by monocyte recruitment, macrophage retention, and modified-lipid accumulation, processes that sustain foam-cell formation and plaque progression (1). This study tested whether the specialised pro-resolving mediator (SPM) Lipoxin A4 (LXA4) and mimetic AT-01-KG (KG) modify leukocyte trafficking and macrophage cholesterol handling during early atherogenesis. THP-1 monocytes were differentiated with M-CSF or GM-CSF, polarised with inflammatory or reparative stimuli, and characterised by RNA sequencing. M-CSF-derived macrophages were then assessed using transwell migration towards MCP-1 or plaque-conditioned medium, fluorescent ox-LDL uptake, qPCR of migratory, trafficking, and lipid-handling genes, and ELISA of cytokines and chemokines. RNA sequencing distinguished inflammatory and reparative transcriptional programmes and supported the M-CSF model. Monocytes migrated preferentially to MCP-1, whereas macrophages preferentially migrated to PCM; reparative macrophages showed greater PCM-directed migration than inflammatory macrophages. Inflammatory, ox-LDL-treated macrophages accumulated 15.4-fold more lipid than naïve cells, increased OLR1 expression, failed to induce ABCA1, and released significantly more IL-1β, MCP-1, and MIP-1α, consistent with a lipid-retentive phenotype. Both SPMs enhanced PCM-directed migration of inflammatory and reparative macrophages. qPCR showed altered chemokine-receptor expression, reduced CXCL8, and increased CCR7 with KG. LXA4 reduced OLR1 and CD36, while KG increased OLR1, CD36, ABCG1 and NR1H3; neither altered ABCA1. LXA4 reduced MIP-1α secretion, whereas KG increased it. These data support two hypothesised models: SPMs may restrain monocyte recruitment while promoting a mobile, less-retained macrophage state; LXA4 may limit modified-lipid entry, whereas KG may support high-flux cholesterol handling. Direct functional validation of cholesterol uptake, efflux, macrophage egress and lesion regression is required.

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33. **Lucy McDonnell** (University College Dublin)

"Screening of Lipoxin-A4 Lipid Nanoparticles for the Potential Treatment of Inflammatory Disorders"

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Chronic inflammation is a major driver of diabetes-associated atherosclerosis (DAA) *via* the NLRP3 inflammasome. Lipoxin-A4 (LXA4) is an endogenous specialised pro-resolving mediator with strong therapeutic potential for inflammatory diseases, but its clinical use has been limited by the short half-life and poor bioavailability in the native form. LXA4-encapsulated lipid nanoparticles (LX-LNPs) may increase LXA4's bioavailability and efficacy.

Three lipid formulations [DDAB, SM102 and CKKE12] were compared against each other to determine the optimal vector for LX-LNP delivery, as well as versus free-LXA4 to assess the effects of encapsulation on the biological activity of LXA4. The LX-LNPs were screened in THP-1 Lucia monocytes, an NK-κB reporter cell line, with and without LPS stimulation, and assessed for NF-κB luciferase reporter activity, cytotoxicity, cell viability, and IL-1β secretion.

Each formulation of LX-LNP stimulated low level LDH release that was similar to vehicle controls, while remaining significantly lower than the positive control. Cell viability was preserved under all three LX-LNP formulations, suggesting they have low risk of cytotoxicity. Both LX-SM102 and LX-CKKE12 reduced NF-κB activity relative to their empty shells and to free-LX, while IL-1β secretion remained largely unaltered, suggesting a specific downstream target of NLRP3 by LXA4s.

These findings indicate lipid formulation-dependent effects of LXA4 encapsulation, and that free-LX and LX-LNPs have low toxicity in THP-1 monocytes. The results also support LX-SM102 and LX-CKKE12 as lipidic shell candidates to enhance LX delivery, to tackle low-grade chronic inflammation associated with DAA and for their potential use as a novel targeted atherosclerotic therapy.

34. **Irwin Tze Yu Fong** (University College Dublin)

"Investigating the therapeutic potential of psychoplastogens in a cerebral organoid model of prenatal cocaine exposure"

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Foetal neurodevelopment consists of a series of temporally ordered developmental processes that occur in restricted developmental time periods. Paralleling the rise in cocaine addiction, incidents of prenatal exposure to cocaine are increasing and alter the developmental trajectory of the foetal brain. Our understanding of how cocaine alters the development of the human brain remains rudimentary.

