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# Irish Association of Pharmacologists

*Next Annual Meeting:  
November 2026 (Venue T.B.D.)*

**Irish Symposium P25 – Thursday 18<sup>th</sup>  
December, 13:00 – 14:45, Main Auditorium**





## IAP Symposium:

# *“Targeting Metabolic and Inflammatory Drivers of Age-related Chronic Diseases: Advances in Pharmacology”*

**Thursday, 18<sup>th</sup> December 2025**

**13:00 – 14:45**

<https://www.miceconciergeme.com/pharmacology2025/programme>

### **Scope of the session**

For this inaugural session, marking the first time that Irish pharmacology is being represented by the British Pharmacological Society (BPS) on the island of Ireland, we are committed to showcasing and supporting the groundbreaking research conducted by Irish basic and clinical pharmacologists in recent years. In recognition of the critical role that pharmacology plays in advancing healthcare, we have carefully designed this session to focus on the management of age-related chronic diseases.

Given the increasing prevalence of conditions such as cardiovascular disease (CVD) and cancer, both of which remain leading causes of morbidity and mortality worldwide, it is essential to address their underlying biological mechanisms. As a result, this session will specifically highlight the major drivers of these diseases, including dyslipidaemia, dysglycaemia, gut health imbalances, and chronic inflammation. By delving into these key factors, we aim to provide a comprehensive understanding of how they contribute to disease progression and how targeted pharmacological interventions can be developed to mitigate their impact.

This session will serve as a platform for Irish researchers to present their latest findings, exchange knowledge with international experts, and foster collaborations which will drive further innovations in the field. Additionally, we will explore emerging therapeutic strategies which address these underlying metabolic and inflammatory disruptions, with a focus on personalized medicine, novel drug targets, and integrative approaches that consider the complex interplay between genetics, lifestyle, and pharmacology.

Our goal is not only to celebrate the achievements of Irish pharmacologists but also to facilitate discussions that will shape the future of pharmacological research in Ireland and beyond. By bringing together international experts, early-career researchers, and stakeholders from academia, industry, and healthcare, this session will contribute to the ongoing efforts to improve patient outcomes through cutting-edge pharmacological advancements.



## **Chair: Prof. Patrick Murray**

Full Professor of Clinical Pharmacology

**School of Medicine**

**University College Dublin, Dublin, Ireland**



### **Biography:**

Professor Patrick Murray is a Full Professor of Clinical Pharmacology at University College Dublin, and a consultant physician at the Mater Misericordiae University Hospital, Dublin, Ireland. He received his medical education at UCD, and following an internship at the Mater Misericordiae University Hospital in Dublin, he completed a residency in internal medicine at Hennepin County Medical Centre in Minneapolis, Minnesota, USA. During this time, he completed fellowship training programmes in nephrology, critical care medicine and clinical pharmacology at the University of Chicago Hospitals in Chicago, Illinois, USA.

Professor Murray is a board-certified in nephrology, critical care medicine and clinical pharmacology. He has practiced as an intensivist, nephrologist and clinical pharmacologist at the University of Chicago Hospitals from 1996-2008, serving as the fellowship training Programme Director in nephrology, and also directing the acute dialysis service. He also has a longstanding interest in research and education to improve the prevention, diagnosis and therapy of acute kidney injury and nephrotoxicity, and the pharmacotherapy of patients with kidney disease.

He is the Chair of the Mater Misericordiae University Hospital Drugs and Therapeutics Committee and Clinical Director of the UCD Clinical Research Centre. In 2011, he was appointed Associate Dean for International Affairs at UCD School of Medicine. In 2012, he was appointed Director of the Dublin Centre for Clinical Research Consortium Network. He had served as Dean and Head of the School of Medicine at UCD from December 2012 through June 2018.

13:00 – 13:05

## Irish Symposium Openings



**Dr Monica de Gaetano**

*(Assistant Prof. in Pharmacology)*

**School of Biomolecular & Biomedical Sciences  
University College Dublin, Dublin, Ireland**

### Biography

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 teaching consists in basic and advanced pharmacology, with a focus on cardiovascular and renal pharmacology, and on drug discovery and development.

