



UCD School of Medicine  
Scoil an Leighis UCD



UCD SCHOOL OF MEDICINE  
**RESEARCH REPORT**  
2021/2022 ACADEMIC YEAR







# CONTENTS

<b>1 Introduction</b>	<b>1</b>
<b>2 Research Highlights</b>	<b>2</b>
<b>3 Research Support Initiatives Updates</b>	<b>5</b>
School of Medicine Marketing & Communications Team	6
School of Medicine Grant Advisory Committee	7
School of Medicine Research Office	8
Graduate Research Association of Medicine (GRAM)	8
School of Medicine Research Integrity Champion	9
School of Medicine Research Innovation and Impact Group (RIIG)	10
<b>4 Research Students</b>	<b>11</b>
New Graduate Research Students 2021/22	12
Graduate Research Students 2021/22	12
Research Students Graduated 2022	13
<b>5 Student Summer Research Awards (SSRA) programme 2022</b>	<b>17</b>
<b>6 Academic Centres Updates</b>	<b>20</b>
UCD Centre for Arthritis Research	21
UCD Bioinformatics Centre	22
UCD Diabetes Complications Research Centre	23
UCD Centre for Emergency Medical Science	29
UCD Centre for Experimental Pathogen Host Research	30
UCD Perinatal Research Centre	32
UCD Centre for Precision Surgery	35
UCD Centre in Translational Oncology	38
UCD Clinical Research Centre	39

# YEAR IN NUMBERS

Total Grant Value

**€112,958,401**

Total Number of Grants Registered

**156**

New Research Grants

**€32,903,179**

Field-Weighted Citation Impact

**2.14**

Total No of Publications

**2812**

Citations

**46,432**

New Students registered

**54**

Total Research Students registered

**209**

Number Students Graduated

**41**

Research Centres

**9**



# INTRODUCTION

## FROM ASSOCIATE DEAN RESEARCH, INNOVATION AND IMPACT, UCD SCHOOL OF MEDICINE

It is a pleasure to introduce the UCD School of Medicine Research report for the 2021/22 academic year which highlights the achievements from what has been a successful year for our school overall. Our faculty, researchers and students have continued to explore research questions of fundamental importance to human health and disease. Despite the impact of the Covid-19 pandemic, our school's research profile has continued to expand with noticeable increases in funding success across the school. We have also continued to work to enhance our research environment, by updating equipment and core services and by focusing on initiatives that enable a supportive research culture.

The publication of this annual report provides us with an opportunity to reflect and re energise for the coming year as we continue to embark on meaningful programmes of research of the highest scientific value.



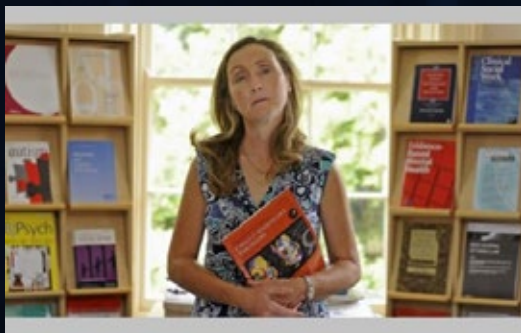
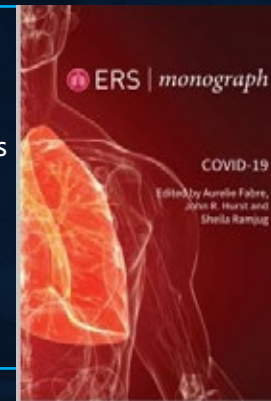
**Prof Peter Doran**

Associate Dean for Research, Innovation and Impact  
UCD School of Medicine



# 2 RESEARCH HIGHLIGHTS 2022

Professor Aurelie Fabre, Full Professor of Histopathology & Consultant Histopathologist at St Vincent's University Hospital co-edited the COVID-19 Monograph published by the European Respiratory Society (ERS). The Monograph provided clinicians with a concise, comprehensive guide to the symptoms, diagnosis and treatment of COVID-19. Dr Virginie Gautier, Associate Professor in Virology, UCD School of Medicine and Principal Investigator in UCD Centre for Experimental Host Pathogen Research (CEPHR) also contributed as the senior author of Chapter 4 titled 'Drug repurposing and other strategies for rapid coronavirus antiviral development: lessons from the early stage of the COVID-19 pandemic.'



Professor Fiona McNicholas, Full Professor of Children & Adolescent Psychiatry received an IRC New Foundations award of €11,955 for a project titled 'From Literature Review to Co-Production: The Public Patient Involvement (PPI) Journey.'

Professor Denis Shields, Full Professor of Clinical Bioinformatics, UCD School of Medicine, in collaboration with Dr Clement Agoni, Postdoctoral Research Fellow, UCD School of Medicine, received a grant worth €247,050 from Enterprise Ireland for a project titled Structural modelling of peptide target interactions for peptides of natural origins

Dr Shane O Hanlon, Clinical Associate Professor at UCD School of Medicine and Consultant Geriatrician, St Vincent's University Hospital and St Columille's Hospital leads the UCD School of Medicine involvement in a 5-year GERONTE (Streamlined GERiatric and ONcological evaluation based on IC TEchnology for holistic patient-oriented healthcare management for older multimorbid patients) project, which received funding from EU Horizon worth €5.9 million. The GERONTE Consortium aims to redesign the care pathway for older people with cancer. To achieve this, GERONTE will co-design, test, and prepare for deployment an innovative cost-effective patient-centred holistic health management system, hereafter referred to as the GERONTE intervention.



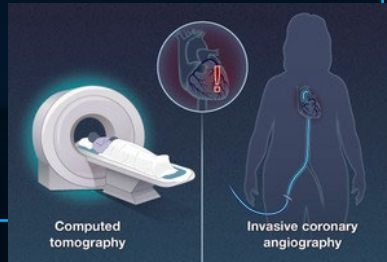
Dr Virginie Gautier, Associate Professor in Virology, UCD School of Medicine and Principal Investigator in UCD Centre for Experimental Host Pathogen Research (CEPHR), received a grant from Science Foundation Ireland worth €1,570,522 for a project titled 'UCD Enhanced Containment Level 3 (CL3) Laboratory Suite for Human and Animal Risk Group 3 Biological Agents a National Resource for Translational Research and Infectious Diseases Preparedness.'



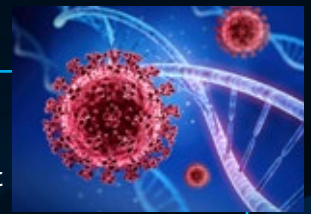
Professor Desmond Tobin, Full Professor of Dermatological Science, UCD School of Medicine and Director of the Charles Institute of Dermatology, University College Dublin received research funding from Industry worth €280,000 for a project titled 'Epigenetic Variability between Constitutive and Facultative Pigmentation in Human Skin.'



Professor Jonathan Dodd, Full Clinical Professor, UCD School of Medicine and Consultant Cardiothoracic Radiologist at St Vincent's University Hospital, served as principal investigator on the European research project DISCHARGE. The project identified an accurate and low-risk diagnostic test for coronary artery disease, its findings published in the New England Journal of Medicine under the title 'CT or Invasive Coronary Angiography in Stable Chest Pain.'



Professor Alistair Nichol, Chair of Critical Care Medicine, UCD School of Medicine, Consultant at St Vincent's University Hospital, and Director of the Irish Critical Care-Clinical Trials Network, co-authored the world's largest study of the genetics of critical COVID-19, involving more than 57,000 people, titled 'Whole-genome sequencing reveals host factors underlying critical COVID-19' and published in Nature. The study was conducted by the GenOMICC consortium – a global collaboration to study genetics in critical illness, led by University of Edinburgh in partnership with Genomics England. It was led in Ireland by Professor Nichol.



Dr Kathleen Curran, Lecturer/ Assistant Professor, UCD School of Medicine, and Dr Cormac McCarthy, Consultant Respiratory Physician, SVUH, Associate Professor, UCD School of Medicine, are the Co-Leads on an initiative which will develop a cost-effective artificial intelligent (AI) tool. The project received an award of €550,000 from Enterprise Ireland.



Professor Peter Doran, Associate Dean for Research, Innovation and Impact, UCD School of Medicine, Director of the Ireland East Hospital Group research network and Director of the UCD Clinical Research Centre (CRC), in collaboration with Dr Sinead Holden, Research Fellow, UCD School of Medicine, received a grant of €206,408 from the Health Research Board for a project titled 'HRB Trials Methodology Research Network (HRB-TMRN) Phase III'

Dr Cormac McCarthy, Consultant Respiratory Physician, SVUH, Associate Professor, UCD School of Medicine published an article titled '*Extended D-dimer Cut-offs and Machine Learning for Ruling-Out Pulmonary Embolism in individuals undergoing CTPA*' in the European Respiratory journal. The study showed that D-dimer measurement combined with Machine Learning can significantly improve rule-out of Pulmonary Embolism.

Through the EU's HORIZON 2020 programme, Professor Patrick Mallon, Full Professor of Microbial Diseases, UCD School of Medicine and Consultant in Infectious Diseases, St Vincent's University Hospital, and Professor Peter Doran, Associate Dean for Research, Innovation and Impact, UCD School of Medicine, Director of the Ireland East Hospital Group research network and Director of the UCD Clinical Research Centre (CRC), received funding of €851,861 and €1,421,478 respectively for projects titled 'European Corona Vaccine Trial Accelerator Platform (VACCELERATE)

St Vincent's University Hospital Trials Network case study led by Professor Alistair Nichol, Chair of Critical Care Medicine at UCD School of Medicine and Consultant in St Vincent's University Hospital, won the UCD-wide Research Impact Competition. The project, with a total of 24 high-impact publications, carried out significant clinical research in preparation for, and in response to, the COVID-19 pandemic.





Professor Ronan Cahill, Full Professor of Surgery & Director of Centre for Precision Surgery, UCD School of Medicine and Consultant General and Colorectal Surgeon at Mater Misericordiae University Hospital, received the 2022 NovaUCD Innovation Champion of the Year award. Professor Cahill is a co-awardee and clinical lead of a DTIF project entitled "The Future of Colorectal Cancer Diagnosis and Treatment" which secured €5.7 million in funding through Horizon Europe. The project, titled 'CLASSICA', will deliver and clinically validate an AI-based clinical decision support system, which allows rapid identification of the presence and distribution of cancer tumours.