We investigated the neurobiological effects of cocaine and the therapeutic potential of the psychoplastogen, 5-MeO-DMT, using human cerebral organoids (COs) developed from hiPSCs. The COs were produced and differentiated at two timepoints (36 days and 147 days) representing different gestational ages. COs were administered four different treatments, control, cocaine, 5-MeO-DMT or cocaine + 5-MeO-DMT. scRNA-seq was analysed using the Seurat package in R.

Cocaine created a strong and distinct transcriptional phenotype characterised by the abundance of differentially expressed genes (DEGs). The nature of the dysregulation was different at the two gestational timepoints with 92.1% of cocaine-induced DEGs upregulated in the D36 dataset while 75% are downregulated in the D147 dataset. Cocaine increased the number of neural progenitor cells (NPCs), decreased the number of immature neurons (ImNs), and activated a population of stromal fibroblasts. 5-MeO-DMT partially restored NPC count, increased ImN count beyond control levels, and reversed the activation of stromal fibroblasts by cocaine in the D36 dataset. The majority of DEGs are either fully or partially rescued.

These findings suggest that 5-MeO-DMT can rescue cocaine-induced cellular and transcriptional deficits in COs, positioning it as a potential therapeutic candidate for in utero cocaine exposure.

35. **Beril Güney** (Queen's University Belfast)

"Effect of Selective Furin Inhibition on Matrix Metalloproteinases in COPD"

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Chronic obstructive pulmonary disease (COPD), characterised by excessive mucus production, chronic bronchitis and alveolar destruction, is associated with a protease-antiprotease imbalance driven in part by increased matrix metalloproteinase (MMP) activity (1). Furin, a proprotein convertase, activates several membrane-type MMPs (MTMMPs), which promote downstream MMP activation. Furin also plays a role in the activation of the sodium channel ENaC at the trans-Golgi network (TGN), a process partly mediated by CFTR activity. Due to 'acquired dysfunction' in CFTR in COPD, ENaC activity can be further exacerbated. This study aimed to assess whether selective inhibition of furin, with or without CFTR modulation, can modulate MMP activity and restore protease–antiprotease balance (2).

COPD primary bronchial epithelial cells (PBECs) grown submerged or differentiated at air–liquid interface (ALI) and 16HBE cells were treated for 48 h with the highly selective furin inhibitor BOS-857 (0.3 μM). The CFTR potentiator ivacaftor (VX-770) was also included to assess potential additive effects. MMP-1 and MMP-10 in cell-conditioned media (CCM) were quantified by ELISA. MMP-2 and MMP-9 activity was analysed by gelatin zymography. Expression of MT6-MMP (MMP-25) in submerged cultures was assessed by Western blotting.

BOS-857 reduced levels of MMP-1 (~75%) and MMP-10 (~30%) in CCM from 48 h-treated submerged COPD PBECs, and the secretion and activity of MMP-1 and MMP-9 in the apical wash from COPD ALI-PBECs. VX-770 provided no additional benefit beyond that achieved by BOS-857 alone. MMP-25, a serum biomarker associated with chronic airway inflammation (3), was also assessed and found to be reduced in the presence of BOS-857 and VX-770 in different fractions of lysate from 16HBEs. This is the first demonstration of MMP-25 modulation in epithelial cells.

Selective inhibition of furin with BOS-857 reduces MMPs implicated in COPD pathophysiology. These findings support furin inhibition as a promising strategy to correct COPD protease imbalance.

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36. **Samuel McDowell** (Queen's University Belfast)

"Developing novel therapeutic strategies to better treat Triple Negative Breast Cancer"

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Triple Negative Breast Cancer (TNBC) is an aggressive breast cancer subtype characterised by the low/absent expression of oestrogen and progesterone receptors, and lack of human growth factor receptor 2 (HER2) amplification. Consequently, TNBC does not benefit from hormone- or HER2-targeted therapies, contributing to limited treatment options and poor clinical outcomes. There is, therefore, an urgent, unmet clinical need to develop alternative treatment strategies for TNBC.

The Class II Transactivator (CIITA) gene is the master regulator of Major Histocompatibility Complex Class II (MHCII) expression, thus playing a vital role in antigen presentation. While CIITA expression is typically restricted to antigen-presenting cells, emerging evidence indicates aberrant CIITA expression in TNBC epithelial cells. However, the functional significance of CIITA in tumour immunobiology remains poorly understood. To evaluate its potential as a prognostic biomarker and/or therapeutic target, the aim of this project is to investigate the role of CIITA in TNBC pathophysiology, with particular emphasis on the association with tumour immune features, treatment response, and clinical outcome.