She is an international leader in Resolution Pharmacology, with a long-standing interest in the monocyte-macrophage-foam cell axis role in progression and regression of atherosclerosis, where she has given an important contribution to characterise the plasticity of such pivotal cell axis. She coordinated a translational screening programme, through which she set up an *in vitro* platform for drug candidate discovery, as well as a robust *ex vivo* model of atherosclerosis. She has patented two novel molecules with pro-resolving properties in the context of vascular inflammation.

Her research group at the UCD Conway Institute is currently focused on tackling the ‘residual inflammatory risk’ in diabetes-associated atherosclerotic patients to better tailoring therapeutic interventions.

More recently, she gained interest in the delivery of resolving molecules to the site of inflammation, *via* lipid nano particles-based systems, with the idea to design a site-specific drug delivery to macrophages in athero-prone regions of the vessel walls.

13:05 – 13:10

IAP

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Presentation”

**Dr Kamilla Laidlaw (Genewiz by Azenta): “Multiomics solution from one sample”**



*...Enabling Breakthroughs Faster*

13:10 – 13:45

## Keynote Talk

### “Age-dependent drivers of adrenocortical carcinoma: Genomic instability, immune dynamics, and tumour evolution”



**Dr Michael Connall Dennedy**

*(Assoc. Prof. in Therapeutics)*

**School of Medicine, Pharmacology  
University of Galway, Galway, Ireland**

#### Biography

Dr Michael Connall Dennedy is a Consultant Endocrinologist and Associate Professor of Therapeutics at the University of Galway, where he acts as Vice Dean for Staff Development & Mentorship as well as leading a translational research programme focused on functioning adrenocortical tumours and adrenocortical carcinoma (ACC). His laboratory investigates tumour-immune interactions, monocyte-mediated infiltration, hyperthermia-based therapies, and nanomedicine approaches for targeted treatment. He is Principal Investigator on several national and international projects, including US-Ireland R&D collaborations integrating imaging, thermal therapies, and nanoparticle-based theranostics. Clinically, he specialises in adrenal endocrinology and directs a multidisciplinary programme for the diagnosis and management of rare endocrine tumours. His work aims to refine mechanistic understanding of ACC biology and develop precision-oriented therapeutic strategies.

#### Abstract

Adrenocortical carcinoma (ACC) demonstrates clear age-associated differences in incidence, genomic architecture, and tumour behaviour. Emerging data, including recent work from Warde, Basham and colleagues in *Nature Aging*, point to age-linked shifts in genomic instability, steroidogenic dysregulation, and transcriptional programmes that modulate tumour aggressiveness. In this lecture, I will outline current evidence on how age shapes ACC pathobiology, from early-life TP53-driven tumorigenesis to later-onset disease characterised by cumulative DNA damage, chromatin remodelling defects, and altered steroid pathway activity. I will also discuss translational work demonstrating age-related variation in immune-tumour interactions, particularly monocyte infiltration and macrophage differentiation within the ACC microenvironment, and how these processes influence tumour progression and therapeutic vulnerability.

13:45 – 14:05

Speaker 1

**“The scope and nature of potential medication-related harm in older populations in Ireland”**



**Dr Caitriona Cahir**  
(Senior Lecturer)

**Data Science Centre, School of Population Health  
Royal College of Surgeons in Ireland, Dublin, Ireland**

**Biography**

Health, RCSI. Caitriona holds a HRB Scholars PhD in Health Services Research, a postgraduate Higher Diploma in Psychology and BA (Mod) in Economics from Trinity College Dublin. Prior to this, Caitriona was a Senior Research Fellow, working on a Health Research Board (HRB) Research Leaders Award investigating quality, safety and adherence to medication in the primary and secondary care settings. She also worked as a Research Officer in the Social Research Division at the Economic and Social Research Institute and was employed as a HRB Interdisciplinary Capacity Enhancement (ICE) post-doctoral research fellow at Trinity College Dublin. Caitriona’s research interests are in epidemiology and in particular medication taking behaviour, patient safety and health and economic outcomes.

**Abstract**

Medication-related harm includes adverse drug reactions (ADRs; noxious and unintended responses to medicinal products) and adverse drug events (ADEs; injuries related to medicine use). Approximately 10% of hospital admissions in older populations are attributable to medication-related harm.

This project aimed to develop and validate a risk prediction model that identifies older people at risk of ADR-related hospital admissions and ADEs.