UCD received funding for 14 of 62 projects under the collaborative North-South Research Programme funded through the Government's Shared Island Fund. Dr Sinead Holden, Research Fellow, UCD School of Medicine, received 'Strand 1' funding of €200,000 for a project titled 'Understanding Risk and Identification of musculoskeletal injury in adolescent team sports (RID Injury)'. Dr Holden will collaborate with researchers at Ulster University throughout the project.

Professor Donal Brennan, Professor of Gynaecological Oncology, UCD School of Medicine and Consultant Obstetrician and Gynaecological Oncologist at the Mater Misericordiae University Hospital, the National Maternity Hospital and St Vincent's University Hospital, received a grant worth €73,753 from the Irish Cancer Society for his project titled 'Comparing group-based Compassion Focused Therapy and breathing pattern retraining with Treatment As Usual on the psychological functioning of patients diagnosed with cancer recurrence during COVID: a randomised control trial'

Dr Brendan O'Kelly, UCD Newman Fellow, under the supervision of Professor Jack Lambert, Full Clinical Professor, UCD School of Medicine and Consultant in Infectious Diseases and Genitourinary Medicine at Mater Misericordiae University Hospital, published preliminary findings indicating treatment with low dose naltrexone may improve well-being and reduce symptoms in patients with Post Covid-19 Syndrome in the journal Brain, Behaviour & Immunity Health. Dr O'Kelly also previously published a study showing that one quarter of patients attending a Covid follow-up clinic met the definition of 'Post Covid-19 Syndrome' one year after initial diagnosis in The International Journal of Infectious Diseases.

Three projects led by UCD School of Medicine Faculty received funding from the Health Research Board. Professor Gerry Wilson, Full Professor in Rheumatology & Director of UCD Centre for Arthritis Research, UCD School of Medicine received funding for a project titled 'Discovering and modulating mechanisms by which Peptidylglycine alpha-Amidating Monooxygenase (PAM) influences the risk of genetically inherited tissue damage in Rheumatoid Arthritis'. Professor Ulla Knaus, Full Professor of Immunobiology, UCD School of Medicine, received funding for a project titled 'Neutrophil Plasticity in Infection and Inflammation'. Professor Douglas Veale, Adjunct Full Professor, UCD School of Medicine and Consultant Rheumatologist, St Vincent's University Hospital, received funding for a project titled 'Predicting Onset, Variation and Effect of treatment in Rheumatoid Arthritis (PROVE-RA)'.





# 3

## RESEARCH

## SUPPORT INITIATIVES



## School of Medicine Marketing and Communications Team

The UCD School of Medicine Marketing and Communications Team provides dedicated communications support to project and profile the sustainable, referenced and reputed research status that is held by the School, on both a national and international basis.

In tandem the M&C Team is also devising a three-year research communications strategy which sets out to build on this, continue to improve upon the School's research reputation and distinguish the School's research from its peers in Ireland by becoming higher placed in life science and medicine rankings and become one of the top 150 universities in the WUR.

This communications strategy outlines the course of action for communications support to research activities.

The objectives of this strategy are as follows;

- Broaden public understanding of a School with a strong tradition of research-based enquiry
- Develop the School's distinctive and competitive research reputation amongst external researchers, industry partners, policy makers and the School's staff base
- Promote further engagement with state and community leaders, alumni and non-alumni donors, prospective PhD students by driving the research reputation
- Drive awareness of the School's wealth of research activity and output on a national and global scale, focusing on both academic and clinical activities

The key messages that will be projected via this strategy will focus on research profile, activity and performance, research related media coverage and subsequent 'conversations' and public and patient involvement in research using intelligence from the SciVal and Altmetric platforms.

There will be two core components in this Strategy. The first will focus on profiling the entire research function and illustrating and projecting the extent, breath and success across the function. The second will focus on profiling activity and outputs in the top five School of Medicine Research Clusters. This will drill down and examine activity across these clusters (Obesity, C-19, Exercise, Pregnancy and RA) and develop dedicated comms campaigns to illustrate and project each cluster.

The Research Comms Strategy will be based on the six principles of effective communications; Relevant, Timely, Accessible, Actionable, Credible/ Trusted and Understandable.

For further information, please contact the UCD School of Medicine Marketing and Communications Managers: Jean Ryan | e: [jean.ryan@ucd.ie](mailto:jean.ryan@ucd.ie) or Anna Truman | e: [anna.truman@ucd.ie](mailto:anna.truman@ucd.ie)





## School of Medicine Grant Advisory Committee

The UCD School of Medicine Grant Advisory Committee is a mechanism designed to provide information and feedback to staff who are preparing research grant proposals. This committee was established to specifically provide support at the stage of proposal development. The objective of the committee is to offer independent, constructive advice on scientific merit and proposal development through recruitment of reviewers from within the School of Medicine. This process is designed to complement existing support provided by UCD Research.

Applicants may engage with the committee at any stage of proposal development and it is not necessary to submit a completed proposal to the committee for review. Feedback is provided in a transparent manner and open dialogue between applicants and reviewers is encouraged.

While the committee recommends submission dates based around known grant deadlines, this is a rolling process and proposals may be submitted to the committee for consideration at any time. Early engagement with this process is encouraged to facilitate a timely and constructive review. We are supported in this endeavour by the UCD Medicine research office.

To date we have facilitated reviews of grants submitted to Science Foundation Ireland, the Health Research Board and the Irish Research Council. However, we will consider grants aimed at any funding call.

Further information on how staff can participate in this process may be found at

[www.ucd.ie/medicine/research/researchers/grantadvisorycommittee](http://www.ucd.ie/medicine/research/researchers/grantadvisorycommittee)



**Dr Eoin Brennan**  
Lecturer/Assistant Professor (Ad Astra Fellow)  
School of Medicine, University College Dublin.



**Dr Carol Ahearne**  
Lecturer/Assistant Professor  
School of Medicine, University College Dublin.



## School of Medicine Research Office

The research administration team provides administrative support to research staff and students to ensure the School's mission of advancing healthcare through research is achieved. The Team is focused on supporting School staff in submitting Funding Applications and supporting graduate research programmes, graduate research degree committees (Biomedical Research Degree Committee and the Clinical Research Degrees Committee) and students. In addition, the research team maintains close links to Graduate Studies and UCD Research to ensure School staff have access to the wide range of support and resources available centrally.

Moreover, this team supports the development of School research strategy, compiles reports to track student progression and research funding and citations, organises the School Annual Research Symposium, supports the production of the Annual School Research Report and organises the Summer Student Research (SSRA) programme.

## Graduate Research Association of Medicine (GRAM)

The Graduate Research Association of Medicine (GRAM) was founded in July 2020, with the intention of fostering a sense of community amongst graduate researchers in the School of Medicine. Researchers in the School of Medicine include PhD, MD, MSc students and post-doctoral researchers. They are based at research institutes in UCD Belfield and at the School's major teaching hospitals such as St. Vincent's and Mater Misericordia.

GRAM is run by graduate researchers for graduate researchers, and is made possible through funding by the School of Medicine. GRAM aims to recognise and celebrate milestones of its members, including publication of papers, thesis submission and graduation. It aims to relay information about academic support and career opportunities. Through these actions, GRAM wishes to promote wellbeing and community amongst researchers in the School of Medicine.

In 2022 as Covid-19 restrictions eased GRAM finally had the opportunity to hold in-person events. In March GRAM held their 'Bake Your Thesis' competition, which gave researchers the opportunity to bake a cake that represented their research. Ishani Atukoralalage was crowned the winner for her anatomically accurate heart cake. In April four PhD career development workshops were held, led by visiting Associate Professor of Pharmacy at the University of Puerto Rico, Dr. Kyle Melin. In these workshops Kyle guided PhD students through identifying their career goals, identifying who their mentors are and how to seek out mentors. Lunch was provided and great discussions were had between Kyle and attendees around careers in science. GRAM looks forward to the year ahead and organising more events for postgraduate students in the School of Medicine.





## Research Integrity Update

Dr Stephen Thorpe  
Ad Astra Fellow, Assistant Professor,  
UCD School of Medicine  
School of Medicine Research Integrity Champion



Research integrity and culture have always been important facets of research within the School of Medicine. Good research culture is key to ensuring the highest standards of research integrity. Research culture relates to how we do our research, our behaviours and attitudes to each other in our work, how we value the contributions of others to our research, and how our research is communicated. As an institution, UCD has recently identified the advancement of research culture as a central component of its strategy, *Shaping the Future*. This aims to ensure that all those involved in research within UCD encounter a culture of integrity, dignity, respect, and inclusion.

One aspect of the implementation of this strategy is the creation of Research Integrity Champions. Within the School of Medicine, these are Dr Stephen Thorpe and Dr Deborah Wallace. Research Integrity Champions provide a point of contact for any research integrity queries within the school and are tasked with promoting a positive research culture. Research integrity activities focus on the engagement of future researchers, providing an awareness from the outset of what they should expect in a positive research environment. Student groups targeted include students of the Biomedical Health and Life Sciences programme, medical students partaking in the Summer Student Research Award scheme, enrolling research degree students, and graduate research students more broadly via the UCD Graduate Research Association of Medicine. Explicit engagement of colleagues at the clinical sites through in-person events is planned for the coming year.

UCD's Research Culture Initiative has now been running for over 12 months. This aims to promote a supportive

and positive research culture across the university. To date, this has included a survey which generated a snapshot of the health of UCD's research culture, and World Café events to stimulate conversation and discussion around topics impacting research integrity across UCD.

While the survey does not provide details for the School of Medicine, the response rate from the College of Health and Agricultural Sciences was the highest of any college at 29%. The survey has shown that broadly, UCD provides a supportive, collegial and collaborative environment for its research community, in support of research excellence and research integrity. However, there are several areas where research culture could be strengthened, notably awareness of research culture, valuing quality over quantity, and providing recognition for research contributions, particularly by professional and technical research support staff. These topics and others were discussed at several World Café events, including one targeting the College of Health and Agricultural Science. Emerging themes included integration of new members of the community, fostering inter-school and inter-college collaboration, variation in mentorship opportunities, and valuing quality over quantity in research output.