Bioinformatic analysis on the impact of MHCI and MHCII genes was conducted using in-house and publicly available datasets, demonstrating that increased CIITA expression correlates with better patient survival. This was supported by immune profiling which demonstrated a positive relationship between levels of CIITA and $CD8^+$ T cells, macrophages, dendritic cells and B cells consistent with MHCII-mediated activity. CIITA expression was also found to be higher in the basal-like subtype of breast cancer versus normal tissue.

To better understand the functional significance of CIITA expression in TNBC, we modelled CIITA overexpression *in vitro*. CIITA was cloned into a lentiviral plasmid and confirmed via agarose gel electrophoresis and Sanger sequencing. The plasmid was then transduced into mouse (4T1) and human (MDA-MB-468) TNBC cell lines to investigate immune and cancer-related phenotypes via antigen presentation, proliferation, migration/invasion, and chemotherapy-response assays.

37. **Fionnuala Doran** (Queen's University Belfast)

"Cystic fibrosis (CF) lung disease is characterised by impaired ion transport, chronic airway inflammation and progressive fibrosis, the latter driven in part by elevated transforming growth factor-ß (TGF- ß)"

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Cystic fibrosis (CF) lung disease is defined by a cycle of impaired ion transport, chronic inflammation and progressive fibrosis. Key drivers are the hyperactive epithelial sodium channel (ENaC) and elevated transforming growth factor-β (TGF-β). Respectively, these cause airway dehydration and accelerated fibrotic remodelling. Despite the success of CF transmembrane conductance regulator (CFTR) modulators, many patients lack effective treatment. Furin, a proprotein convertase, activates both ENaC and TGF-β (Douglas et al., 2023). The selective furin inhibitor BOS-857 suppresses ENaC restoring mucociliary clearance in CF airway epithelial cells. The pro-fibrotic cytokine interleukin-6 (IL-6) is known to induce production and enhance signalling of TGF-β (Denton et al., 2018).

The aim of this study was to investigate the effect of BOS-857 in modulating TGF-β-mediated fibrotic and inflammatory signalling.

MRC-5 human lung fibroblasts stimulated with tumour necrosis factor-alpha (TNF-α) ± BOS-857, with SB431542 as a positive control. Cell fractionation isolated whole cell lysate (WCL) and nuclear fractions. Western blot detected changes in TGF-β1 and phosphorylated-Smad3 (p-Smad3**)**. Levels of IL-6 and IL-8 were measured by ELISA.

TNF-α significantly upregulated IL-6 and IL-8; BOS-857 attenuated this response, restoring cytokines to baseline (IL-6: n=2, $p<0.001$; IL-8: n=2, $p<0.05$). In WCL, BOS-857 reduced TGF-β1 levels by 75% on average (n=2). Nuclear p-Smad3 was reduced by ~50% with BOS-857, mirroring the levels of SB431542.

BOS-857 reduces TGF-β1 expression, nuclear Smad3 activation and suppresses IL-6 and IL-8. BOS-857 presents a possible strategy to address both inflammatory and fibrotic remodelling in CF, independent of CFTR mutation.

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38. **Seema Nathwani** (University College Dublin)

"Structure-Dependent Antiproliferative and Redox Effects of Novel Ethanoanthracene Derivatives in Cancer Cells"

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Drug resistance remains a major limitation of cancer therapy, highlighting the need for novel agents targeting vulnerabilities in malignant cells. Ethanoanthracene derivatives have previously demonstrated potent antiproliferative and pro-apoptotic activity (1,2). This study evaluated ten novel ethanoanthracene derivatives incorporating structurally varied N-substituted maleimides, including hydroxyalkyl, pyridyl and ester functionalities, to investigate structure–activity relationships and mechanisms of cytotoxicity.

Antiproliferative activity was evaluated across five human cancer cell lines representing solid and haematological malignancies. Selected compounds were further investigated for loss of membrane integrity, intracellular reactive oxygen species (ROS) generation, ROS involvement using antioxidant rescue, apoptotic DNA fragmentation and PARP cleavage.