We used the adverse drug reactions in an Ageing PopulATIion (ADAPT) cohort (N = 798; 361 ADR-related admissions; 437 non-ADR-related admissions). Twenty predictors (categorised as sociodemographic-related, functional ability-related, disease-related, and medication-related) were considered in the development of the model. The model was developed using multivariable logistic regression, internally validated by fivefold cross-validation and externally validated the Centre for Primary Care Research (CPCR) cohort.

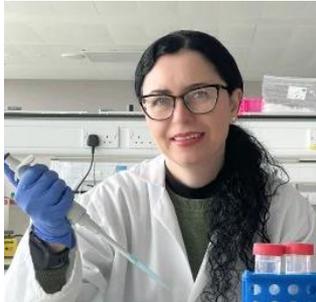
The final prediction model, ADAPTiP, included nine predictors: age, chronic lung disease, the primary presenting complaints of respiratory, bleeding and gastrointestinal disorders and syncope on hospital admission and anti-thrombotics, diuretics, and renin-angiotensin-aldosterone system drug classes. ADAPTiP demonstrated good performance with cross-validated area under the curve of 0.75 [95% CI 0.72;79] and 0.83 [95% CI 0.80;0.87] in the external validation.

Identifying the individuals and groups of older people at risk of medication-related enables health service target supports to those most likely to benefit from them.

**14:05 – 14:25**

**Speaker 2**

**“Treatment of  $\beta$ -amyloid-induced increased tonic conductance and cognitive deficits by an  $\alpha 5$  GABA inverse agonist”**



**Dr Andrea Kwakowsky**

*(Assoc. Prof in Pharmacology)*

**School of Medicine**

**University of Galway, Galway, Ireland**

**Biography**

Dr Andrea Kwakowsky is an Associate Professor of Neuropharmacology and Programme Director of the Neuropharmacology MSc programme at the University of Galway. Her primary research interest is in the molecular and cellular basis of brain function in Alzheimer’s disease (AD) and Huntington’s disease. Dr Kwakowsky’s lab has a particular interest in GABA, glutamate, oestrogen signalling, and neuroinflammation in normal brain function, as well as changes associated with age-related pathological conditions. This research involves multi-disciplinary studies using invaluable human tissue, animal models, and advanced scientific technologies, including the newest molecular and imaging techniques. Dr Kwakowsky is a graduate of Eötvös Loránd University, Budapest, Hungary (MSc and PhD). She has held academic positions at the Institute of Experimental Medicine in Hungary, the University of Otago in New Zealand, and the University of Auckland in New Zealand, before relocating her lab to Ireland. She was awarded prestigious fellowships from the Hungarian Academy of Sciences, Aotearoa Foundation, Alzheimer’s New Zealand, and the Freemasons New Zealand. Dr Kwakowsky’s goal is to find novel drug targets and therapeutic strategies for AD and other neurodegenerative diseases.

**Abstract**

Alzheimer’s disease (AD) is a chronic progressive neurodegenerative disorder characterized by cognitive impairment, which may arise from disruptions in the excitatory/inhibitory balance within the brain. Gamma-aminobutyric acid (GABA), the principal inhibitory neurotransmitter in the central nervous system, plays a crucial role in maintaining the excitatory/inhibitory balance and regulating neuronal activity involved in memory. In AD, changes in  $\alpha 5$  GABA A receptor ( $\alpha 5$ GABAAR) expression and activity increase tonic inhibition, disturbing the neuronal excitatory/inhibitory balance and ultimately impairing cognitive processes. Therefore, targeting  $\alpha 5$ GABAAR offers a promising therapeutic strategy. This study examined the potential of an  $\alpha 5$ GABAAR-selective inverse agonist,  $\alpha 5$ IAs, in treating  $\beta$ -amyloid-induced cognitive deficits and the mechanism underlying this using *ex vivo* microelectrode array and patch clamp electrophysiology.  $\alpha 5$ IA significantly reduced  $\beta$ -amyloid-induced long-term spatial memory deficits and long-term potentiation.  $\alpha 5$ IA reversed  $A\beta$ -induced increases in neuronal excitability, as indicated by input-output curves, and mitigated elevated tonic conductance. These findings highlight  $\alpha 5$ IA’s ability to restore excitatory/inhibitory balance and cognitive function. The selective targeting of  $\alpha 5$ -GABAARs and enhancing the efficacy of  $\alpha 5$ -GABAAR inverse agonists, such as  $\alpha 5$ IA represents a promising direction in developing novel AD therapies.