Overall, the research culture within the School of Medicine is in a good place, and as Research Integrity Champions, we hope to promote excellence, not only in what we do, but how we do it.

If you have any comments or queries relating to research integrity or culture, the School of Medicine Research Integrity Champions can be contacted at [medicine.ri@ucd.ie](mailto:medicine.ri@ucd.ie)

## School of Medicine Research Innovation and Impact Group (RIIG)

The RIIG has been established to provide strategic oversight of activities, systems and supports for research in the School of Medicine and to support our ambition to be an international leader in biomedical and clinical research.

The RIIG has a major role in promoting the school's research community and in developing a culture and environment conducive to conducting research within the school.



**Chair**  
Prof Peter Doran



Prof Paul McLoughlin



Prof Gerard Bury



Prof Louise Rainford



Prof Yvonne O'Meara



Prof Ronan Cahill



Prof Fionnuala McAuliffe



Prof Patrick Murray



Prof Des Tobin



Prof Walter Kolch



Prof Catherine Godson



Prof Cormac Taylor



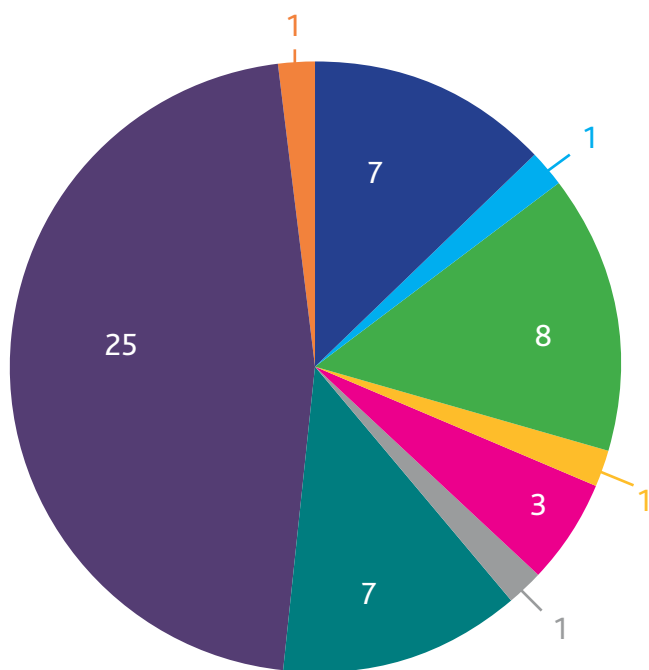
Mr Paul Harkin





# 4

# RESEARCH STUDENTS



### New Graduate Research Students 2021/22

- Medicine PhD FT
- Medicine PhD PT
- Translational Med PhD FT
- Translational Med PhD FT
- PhD B&SB Prog Medicine FT
- PhD Infection Biology(SMMS) FT
- Medicine MSc FT
- MD Doctor of Medicine FT
- Medicine MCh FT

Total = 54

### Registered Research Students 2021/22

Programme Code	Programme Description	Major Code	Major Description	Year							Total	
				1	2	3	4	5	6	7		
DRLSC001	Doctor of Philosophy	X237	Medicine PhD Full-Time	7	13	13	6	1				40
DRLSC001	Doctor of Philosophy	X238	Medicine PhD Part-Time	1	6	1	2			1	3	14
DRLSC001	Doctor of Philosophy	X253	Translational Med PhD FT	8	12	11	8	4				43
DRLSC001	Doctor of Philosophy	X254	Translational Med PhD PT	1	1	1	2	1	2			8
DRLSC001	Doctor of Philosophy	X849	PhD B&SB Prog Medicine FT	3	7	2	6					18
DRLSC001	Doctor of Philosophy	X810	PhD Infection Biology(SMMS) FT	1	2	2	3	1				9
MRLSC013	Master of Science	X218	Medicine MSc FT	7	5	1						13
MRLSC013	Master of Science	X289	Medicine MSc PT			1						1
DRLSC004	Doctor of Medicine	X967	MD Doctor of Medicine FT	25	27	8						60
DRLSC004	Doctor of Medicine	X650	MD Doctor of Medicine PT		1			1				2
MRLSC015	Master of Surgery	X224	Medicine MCh FT	1								1
				<b>54</b>	<b>74</b>	<b>40</b>	<b>27</b>	<b>8</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>209</b>



## Research Students Graduated 2022

The School of Medicine extends its warmest congratulations to students and their supervisors who have graduated over the last year.

Programme	Student	Thesis title	Supervisor	Special Extern Examiner	Examiner's Institution
PhD	Abrar Alqattan	The role of diffusion based magnetic resonance imaging in the evaluation of bone bruising of the knee	Associate Professor Jonathan McNulty	Dr Karen Knapp	University of Exeter
	Bernadette Brady	Cardiac and Autonomic Function in Cancer-Related Fatigue	Professor Thomas Declan Walsh	Professor Lukas Radburch	University of Bonn
	Rachel Byrne	An investigation into the interrelationship between HDL particle composition and anti-atherosclerotic functions in patients with cardio metabolic disease.	Dr Fiona McGillicuddy	Dr Elena Osto	University of Zurich
	Michelle Campion	Evaluating 5-Methoxy-N,N-Dimethyltryptamine as a Potential Treatment for Neuropsychiatric Disorders	Professor Martin Steinhoff	Professor John Quinn	University of Liverpool
	Sarah Coveney	Investigation of systemic inflammation, risk, and treatment of recurrent vascular events after ischaemic stroke and transient ischaemic attack	Professor Peter Kelly	Professor Craig Smith	University of Manchester
	Sarah Geoghegan	Preparing for a Group B streptococcus Vaccine: Global Perspectives on Maternal Immunization.	Professor Karina Butler	Professor Helen Marshall	University of Adelaide
	Farrah-Hani Imran	From Zero to Hero, with the Man in the Mirror: Engagement of Performance Enhancing Drugs (PEDs) in Young Males	Professor Fiona McNicholas	Professor S. Bryn Austin	Harvard University
	Sarah Louise Killeen	Addressing gaps in cardiometabolic health and nutrition in women of reproductive age	Professor Fionnuala McAuliffe	Dr Mary McCann	University of Ulster
	Daria Kostyunina	Sex differences in the pulmonary microvascular endothelial responses to hypoxia under physiological shear stress	Professor Paul McLoughlin	Professor Philip Aaronson	King's College London
Shannon Lee	Investigating the crosstalk between RAF oncogenic signalling and tumour cell metabolism in malignant melanoma	Professor Walter Kolch	Professor Jacintha O'Sullivan	Trinity College Dublin	

## Research Students Graduated 2022

Programme	Student	Thesis title	Supervisor	Special Extern Examiner	Examiner's Institution
PhD	William Martin	Multi-Omic Characterisation of Renal Responses to Intentional Weight Loss in Diabetic Kidney Disease.	Professor Carel Le Roux	Professor Matthias Kretzler	University of Michigan
	John McCabe	Blood and Imaging Markers of Inflammation and Vascular Recurrence after Stroke	Associate Professor Jonathan McNulty	Dr Arthur Leiesz	Ludwig-Maximilians-Univ Munich
	Tara McGinty	Immune dysregulation and bone disease in HIV	Professor Patrick Mallon	Professor Todd Brown	John Hopkins University
	Stephanie McKenna	Deciphering the Role of the LATS1 Pro-Apoptotic Signalling Network in Metastatic Melanoma	Professor Walter Kolch	Professor Julio Vera-Gonzalez	University of Erlangen-Nuremberg
	Keith Mulready	Development and clinical validation of novel biomarkers utilising Liquid Chromatography-Tandem Mass Spectrometry	Professor Maria Fitzgibbon	Professor Andrea Urbani	University of Rome Tor Vergata
	Lydia O'Sullivan	Informed Consent in Clinical Trials	Professor Peter Doran	Professor Bronagh Blackwood	Queen's University Belfast
	Nikolai Pakhomov	Role of Gut Microbiota-Derived Short Chain Fatty Acids in Regulating Inflammation in the Context of Heart Failure	Associate Professor John Baugh	Dr Allan Lawrie	The university of Sheffield
	David Phelan	Determination of the role of nuclear receptor family 4a (NR4A) signalling in hypercapnia	Dr Eoin Cummins	Professor John Laffey	NUIG
	Miguel Camara Pirez	Impact of Bovine Sperm Sex-Sorting on Reproductive Outcomes, Sperm Behaviour and Sperm Molecular Function	Professor Sabine Koelle	Professor Norah Spears	University of Edinburgh
	Maria Cristina Serrangeli	Morphological variation in the human calcaneus: a 3D geometric morphometric study	Dr Robin Feeney	Professor Damiano Marchi	University of Pisa
Romina Silva	PROVE - PRostate and OVarian Epigenetics: investigating therapeutic resistance via cfDNA	Professor Donal Brennan & Assoc Prof Antoinette Perry	Dr Alexander Wyatt	University of British Columbia	
Moritz Strowitzki	Elevated CO2 regulates monocyte differentiation and macrophage activation	Professor Cormac Taylor	Professor Erik Swenson	University of Washington	