All compounds produced concentration- and cell line-dependent reductions in viability, with marked differences associated with structural variation. Several analogues demonstrated submicromolar activity, with Compound-10 achieving IC_{50} values of 0.21–0.69 μM across all five cell lines. Selected compounds also increased loss of membrane integrity, supporting a cytotoxic effect. Increased intracellular ROS was observed following treatment, while N-acetylcysteine substantially rescued compound-induced loss of viability, supporting a role for oxidative stress in cytotoxicity. Selected compounds induced sub-G0/G1 accumulation and PARP cleavage, consistent with apoptosis, however, the relationship between loss of viability and apoptotic markers differed between analogues.

These findings demonstrate potent, structure-dependent anticancer activity within this ethanoanthracene series and identify redox disruption as an important contributor to cytotoxicity. Differential apoptotic responses suggest that structural modification may influence the mechanisms of cell death.

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39. **Diego Armando Acevedo Guzmán** (Dublin City University)

"Nitrogen-Doped Carbon Dots as Green Dual-Function Probes for Fluorescence Imaging and Photothermal Therapy"

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Carbon Dots (CDs) have emerged as highly promising candidates for optical bioimaging and light-driven therapies due to their biocompatibility and tunable photophysical properties. However, conventional fabrication relies on synthetic chemical precursors, driving a demand for greener and more sustainable alternatives.

Building upon our group's previous success in transforming spent coffee grounds into biocompatible biomedical tools [1], this work explores synthesising CDs from instant coffee as a cost-effective, sustainable precursor, followed by nitrogen doping with urea or piperazine. Initial characterisation confirms successful CD formation, with Dynamic Light Scattering (DLS) revealing particle sizes below 10 nm. Fourier-Transform Infrared (FTIR) spectroscopy confirms surface oxygen functional groups, and UV-vis spectra display characteristic $\pi \rightarrow \pi^*$ and $n \rightarrow \pi^*$ transitions. Photoluminescence (PL) studies demonstrate a blue emission centred near 450 nm.

Nitrogen doping (N-doping) is employed to enhance the PL emission intensity of the resulting NCDs while simultaneously increasing their optical absorption in the UV-vis region. Ongoing work evaluates their performance as photothermal agents, specifically investigating how N-doping modulates and improves the photothermal efficiency from undoped CDs to N-CDs. Ultimately, this research provides a green chemical strategy to design dual-function coffee-derived nanomaterials serving as both high-brightness fluorescent bioimaging probes and efficient photothermal agents for biomedical applications.

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40. **Shashank Balaji** (University of Galway)

"The Ratio of MMP-2 to TIMP-2 as Probable Prognostic Biomarkers in Indian Cancer Patients"

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Cancer is an uncontrollable growth of abnormal cells that leads to tumour formation, invading neighbouring tissues by migrating to distant organs to form secondary tumours_through metastasis. Metastasis also involves the degradation of the Extracellular Matrix (ECM), which maintains the integrity of the organs. ECM degradation occurs during pathophysiological conditions by matrix metalloproteinases (MMPs). MMPs remodel the components of the ECM by their proteolytic activity. MMPs have a role in normal biological processes, like embryogenesis, morphogenesis, tissue remodelling, etc., and pathological processes like atheroma, arthritis, cancer, etc. MMPs are regulated at the transcription level by activating endogenous inhibitors tissue inhibitors of metalloproteinases (TIMPs) that control the local activities of MMPs in tissues. Variations in MMPs and TIMPs expression contribute to the development and metastasis of cancers. Therefore, MMPs and TIMPs have become important therapeutic and diagnostic cancer targets. We studied MMP-2, MMP-9, TIMP-1, and TIMP-2 plasma levels in cancer patients and healthy controls. MMPs and TIMPs levels were analysed by ELISA (Immunoassay). We hypothesized that the ratio of MMP-2 to TIMP-2 and MMP-9 to TIMP-1 in cancer patients could be higher compared to healthy controls, contributing to their pathophysiological implication. Preliminary results showed that the ratio of MMP-2 to TIMP-2 was more than three-fold higher in cancer patients than that of healthy controls, and the difference was significant. Hence, the metalloproteinase 2 (MMP-2) ratio to its tissue inhibitor (TIMP-2) could be considered an index for tumour invasion, metastasis, and prognosis in head and neck cancer patients and correlate with their clinical and pathologic prognostic factors.

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