14:25 – 14:45

### Speaker 3

**“Exploiting the synergistic effects of targeting key proteins in the androgen receptor signalling pathways for the treatment of prostate cancer”**



**Dr Maria Prencipe**

*(Assistant Prof. in Pharmacology)*

**School of Biomolecular & Biomedical Sciences  
University College Dublin, Dublin, Ireland**

#### **Biography**

Dr. Maria Prencipe is an assistant professor of Pharmacology in the School of Biomolecular and Biomedical Science, University College Dublin and co-lead of the Cancer Biology and Therapeutics laboratory ([www.cbtlab.ie](http://www.cbtlab.ie)) in UCD Conway Institute of Biomolecular and Biomedical Research. Her research focuses on the mechanisms of resistance to hormone therapy in breast and prostate cancer with the goal of identifying novel and more effective treatments and companion diagnostics for the advanced stages of these diseases. She sits on the executive council of the Irish Association for Cancer Research (IACR) as grants' officer and is a champion of public and patient involvement in cancer research as a member of the steering committee of the Patient Voice in Cancer Research initiative ([www.ucd.ie/patientvoicecancer/](http://www.ucd.ie/patientvoicecancer/)).

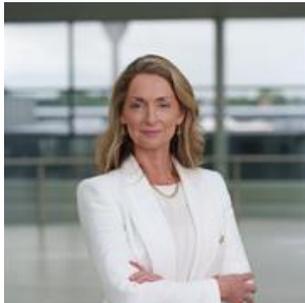
#### **Abstract**

Prostate cancer (PCa) is the most common invasive cancer in men in the western world and the second cause of cancer-related deaths. Despite recent improvements in the therapeutic options available to patients, current therapeutic strategies for metastatic PCa, mainly targeting the androgen receptor (AR), fail due to development of resistance leading to high mortality rates. In this setting identifying novel therapeutic strategies and companion diagnostics is crucially important. Using co-immunoprecipitation and mass spectrometry, in a PCa cellular model of resistance to androgen ablation therapy, we have identified several proteins that mediate AR signalling pathways and that show synergy when targeted simultaneously. Our research focuses on testing the clinical relevance of these synergistic drug combinations and understanding their molecular mechanisms. Our data show that drug synergy allows to use significantly lower concentrations of these drugs, which should result in reduced costs for health systems and less side effects for patients.

## Wednesday, 17<sup>th</sup> December

**Chair: Assistant Prof. Monica de Gaetano** (see “Biography” on page 3)

### **14:25 – 14:45 Selected Irish Keynote for Pharmacology 2025** **“Balancing AI Innovation with Ethical Considerations in Healthcare”**



#### **Professor Patricia Maguire**

**School of Biomolecular & Biomedical Sciences**  
**University College Dublin, Dublin, Ireland**

#### **Biography**

Professor Patricia Maguire is a biomedical scientist with an exceptional record of high-performance research including publication in leading international journals (Nat Comm, PNAS, Blood, Proteomics etc), that has earned a global reputation as an evangelist of interdisciplinary research. As PI, she has been awarded more than €5M in competitive research funding, including €1.5M in non-exchequer income from Bayer AG, Sanofi, Actelion Pharmaceuticals, Mallinckrodt Pharmaceuticals and Google. Her outstanding reputation has led to several prestigious invited lectures (e.g. Siemens Healthineers, Université de Strasbourg (INSERM), University of Tübingen, International Society of Thrombosis & Haemostasis). She has led several global research collaborations with esteemed institutions such as Harvard Medical School & Cambridge University, resulting in senior author high-impact publications (Blood, PNAS, Proteomics).

#### **Abstract**

Artificial intelligence is transforming clinical decision-making, but its integration into healthcare demands a careful balance between innovation, safety, and equity. Drawing on insights from projects such as THORAX and AI PREMie, this presentation will highlight how interdisciplinary design, rigorous biomarker science, and transparent algorithm development can accelerate clinical impact while maintaining trust. We have developed a framework that prioritises explainability, robust validation in diverse populations, and alignment with regulatory pathways, ensuring that AI tools support, and not replace, clinician expertise. In the future, the ethical deployment of AI will help to transform healthcare systems, enabling pre-emptive, personalised diagnosis and drive measurable risk reduction across both maternal and population health.