## Research Students Graduated 2022

Programme	Student	Thesis title	Supervisor	Special Extern Examiner	Examiner's Institution
PhD	Patrick Swan	An in vitro and in vivo Assessment of the Effects of Alpha-MSH on Skeletal Muscle Glucose Uptake in Healthy Human Volunteers	Associate Professor Neil Docherty	Professor Filip Knop	University of Copenhagen
	Camille Ternet	Conditions-specific quantitative network rewiring of colon cancer-associated KRAS mutations in Caco-2 cell line	Dr Christine Kiel	Professor Ola Soderberg	Uppsala University
	John Travers	Delaying and reversing frailty and building resilience: developing and launching an optimum intervention for older adults in primary care	Professor Peter Doran	Professor Simon Conroy	University College London
	Cara Yelverton	Maternal Health during Pregnancy and Longitudinal Offspring Health; ; Relationships between Maternal Health and Child Obesity-Related Health Outcomes using Cohort Analysis	Professor Fionnuala McAuliffe	Dr Emeir McSorley	University of Ulster
MD	Susan Aherne	Validation of tumour budding (TB) as a predictive marker of the effect of neoadjuvant treatment in rectal carcinoma.	Professor Kieran Sheahan	Professor Sabina Berezowska	University of Lausanne
	Lucia Hartigan	Reproduction and Cancer: Optimising fertility for children and young adults	Dr Mary Wingfield	Professor Hamish Wallace	University of Edinburgh
	Maebh Horan	Fertility preservation in young women at risk of ovarian insufficiency due to malignancy or endometriosis	Professor Mary Wingfield	Professor Andrew Horne	University of Edinburgh
	John McMahon	Determination of tumour growth fractions and use of refined PCR techniques to detect mutations and allelic loss of p53 in paraffin-embedded synovial sarcoma and leiomyosarcoma	Professor Aurelie Fabre	Professor Tim Helliwell	University of Liverpool
	Oonagh Molloy	The assessment of viral infection and its role in psoriasis pathogenesis.	Professor Brian Kirby	Professor Anne Bowcock	Icahn School of Medicine
Rory Murphy	Matrix Mechanotransduction via Yes-Associated Protein (YAP) in Human Lamina Cribrosa Cells and Implications for Glaucoma	Professor Colm O'Brien	Professor Anthony Khawaja	University College London	

## Research Students Graduated 2022

Programme	Student	Thesis title	Supervisor	Special Extern Examiner	Examiner's Institution
MD	Ihedinachi Ijeoma Ndukwe	Studies In Adult-onset Cervical Dystonia motor & non-motor symptoms in relation to health-related quality of life in patients with adult-onset idiopathic cervical dystonia.	Professor Michael Hutchinson	Professor Mark Edwards	St George's University of London
	Ali Raba	The value of Transcutaneous Bilirubinometry in prediction of the need for phototherapy, Accuracy before, during and after Phototherapy in Preterm Infants	Dr Jan Militen	Professor Mikael Norman	Karolinska Institutet
	Faizan Ur Rehman Rathore	Precipitants of Acute Decompensation of Heart Failure (PAD-HF) Study	Professor Kenneth McDonald	Dr Pardeep Jhund	University of Glasgow
	Helen Ryan	Risk Prediction Modelling for Obstetric Women in the ICU: The Collaborative Integrated Pregnancy High-dependency Estimate of Risk (CIPHER) global study	Professor Colm O'Herlihy	Professor Dilly Anumba	University of Sheffield
	Timothy Ryan	Familial Colorectal Cancer Services in Ireland- A Radical Proposal to Improve Survival	Professor Padraic Mac Mathuna	Dr Roland Valori	Gloucestershire Royal Hospital
	Siew-Mei Yap	Multimodal biomarkers of physical and cognitive disability for people with progressive multiple sclerosis	Professor Christopher McGuigan	Professor Olga Ciccarelli	University College London
MSc	Ana Le Chevillier	Design of a Tri-Layered Tissue-Engineered Heart Valve Scaffold using Electrospinning and Melt Electrowriting: Proof of Concept	Dr Tom Flanagan	Associate Professor Mathias H. Wilhelmi	Hannover Medical School
	Emer O'Byrne	The Molecular Epidemiology of Respiratory Syncytial Virus in Ireland, 2015-2018	Dr Cillian De Gascun	Dr Simon Drysdale	St George's Hospital
	Christina Rushe	Exploring molecular mechanisms underlying the pathology of human Crohn's Disease: An Investigation into Nod-like receptor pyrin domain-containing protein 6 (NLRP6)	Dr Glen Doherty	Dr Aideen Ryan	NUIG





5

STUDENT SUMMER  
RESEARCH AWARD  
PROGRAMME 2022





## Student Summer Research Award (SSRA) Programme 2022

The Student Summer Research Award (SSRA) programme, currently coordinated by Dr Noreen Sheehy, is a research based initiative to support and showcase undergraduate research affiliated with the UCD School of Medicine.

The overarching aim of this eight-week programme is to provide undergraduate healthcare students with opportunities to undertake research at an early stage in their degrees, with a view to fostering a passion for enquiry, discovery, innovative and potentially translational research. These 8-week Summer research projects result in published conference proceedings and in many cases full peer reviewed publication.

This year, the SSRA programme continues to instil in our undergraduates an appreciation for the importance and relevance of research to medicine and indeed inspire some of them to consider a career as a clinical scientist.

103 students undertook SSRA projects in 2022, including a number of students who were hosted in sixteen International Institutes across the United States, including the University of Texas, Yale School of Medicine and Mount Sinai Hospital. Thirteen institutes across Canada also hosted SSRA Students in 2022, as well as six institutes throughout the African continent and one in the United Kingdom. This is testament not only to

the support of UCD alumni around the world but also to the incredible links that our students have made with international hosts and the great flexibility explored to host UCD students both in person and in remote working capacities. SSRA Scholarships in 2022 awarded nine Dean's Scholarship positions.

Thanks also to the generosity of the benefactors of the Myles Smith family, the UCD School of Medicine SSRA programme was able to continue to offer the Award for Research Excellence in 2022 in the areas of cardiology and vascular disease and rare cancers.

The "Clare O'Connor Summer Student Scholarship in Respiratory Research" was also awarded in 2022. This award has been created thanks to generous donations by a number of individuals via Prof Muiris X FitzGerald, former Dean of Medicine and founder of the SVUH Cystic Fibrosis Unit.

Lastly, the "Kathleen Lynn Summer Student Scholarship in the History of Medicine/Humanities in Medicine" was awarded in 2022. This annual award is in memory of Dr Kathleen Lynn (b. 1874-d.1955). This award is sponsored jointly by the UCD School of Medicine and the UCD Centre for the History of Medicine in Ireland, UCD School of History.



## Awardees 2021



### Gold Medal

Sarah Kelly

An Analysis Of Compassionate Access Program For New Oncology Drugs (UCD)

#### Supervisor:

Assoc Prof Austin Duffy



### Silver Medal

Louise Costello

Therapeutic Tools for Spinal Cord Injury: Investigating the Polarisation Of Bv2 Microglia in 3% Gelma Hydrogels (UCD)

Dr Dearbhaile Dooley



### Bronze Medal

Ashokkumar Singaravelu

A 3D Printed Training Model for Cholecystectomy incorporating the "Moynihan Hump" Origin of the Cystic Arter (UCD)

Prof James Jones



### Poster prize 1st Place

Catherine Glazier

The Effect Of Sterile Intra-Amniotic Inflammation On Neonatal Life (Wayne State University)

#### Supervisor:

Assoc Prof Nardhy Gomez-Lopez



### Poster prize 2nd Place

Lee Onn

Adenosine Receptor Signalling Increases Mucin Production In The Intestinal Epithelium (UCD)

Dr Carol Aherne



### Poster prize 3rd Place

Kieran Beirne

The Clinical Significance Of Tickborne Fever On Irish Sheep Farms (UCD)

Assoc Prof Annetta Zintl



### Alfred Myles Smith Bursary 2022

Matthew Thomas

Ep4 Deletion And Atherosclerotic Burden In Pd-1 Deficient Hyperlipidaemic Mice (University of Pennsylvania)

#### Supervisor:

Prof Garret A. FitzGerald



### Clare O'Connor Summer Student Scholarship

Mohamed Al Ghammari

Impact Of Sumoylation Inhibitor (Tak-981) Treatment On Sars-Cov-2 Nucleoprotein Multimerization (UCD)

Assoc Prof Virginie Gautier



### Kathleen Lynn Summer Student Scholarship

Joshua Tan Tai Kuang

Sexually Transmitted Diseases In Ireland During The 19th And 20th Century (UCD)

Assoc Prof Catherine Cox

# 6

# ACADEMIC CENTRE UPDATES 2022

UCD Centre for Arthritis Research

UCD Bioinformatics Centre

UCD Diabetes Complications Research Centre

UCD Centre for Emergency Medical Science

UCD Centre for Experimental Pathogen Host Research

UCD Perinatal Research Centre

UCD Centre for Precision Surgery

UCD Centre in Translational Oncology

UCD Clinical Research Centre

[www.ucd.ie/medicine/ourresearch/researchcentres](http://www.ucd.ie/medicine/ourresearch/researchcentres)





UCD CAR is based at UCD Conway Institute and comprises researchers in UCD and St Vincent's and Mater University Hospitals.

Our interdisciplinary research covers proteomics, computational biology, genetics, stratified medicines, sports and exercise, immunology/mechanisms of disease and animal models of RA.

Our Centre has proven highly successful in developing translational experimental approaches including training and performance of mini-arthroscopy and tissue biopsy. The programme based across the UCD CRC (Clinical Research Centre), provides whole tissue biopsy explant cultures for research that is an entirely unique resource. Our teams' ability to perform this research has led to both academic and industry collaborations attracting significant non-exchequer funding from both the EU and the US.

The expertise for this highly developed research programme has led to novel translational research outputs including presentations at the highest quality international research meetings and publication in high impact factor peer-review journals.

<b>Key Publications in 2022</b>	<p>Sutcliffe, M., N. Nair, J. Oliver, A.W. Morgan, J.D. Isaacs, A.G. Wilson, S.M.M. Verstappen, S. Viatte, K.L. Hyrich, A.P. Morris, A. Barton, and D. Plant. 2022. Pre-defined gene co-expression modules in rheumatoid arthritis transition towards molecular health following anti-TNF therapy. <i>Rheumatology</i>. DOI: 10.1093/rheumatology/keac204</p> <p>FitzGerald, O., and S.R. Pennington. 2022. HIPPOCRATES: improving diagnosis and outcomes in psoriatic arthritis. <i>Nat Rev Rheumatol</i> 18:123-124.</p> <p>Mc Ardle, A., A. Kwasnik, A. Szentpetery, B. Hernandez, A. Parnell, W. de Jager, S. de Roock, O. FitzGerald, and S.R. Pennington. 2022. Identification and Evaluation of Serum Protein Biomarkers That Differentiate Psoriatic Arthritis From Rheumatoid Arthritis. <i>Arthritis Rheumatol</i> 74:81-91.</p> <p>Nic An Riogh, E., E. Dunne, S. Cowley, K. Leamy, G. McCarthy, D. Kenny, and J. Stack. 2022. Dynamic platelet function: A novel biomarker in inflammatory arthritis? <i>PLoS One</i> 17:e0261825.</p> <p>Lythgoe, H., E.M.D. Smith, O.G. Killeen, R. Murphy, C. Pilkington, C.E. Pain, M.W. Beresford, and U. in association with the British Paediatric Surveillance. 2022. Prospective epidemiological study of juvenile-onset systemic lupus erythematosus in the UK and Republic of Ireland. <i>Rheumatology (Oxford)</i> 61:4097-4106.</p> <p>Dorris, E.R., M. Kieran, N. Dalbeth, and G. McCarthy. 2022. Pharmacist knowledge of gout management: impact of an educational intervention. <i>BMC Rheumatol</i> 6:30.</p>
---------------------------------	--

<b>Key Grants in 2022</b>	<p>HRB Investigator Led Projects (G Wilson):</p> <ul style="list-style-type: none"> <li>• <i>Discovering and modulating mechanisms by which Peptidylglycine alpha-Amidating Monooxygenase (PAM) influences the risk of genetically inherited tissue damage in Rheumatoid Arthritis.</i> €368,365 (PI)</li> <li>• <i>PRedicting Onset, Variation and Effect of treatment in Rheumatoid Arthritis (PROVE-RA).</i> €369,035 (Co-applicant)</li> </ul>
---------------------------	--

<b>Centre news in 2022</b>	<p>Dr Michelle Hall joined the centre from the University of Melbourne for 2 years as a Senior Research Fellow. She currently holds a 5-year National Health and Medical Research Council (NHMRC) Emerging Leadership (EL) Fellowship (<a href="https://findanexpert.unimelb.edu.au/profile/427602-michelle-hall">https://findanexpert.unimelb.edu.au/profile/427602-michelle-hall</a>). Her research focus centres on hip and knee osteoarthritis with particular interest on the effects of exercise.</p>
----------------------------	---



There is an amazing diversity and quantity of information (with increasingly complex linkages) emerging in the biological and medical sciences. Bioinformatics is the use of computational approaches to make sense of biology, especially to analyse molecular sequences of DNA, RNA and protein.

The UCD Bioinformatics Centre is focused on advancing the quality of bioinformatics science. It supports academic researchers working in the areas of bioinformatics, genomics and molecular evolution. It encourages interdisciplinary collaborations inside and outside UCD through PhD programmes, teaching and software provision. Key areas include sequence alignment, molecular evolution, short peptides, protein structure prediction, cancer, pathogens.



## Key Publications in 2022

Selection of Key Publications from affiliated members determined from SCOPUS:

- Control of cell state transitions Rukhlenko, O.S., Halasz, M., Rauch, N., ...Kolch, W., Kholodenko, B.N. *Nature*, 2022, 609(7929), pp. 975–985
- Machine learning based prediction and the influence of complement – Coagulation pathway proteins on clinical outcome: Results from the NEURAPRO trial Susai, S.R., Mongan, D., Healy, C., ...Paul Amming, G., Cotter, D. *Brain, Behavior, and Immunity*, 2022, 103, pp. 50–60
- Analysis of Alternative mRNA Splicing in Vemurafenib-Resistant Melanoma Cells Bokharaie, H., Kolch, W., Krstic, A. *Biomolecules*, 2022, 12(7), 993
- A Systems Biology Approach to Investigate Kinase Signal Transduction Networks That Are Involved in Triple Negative Breast Cancer Resistance to Cisplatin Mukherjee, N., Browne, A., Ivers, L., ...Fey, D., Eustace, A.J. *Journal of Personalized Medicine*, 2022, 12(8), 1277
- Proteasomal down-regulation of the proapoptotic MST2 pathway contributes to BRAF inhibitor resistance in melanoma Romano, D., García-Gutiérrez, L., Aboud, N., ...Kolch, W., Matallanas, D. *Life Science Alliance*, 2022, 5(10), e202201445
- CRABP2 – A novel biomarker for high-risk endometrial cancer Egan, D., Moran, B., Wilkinson, M., ...le Roux, C.W., Brennan, D.J. *Gynecologic Oncology*, 2022, 167(2), pp. 314–322
- Contradictory Phylogenetic Signals in the Laurasiatheria Anomaly Zone Doronina, L., Hughes, G.M., Moreno-Santillan, D., ...Springer, M.S., Ray, D.A. *Genes*, 2022, 13(5), 766
- Optimising predictive models to prioritise viral discovery in zoonotic reservoirs Becker, D.J., Albery, G.F., Sjodin, A.R., ...Teeling, E.C., Carlson, C.J. *The Lancet Microbe*, 2022, 3(8), pp. e625–e637

## Key Awards in 2022

Science Foundation Ireland recognises Prof. Walter Kolch with SFI Mentorship Award 2022

## Key Grants in 2022

SFI CRT PhD programme. The SFI CRT PhD programme now has 24 PhD students funded in UCD across multiple schools (Medicine, SBES, SBBS, Agriculture and Food Science, Veterinary Medicine, Computer Science, Mathematics and Statistics). The programme has run cloud computing resources for the PhD students in collaboration with the CloudCIX company.

## Centre News in 2022

Students from the SFI CRT PhD programme organized the ICBG conference: [www.icbgsymposium.com](http://www.icbgsymposium.com)





The UCD Diabetes Complications Research Centre (DCRC) focuses on the macro and microvascular complications of diabetes and obesity.

We comprise a multidisciplinary research group with expertise in molecular cell biology, genetics, bioinformatics, pharmacology, systems biology, chemical pathology and clinical medicine. Investigators are based in the UCD Conway Institute, the Mater Misericordiae University and St Vincent's University Hospitals and work closely with international collaborators in academia and industry. Research programmes are funded by national and international sources including Science Foundation Ireland (SFI), The European Union, Wellcome Trust, the National Institutes of Health (NIH), the Juvenile Diabetes Research Foundation (JDRF), European Renal Association (ERA), European Association for the Study of Diabetes (EASD) and bio pharma industry.

The DCRC is primary associated with the UCD School of Medicine and also associated with the School of Biomolecular and Biomedical Sciences (SBBS), School of Veterinary Medicine and School of Public Health, Physiotherapy and Sport Science (SPPSS). We are based in the UCD Conway Institute of Biomolecular and Biomedical Research.

The Mission of the UCD Diabetes Complications Research Centre is to advance our knowledge of the initiation, progression and regression of vascular complications of diabetes and obesity.

### Key Publications 2022

Abdul Wahab, R., Al-Ruwaily, H., Coleman, T., Heneghan, H., Neff, K., Le Roux, C. W. & Fallon, F. 2022. The Relationship Between Percentage Weight Loss and World Health Organization-Five Wellbeing Index (WHO-5) in Patients Having Bariatric Surgery. *Obes Surg*, 32, 1667-1672.

Abdul Wahab, R. & Le Roux, C. W. 2022. A review on the beneficial effects of bariatric surgery in the management of obesity. *Expert Rev Endocrinol Metab*, 17, 435-446.

Aggensteiner, P. M., Holz, N. E., Böttinger, B. W., Baumeister, S., Hohmann, S., Werhahn, J. E., Naaijen, J., Ilbegi, S., Glennon, J. C., Hoekstra, P. J., Dietrich, A., Deters, R. K., Saam, M. C., Schulze, U. M. E., Lythgoe, D. J., Sethi, A., Craig, M. C., Mastroianni, M., Sagar-Ouriaghli, I., Santosh, P. J., Rosa, M., Bargallo, N., Castro-Fornieles, J., Arango, C., Penzol, M. J., Vidal, J., Franke, B., Zwiers, M. P., Buitelaar, J. K., Walitza, S., Banaschewski, T. & Brandeis, D. 2022. The effects of callous-unemotional traits and aggression subtypes on amygdala activity in response to negative faces. *Psychol Med*, 52, 476-484.

Akalestou, E., Miras, A. D., Rutter, G. A. & Le Roux, C. W. 2022. Mechanisms of Weight Loss After Obesity Surgery. *Endocr Rev*, 43, 19-34.

Alabduljabbar, K., Al-Najim, W. & Le Roux, C. W. 2022. The Impact Once-Weekly Semaglutide 2.4 mg Will Have on Clinical Practice: A Focus on the STEP Trials. *Nutrients*, 14.

Aldhwayan, M. M., Al-Najim, W., Ruban, A., Glaysheer, M. A., Johnson, B., Chhina, N., Dimitriadis, G. K., Prechtel, C. G., Johnson, N. A., Byrne, J. P., Goldstone, A. P., Teare, J. P., Le Roux, C. W. & Miras, A. D. 2022. Does Bypass of the Proximal Small Intestine Impact Food Intake, Preference, and Taste Function in Humans? An Experimental Medicine Study Using the Duodenal-Jejunal Bypass Liner. *Nutrients*, 14.

Alqallaf, A., Swan, P. & Docherty, N. G. 2022. Renal insulin resistance in type 2 diabetes mellitus and progression of chronic kidney disease: potential pathogenic mechanisms. *Expert Rev Endocrinol Metab*, 17, 523-532.

Angelini, G., Panunzi, S., Castagneto-Gissey, L., Pellicanò, F., De Gaetano, A., Pompili, M., Riccardi, L., Garcovich, M., Raffaelli, M., Ciccoritti, L., Verrastro, O., Russo, M. F., Vecchio, F. M., Casella, G., Casella-Mariolo, J., Papa, L., Marini, P. L., Rubino, F., Le Roux, C. W., Bornstein, S. & Mingrone, G. 2022. Accurate liquid biopsy for the diagnosis of non-alcoholic steatohepatitis and liver fibrosis. *Gut*.

Blonde, G. D., Mathes, C. M., Inui, T., Hamel, E. A., Price, R. K., Livingstone, M. B. E., Le Roux, C. W. & Spector, A. C. 2022. Oromotor and somatic taste reactivity during sucrose meals reveals internal state and stimulus palatability after gastric bypass in rats. *Am J Physiol Regul Integr Comp Physiol*, 322, R204-r218.

**Key  
Publications in  
2022 (cont.)**

- Borodavkin, P., Sheridan, W., Coelho, C., Oštarijaš, E., Zair, Z. M., Miras, A. D., McGowan, B., Le Roux, C. W., Vincent, R. P. & Dimitriadis, G. K. 2022. Effects of glucagon-like peptide-1 receptor agonists on histopathological and secondary biomarkers of non-alcoholic steatohepatitis: A systematic review and meta-analysis. *Diabetes Obes Metab*, 24, 337-342.
- Breen, C., O'Connell, J., Geoghegan, J., O'shea, D., Birney, S., Tully, L., Gaynor, K., O'Kelly, M., O'malley, G., O'donovan, C., Lyons, O., Flynn, M., Allen, S., Arthurs, N., Browne, S., Byrne, M., Callaghan, S., Collins, C., Courtney, A., Crotty, M., Donohue, C., Donovan, C., Dunlevy, C., Duggan, D., Fearon, N., Finucane, F., Fitzgerald, I., Foy, S., Garvey, J., Gibson, I., Glynn, L., Gregg, E., Griffin, A., Harrington, J. M., Heary, C., Heneghan, H., Hogan, A., Hynes, M., Kearney, C., Kelly, D., Neff, K., Le Roux, C. W., Manning, S., Mcauliffe, F., Moore, S., Moran, N., Murphy, M., Murrin, C., O'brien, S. M., O'donnell, C., O'dwyer, S., O'grad, C., O'malley, E., O'reilly, O., O'reilly, S., Porter, O., Roche, H. M., Rhynehart, A., Ryan, L., Seery, S., Soare, C., Shaamile, F., Walsh, A., Woods, C., Woods, C. & Yoder, R. 2022. Obesity in Adults: A 2022 Adapted Clinical Practice Guideline for Ireland. *Obes Facts*, 15, 736-752.
- Brennan, L., O'gorman, A., Barth, S., Cadden, T., Dean, M., Doohan, F., Henschion, M., Mcivor, R., McNulty, B., O'donoghue, C., O'reilly, S., Rafferty, J., Roche, H. M., Thorne, F., Wallace, M., Wright, D. & Nugent, A. P. 2022. An innovative food system approach to diversifying protein intake: Protein-I: Shared Island sustainable healthy nutrition. *Nutr Bull*, 47, 516-523.
- Bridge-Comer, P. E., Vickers, M. H., Morton-Jones, J., Spada, A., Rong, J. & Reynolds, C. M. 2022. Maternal intake of fructose or artificial sweetener during pregnancy and lactation has persistent effects on metabolic and reproductive health of dams post-weaning. *J Dev Orig Health Dis*, 13, 642-649.
- Clerkin, S., Wychowaniec, J. K., Singh, K., Davis, J. L., Treacy, N. J., Krupa, I., Brougham, D. F. & Crean, J. 2022. Gelatin Methacryloyl (GelMA) as a Suitable Three-Dimensional Extracellular Environment for the Derivation of iPSC-Derived Kidney Organoids. *The FASEB journal*, 36, n/a-n/a.
- Coveney, S., McCabe, J. J., Murphy, S., Belton, O., Gray, C., Cassidy, T., Dolan, E., De Gaetano, M., Harbison, J., Horgan, G., Marnane, M., Merwick, A., Noone, I., Williams, D. J. & Kelly, P. J. 2022. Dose-Dependent Association of Inflammatory Cytokines with Carotid Atherosclerosis in Transient Ischaemic Attack: Implications for Clinical Trials. *Cerebrovasc Dis*, 51, 178-187.
- Coveney, S., Murphy, S., Belton, O., Cassidy, T., Crowe, M., Dolan, E., De Gaetano, M., Harbison, J., Horgan, G., Marnane, M., McCabe, J. J., Merwick, A., Noone, I., Williams, D. & Kelly, P. J. 2022. Inflammatory cytokines, high-sensitivity C-reactive protein, and risk of one-year vascular events, death, and poor functional outcome after stroke and transient ischemic attack. *Int J Stroke*, 17, 163-171.
- Davis, J. L., Kennedy, C., Clerkin, S., Treacy, N., Andrews, D., Dodd, T., Murphy, A., Moss, C., Brazil, D., Brougham, D., Cagney, G., Finlay, D. & Crean, J. 2022. Integrated single cell RNA-seq and ATAC-seq of iPSC-derived kidney organoids reveals the complexity of TGF $\beta$  signalling to chromatin during the origin of fibroblasts. *The FASEB journal*, 36, n/a-n/a.
- Davis, J. L., Kennedy, C., Clerkin, S., Treacy, N. J., Dodd, T., Moss, C., Murphy, A., Brazil, D. P., Cagney, G., Brougham, D. F., Murad, R., Finlay, D., Vuori, K. & Crean, J. 2022. Single-cell multiomics reveals the complexity of TGF $\beta$  signalling to chromatin in iPSC-derived kidney organoids. *Commun Biol*, 5, 1301.
- De Gaetano, M. 2022. Development of synthetic lipoxin-A4 mimetics (sLXms): New avenues in the treatment of cardio-metabolic diseases. *Semin Immunol*, 101699.
- De Voogd, L. D., Kampen, R. A., Kaldewaij, R., Zhang, W., Hashemi, M. M., Koch, S. B. J., Klumpers, F., Glennon, J. C. & Roelofs, K. 2022. Trauma-induced human glucocorticoid receptor expression increases predict subsequent HPA-axis blunting in a prospective longitudinal design. *Psychoneuroendocrinology*, 146, 105909.
- Dyck, L., Prendeville, H., Raverdeau, M., Wilk, M. M., Loftus, R. M., Douglas, A., McCormack, J., Moran, B., Wilkinson, M., Mills, E. L., Doughty, M., Fabre, A., Heneghan, H., Leroux, C., Hogan, A., Chouchani, E. T., O'shea, D., Brennan, D. & Lynch, L. 2022. Suppressive effects of the obese tumor microenvironment on CD8 T cell infiltration and effector function. *J Exp Med*, 219.

---

**Key Publications  
in 2022 (cont.)**

- Elebring, E., Wallenius, V., Casselbrant, A., Docherty, N. G., Roux, C. W. L., Marschall, H. U. & Fändriks, L. 2022. A Fatty Diet Induces a Jejunal Ketogenesis Which Inhibits Local SGLT1-Based Glucose Transport via an Acetylation Mechanism-Results from a Randomized Cross-Over Study between Iso-Caloric High-Fat versus High-Carbohydrate Diets in Healthy Volunteers. *Nutrients*, 14.
- Farrell, E., Hollmann, E., Roux, C. L., Nadglowski, J. & Mcgillicuddy, D. 2022. At home and at risk: The experiences of Irish adults living with obesity during the COVID-19 pandemic. *EClinicalMedicine*, 51, 101568.
- Fearon, N., Sudlow, A., Le Roux, C. W., Pournaras, D. J. & Welbourn, R. 2022. Say what you mean, mean what you say: The importance of language in the treatment of obesity. *Obesity (Silver Spring)*, 30, 1189-1196.
- Holz, N. E., Floris, D. L., Llera, A., Aggensteiner, P. M., Kia, S. M., Wolfers, T., Baumeister, S., Böttinger, B., Glennon, J. C., Hoekstra, P. J., Dietrich, A., Saam, M. C., Schulze, U. M. E., Lythgoe, D. J., Williams, S. C. R., Santosh, P., Rosa-Justicia, M., Bargallo, N., Castro-Fornieles, J., Arango, C., Penzol, M. J., Walitza, S., Meyer-Lindenberg, A., Zwiers, M., Franke, B., Buitelaar, J., Naaijen, J., Brandeis, D., Beckmann, C., Banaschewski, T. & Marquand, A. F. 2022. Age-related brain deviations and aggression. *Psychol Med*, 1-10.
- Howe, A. M., Burke, S., O'reilly, M. E., Mcgillicuddy, F. C. & Costello, D. A. 2022. Palmitic Acid and Oleic Acid Differently Modulate TLR2-Mediated Inflammatory Responses in Microglia and Macrophages. *Mol Neurobiol*, 59, 2348-2362.
- Kajani, S., Curley, S., O'Reilly, M. E., Yin, X., Dillon, E. T., Guo, W., Nilaweera, K. N., Brennan, L., Roche, H. M. & Mcgillicuddy, F. C. 2022. Sodium salicylate rewires hepatic metabolic pathways in obesity and attenuates IL-1 $\beta$  secretion from adipose tissue: The implications for obesity-impaired reverse cholesterol transport. *Mol Metab*, 56, 101425.
- Kearns, M. L., Macaindriu, F. & Reynolds, C. M. 2022. The Impact of Non-caloric Sweeteners on Male Fertility: A Systematic Review and Narrative Synthesis in Rodent Models. *Front Nutr*, 9, 854074.
- Kleine Deters, R., Naaijen, J., Holz, N. E., Banaschewski, T., Schulze, U. M. E., Sethi, A., Craig, M. C., Sagar-Ouriaghli, I., Santosh, P., Rosa, M., Castro-Fornieles, J., Penzol, M. J., Arango, C., Brandeis, D., Franke, B., Glennon, J. C., Buitelaar, J. K., Hoekstra, P. J. & Dietrich, A. 2022. Emotion recognition profiles in clusters of youth based on levels of callous-unemotional traits and reactive and proactive aggression. *Eur Child Adolesc Psychiatry*.
- Lau, D. C. W., Batterham, R. L. & Le Roux, C. W. 2022. Pharmacological profile of once-weekly injectable semaglutide for chronic weight management. *Expert Rev Clin Pharmacol*, 15, 251-267.
- Le Roux, C. W., Fils-Aimé, N., Camacho, F., Gould, E. & Barakat, M. 2022. The relationship between early weight loss and weight loss maintenance with naltrexone-bupropion therapy. *EClinicalMedicine*, 49, 101436.
- Lee, B. Y., Ordoñas, J. M., Parks, E. J., Anderson, C. A. M., Barabási, A. L., Clinton, S. K., De La Haye, K., Duffy, V. B., Franks, P. W., Ginexi, E. M., Hammond, K. J., Hanlon, E. C., Hittle, M., Ho, E., Horn, A. L., Isaacson, R. S., Mabry, P. L., Malone, S., Martin, C. K., Mattei, J., Meydani, S. N., Nelson, L. M., Neuhausser, M. L., Parent, B., Pronk, N. P., Roche, H. M., Saria, S., Scheer, F., Segal, E., Sevvick, M. A., Spector, T. D., Van Horn, L. B., Varady, K. A., Voruganti, V. S. & Martinez, M. F. 2022. Research Gaps And Opportunities In Precision Nutrition: An Nih Workshop Report. *Am J Clin Nutr*.
- Lingvay, I., Sumithran, P., Cohen, R. V. & Le Roux, C. W. 2022. Obesity Management As A Primary Treatment Goal For Type 2 Diabetes: Time To Reframe The Conversation. *Lancet*, 399, 394-405.
- Livingstone, M. B. E., Redpath, T., Naseer, F., Boyd, A., Martin, M., Finlayson, G., Miras, A. D., Bodnar, Z., Kerrigan, D., Pournaras, D. J., Le Roux, C. W., Spector, A. C. & Price, R. K. 2022. Food intake following gastric bypass surgery: patients eat less but do not eat differently. *J Nutr*, 152, 2319-32.



**Key  
Publications in  
2022 (cont.)**

- Lopez-Jimenez, F., Almahmeed, W., Bays, H., Cuevas, A., Di Angelantonio, E., Le Roux, C. W., Sattar, N., Sun, M. C., Wittert, G., Pinto, F. J. & Wilding, J. P. 2022. Obesity and cardiovascular disease: mechanistic insights and management strategies. A joint position paper by the World Heart Federation and World Obesity Federation. *Eur J Prev Cardiol*.
- Martin, W. P., Chuah, Y. H. D., Abdelaal, M., Pedersen, A., Malmodin, D., Abrahamsson, S., Hutter, M., Godson, C., Brennan, E. P., Fändriks, L., Le Roux, C. W. & Docherty, N. G. 2021. Medications Activating Tubular Fatty Acid Oxidation Enhance the Protective Effects of Roux-en-Y Gastric Bypass Surgery in a Rat Model of Early Diabetic Kidney Disease. *Front Endocrinol (Lausanne)*, 12, 757228.
- Martin, W. P. & Le Roux, C. W. 2022. Wellcome Trust–Funded Monographs and Book Chapters Obesity Is a Disease. In: Haslam, D., Malhotra, A. & Capehorn, M. S. (eds.) *Bariatric Surgery in Clinical Practice*. Cham (CH): Springer Copyright 2022, Springer Nature Switzerland AG.
- Martin, W. P., Malmodin, D., Pedersen, A., Wallace, M., Fändriks, L., Aboud, C. M., Petry, T. B. Z., Cunha Da Silveira, L. P., Da Costa Silva, A. C. C., Cohen, R. V., Le Roux, C. W. & Docherty, N. G. 2022. Urinary Metabolomic Changes Accompanying Albuminuria Remission following Gastric Bypass Surgery for Type 2 Diabetic Kidney Disease. *Metabolites*, 12, 139.c
- Martin, W. P., Nair, M., Chuah, Y. H. D., Malmodin, D., Pedersen, A., Abrahamsson, S., Hutter, M., Abdelaal, M., Elliott, J. A., Fearon, N., Eckhardt, H., Godson, C., Brennan, E. P., Fändriks, L., Le Roux, C. W. & Docherty, N. G. 2022. Dietary restriction and medical therapy drives PPAR - regulated improvements in early diabetic kidney disease in male rats. *Clin Sci (Lond)*, 136, 1485-1511.
- Mckiernan, E. P., Moloney, C., Chaudhuri, T. R., Clerkin, S., Behan, K., Straubinger, R. M., Crean, J. & Brougham, D. F. 2022. Formation of hydrated PEG layers on magnetic iron oxide nanoflowers shows internal magnetisation dynamics and generates high in-vivo efficacy for MRI and magnetic hyperthermia. *Acta Biomater*, 152, 393-405.
- Meyer-Gerspach, A. C., Wingrove, J. O., Beglinger, C., Rehfeld, J. F., Le Roux, C. W., Peterli, R., Dupont, P., O'daly, O., Van Oudenhove, L. & Wölnerhanssen, B. K. 2022. Erythritol and xylitol differentially impact brain networks involved in appetite regulation in healthy volunteers. *Nutr Neurosci*, 25, 2344-2358.
- Mitchelson, K. A. J., Tran, T. T. T., Dillon, E. T., Vlckova, K., Harrison, S. M., Ntemiri, A., Cunningham, K., Gibson, I., Finucane, F. M., O'connor, E. M., Roche, H. M. & O'toole, P. W. 2022. Yeast  $\beta$ -Glucan Improves Insulin Sensitivity and Hepatic Lipid Metabolism in Mice Humanized with Obese Type 2 Diabetic Gut Microbiota. *Mol Nutr Food Res*, 66, e2100819.
- Mogavero, F., Van Zwieten, K., Buitelaar, J. K., Glennon, J. C. & Henckens, M. 2022. Deviant circadian rhythmicity, corticosterone variability and trait testosterone levels in aggressive mice. *Eur J Neurosci*, 55, 1492-1503.
- Murphy, C. H., Connolly, C., Flanagan, E. M., Mitchelson, K. A. J., De Marco Castro, E., Egan, B., Brennan, L. & Roche, H. M. 2022. Interindividual variability in response to protein and fish oil supplementation in older adults: a randomized controlled trial. *J Cachexia Sarcopenia Muscle*, 13, 872-883.
- Nieuwenhuis, S., Widomska, J., Blom, P., T Hoen, P. A. C., Van Engelen, B. G. M., Glennon, J. C. & On Behalf Of The Optimistic, C. 2022. Blood Transcriptome Profiling Links Immunity to Disease Severity in Myotonic Dystrophy Type 1 (DM1). *Int J Mol Sci*, 23.
- Owen, B., De Gaetano, M., Gaffney, A., Godson, C. & Guiry, P. J. 2022. Synthesis and Biological Evaluation of Bicyclo[1.1.1]pentane-Containing Aromatic Lipoxin A(4) Analogues. *Org Lett*, 24, 6049-6053.
- Perreault, L., Davies, M., Frias, J. P., Laursen, P. N., Lingvay, I., Machineni, S., Varbo, A., Wilding, J. P. H., Wallenstein, S. O. R. & Le Roux, C. W. 2022. Changes in Glucose Metabolism and Glycemic Status With Once-Weekly Subcutaneous Semaglutide 2.4 mg Among Participants With Prediabetes in the STEP Program. *Diabetes Care*, 45, 2396-2405.

**Key  
Publications in  
2022 (cont.)**

- Perugini, J., Di Mercurio, E., Giuliani, A., Sabbatinelli, J., Bonfigli, A. R., Tortato, E., Severi, I., Cinti, S., Olivieri, F., Le Roux, C. W., Gesuita, R. & Giordano, A. 2022. Ciliary neurotrophic factor is increased in the plasma of patients with obesity and its levels correlate with diabetes and inflammation indices. *Sci Rep*, 12, 8331.
- Qin, C. X., Norling, L. V., Vecchio, E. A., Brennan, E. P., May, L. T., Wootten, D., Godson, C., Perretti, M. & Ritchie, R. H. 2022. Formylpeptide receptor 2: Nomenclature, structure, signalling and translational perspectives: IUPHAR review 35. *Br J Pharmacol*, 179, 4617-4639.
- Reynolds, C. M. & Vickers, M. H. 2022. Editorial: Maternal Diet and Offspring Health. *Front Nutr*, 9, 867661.
- Riddle, M. C., Cefalu, W. T., Evans, P. H., Gerstein, H. C., Nauck, M. A., Oh, W. K., Rothberg, A. E., Le Roux, C. W., Rubino, F., Schauer, P., Taylor, R. & Twenefour, D. 2022. Consensus Report: Definition and Interpretation of Remission in Type 2 Diabetes. *J Clin Endocrinol Metab*, 107, 1-9.
- Riddle, M. C., Cefalu, W. T., Evans, P. H., Gerstein, H. C., Nauck, M. A., Oh, W. K., Rothberg, A. E., Le Roux, C. W., Rubino, F., Schauer, P., Taylor, R. & Twenefour, D. 2022. Consensus report: Definition and interpretation of remission in type 2 diabetes. *Diabet Med*, 39, e14669.
- Rosa-Justicia, M., Saam, M. C., Flamarique, I., Borràs, R., Naaijen, J., Dietrich, A., Hoekstra, P. J., Banaschewski, T., Aggensteiner, P., Craig, M. C., Sethi, A., Santosh, P., Sagar-Ouriaghli, I., Arango, C., Penzol, M. J., Brandeis, D., Werhahn, J. E., Glennon, J. C., Franke, B., Zwiers, M. P., Buitelaar, J. K., Schulze, U. M. E. & Castro-Fornieles, J. 2022. Subgrouping children and adolescents with disruptive behaviors: symptom profiles and the role of callous-unemotional traits. *Eur Child Adolesc Psychiatry*, 31, 51-66.
- Ross, R. C., Akinde, Y. M., Schauer, P. R., Le Roux, C. W., Brennan, D., Jernigan, A. M., Bueter, M. & Albaugh, V. L. 2022. The role of bariatric and metabolic surgery in the development, diagnosis, and treatment of endometrial cancer. *Front Surg*, 9, 943544.
- Sandholm, N., Cole, J. B., Nair, V., Sheng, X., Liu, H., Ahlqvist, E., Van Zuydam, N., Dahlström, E. H., Fermin, D., Smyth, L. J., Salem, R. M., Forsblom, C., Valo, E., Harjutsalo, V., Brennan, E. P., Mckay, G. J., Andrews, D., Doyle, R., Looker, H. C., Nelson, R. G., Palmer, C., Mcknight, A. J., Godson, C., Maxwell, A. P., Groop, L., Mccarthy, M. I., Kretzler, M., Susztak, K., Hirschhorn, J. N., Florez, J. C. & Groop, P. H. 2022. Genome-wide meta-analysis and omics integration identifies novel genes associated with diabetic kidney disease. *Diabetologia*, 65, 1495-1509.
- Satokar, V. V., Vickers, M. H., Reynolds, C. M., Ponnampalam, A. P., Firth, E. C., Garg, M. L., Barrett, C. J., Cutfield, W. S. & Albert, B. B. 2022. Fish oil supplementation of rats fed a high fat diet during pregnancy improves offspring insulin sensitivity. *Front Nutr*, 9, 968443.
- Satokar, V. V., Vickers, M. H., Reynolds, C. M., Ponnampalam, A. P., Firth, E. C., Garg, M. L., Bridge-Comer, P. E., Cutfield, W. S. & Albert, B. B. 2022. Toxicity of oxidized fish oil in pregnancy: a dose-response study in rats. *Am J Physiol Regul Integr Comp Physiol*, 323, R244-r254.
- Smeijers, D., Uzieblo, K., Glennon, J. C., Essen, J. M. A. & Brazil, I. A. 2022. Examining individual differences in social reward valuation: A person-based approach. *Journal of psychopathology and behavioral assessment*, 44, 312-325.
- Sridhar, A., Khan, D., Abdelaal, M., Elliott, J. A., Naughton, V., Flatt, P. R., Le Roux, C. W., Docherty, N. G. & Moffett, C. R. 2022. Differential effects of RYGB surgery and best medical treatment for obesity-diabetes on intestinal and islet adaptations in obese-diabetic ZDSD rats. *PLoS One*, 17, e0274788.
- Straathof, M., Blezer, E. L. A., Smeele, C. E., Van Heijningen, C., Van Der Toorn, A., Buitelaar, J. K., Glennon, J. C., Otte, W. M. & Dijkhuizen, R. M. 2022. Memantine treatment does not affect compulsive behavior or frontostriatal connectivity in an adolescent rat model for quinpirole-induced compulsive checking behavior. *Psychopharmacology (Berl)*, 239, 2457-2470.

---

**Key Publications in 2022 (cont.)**

- Strowitzki, M. J., Nelson, R., Garcia, M. P., Tuffs, C., Bleul, M. B., Fitzsimons, S., Navas, J., Uzielienė, I., Ritter, A. S., Phelan, D., Kierans, S. J., Blanco, A., Bernotienė, E., Belton, O., Schneider, M., Cummins, E. P. & Taylor, C. T. 2022. Carbon Dioxide Sensing by Immune Cells Occurs through Carbonic Anhydrase 2-Dependent Changes in Intracellular pH. *J Immunol*, 208, 2363-2375.
- Sudlow, A., Miras, A. D., Cohen, R. V., Kahal, H., Townley, J., Heneghan, H., Le Roux, C. & Pournaras, D. J. 2022. Medication following bariatric surgery for type 2 diabetes mellitus (BY-PLUS) study: rationale and design of a randomised controlled study. *BMJ Open*, 12, e054313.
- Sudlow, A. C. & Le Roux, C. W. 2022. Surgery for Weight Loss or Health Gain? *Diabetes Care*, 45, 1498-1499.
- Tielbeek, J. J., Uffelmann, E., Williams, B. S., Colodro-Conde, L., Gagnon, É., Mallard, T. T., Levitt, B. E., Jansen, P. R., Johansson, A., Sallis, H. M., Pistis, G., Saunders, G. R. B., Allegrini, A. G., Rimfeld, K., Konte, B., Klein, M., Hartmann, A. M., Salvatore, J. E., Nolte, I. M., Demontis, D., Malmberg, A. L. K., Burt, S. A., Savage, J. E., Sugden, K., Poulton, R., Harris, K. M., Vrieze, S., McGue, M., Iacono, W. G., Mota, N. R., Mill, J., Viana, J. F., Mitchell, B. L., Morosoli, J. J., Andlauer, T. F. M., Ouellet-Morin, I., Tremblay, R. E., Côté, S. M., Gouin, J. P., Brendgen, M. R., Dionne, G., Vitaro, F., Lupton, M. K., Martin, N. G., Castela, E., Rääkkönen, K., Eriksson, J. G., Lahti, J., Hartman, C. A., Oldehinkel, A. J., Snieder, H., Liu, H., Preisig, M., Whipp, A., Vuoksima, E., Lu, Y., Jern, P., Rujescu, D., Giegling, I., Palviainen, T., Kaprio, J., Harden, K. P., Munafò, M. R., Morneau-Vaillancourt, G., Plomin, R., Viding, E., Boutwell, B. B., Aliev, F., Dick, D. M., Popma, A., Faraone, S. V., Børghlum, A. D., Medland, S. E., Franke, B., Boivin, M., Pingault, J. B., Glennon, J. C., Barnes, J. C., Fisher, S. E., Moffitt, T. E., Caspi, A., Polderman, T. J. C. & Posthuma, D. 2022. Uncovering the genetic architecture of broad antisocial behavior through a genome-wide association study meta-analysis. *Mol Psychiatry*.
- Treacy, N. J., Clerkin, S., Davis, J. L., Kennedy, C., Miller, A. F., Saiani, A., Wychowanec, J. K., Brougham, D. F. & Crean, J. 2023. Growth and differentiation of human induced pluripotent stem cell (hiPSC)-derived kidney organoids using fully synthetic peptide hydrogels. *Bioact Mater*, 21, 142-156.
- Van Cruchten, R. T. P., Van As, D., Glennon, J. C., Van Engelen, B. G. M. & T Hoen, P. A. C. 2022. Clinical improvement of DM1 patients reflected by reversal of disease-induced gene expression in blood. *BMC Med*, 20, 395.
- Van Den Berk-Smeekens, I., De Korte, M. W. P., Van Dongen-Boomsma, M., Oosterling, I. J., Den Boer, J. C., Barakova, E. I., Lourens, T., Glennon, J. C., Staal, W. G. & Buitelaar, J. K. 2022. Pivotal Response Treatment with and without robot-assistance for children with autism: a randomized controlled trial. *Eur Child Adolesc Psychiatry*, 31, 1871-1883.
- Vartak, T., Kumaresan, S. & Brennan, E. 2022. Decoding microRNA drivers in atherosclerosis. *Biosci Rep*, 42.
- Vartak, T., Murphy, O., Dooley, A., Barry, M., Godson, C. & Brennan, E. 2022. Exploration of dual LET-7 MIMIC/statin therapy targeting vascular smooth muscle cell dysfunction in atherosclerosis. *Atherosclerosis*, 355.

---

**Key Awards in 2022****DCRC has been awarded UCD Impact Case Study Awards:**

2022 Changing the guidelines for treating type 2 diabetes: Researchers at the UCD DCRC have been at the forefront of generating high-quality scientific findings about type 2 diabetes. Their finding that double-digit intentional weight loss can be used to disrupt the disease is now becoming mainstream. Through this work, they have informed changes in national and international guidelines used to treat people living with type 2 diabetes, improving patients' lives.

**Prof Catherine Godson was awarded:**

- Graves Medal Lecture, Royal Academy of Medicine in Ireland 2022
- Eicosanoid Research Foundation, Outstanding Achievement Award 2022



---

**Key Grants in 2022**

1. 2023-2027 US Ireland R&D Partnership Award €780,000, Prof Catherine Godson [US Pls: Hirschhorn & Florez, NI PI Maxwell].
2. 2022 JDRF Strategic Research Award \$117,000, Prof Catherine Godson.
3. 2022-2024 Ireland Vietnam Bilateral Aid program, Co-PI Prof Catherine Godson [PI Prof Vu. Thi Thom, National University Vietnam, Hanoi]
4. 2022-2027 SFI US-Ireland R&D partnership programme – GENIE Consortium (RoI investigator; €697,000), Dr Eoin Brennan.
5. 2022-2023 Juvenile Diabetes Research Foundation International (JDRF) (Funding Agency Ref No: 1-SRA-2022-1204-S-B), Co PI Dr Eoin Brennan.
6. 2022-26: Science Foundation Ireland - Pathway €425,000, Dr Monica de Gaetano
7. 2022: Esther Ireland grant - 'Malnutrition in older adults in Malawi, a shared learning experience between dietetic programmes in Ireland and Malawi E8,000, Dr Clare Reynolds.
8. 2022: Institutional Strategic Support Fund, Mid-Career Stimulus Award (UCD/Wellcome Trust) €82,000, Dr Neil Docherty.
9. 2022: Career Development Seed Funding Award (UCD) €8,000, Dr Neil Docherty.

---

**The UCD Centre for Emergency Medical Science****Director** Prof Gerard Bury[www.ucd.ie/medicine/research/researchcentres/ucdcentreforemergencymedicalscience](http://www.ucd.ie/medicine/research/researchcentres/ucdcentreforemergencymedicalscience)

UCD CEMS continues to support Irish emergency services and general practice in the provision of high quality pre-hospital emergency care. Since the emergence of Covid-19, UCD CEMS has worked intensively with HSE, NAS, DFB and Irish Defence Forces as well as large numbers of GPs and other primary care team members to train, evaluate and support key elements of care in high risk environments.

In particular, the continued provision of resuscitation in local communities by volunteer MERIT3 GPs has contributed essential care in a setting where many other service providers have been unable to continue to work.

---

**Key Publications in 2022**

Pitch-side Acute Severe Pain Management Decisions in European Elite Football MC Doheny, G Bury - International Journal of Sports Medicine, 2022

Irish Defence Forces combat medical technician training: experience of a novel university medical school-based programme. S Loughman, C Berry, P Hickey, GM Kerr, G Bury - BMJ Mil Health, 2022

Prehospital practitioner awareness and experience of CPR-induced consciousness N Carty, G Bury - Journal of Paramedic Practice, 2022

Tough Decisions in Resuscitation: Can "Copilots" and Technology Help? G Bury - Chest, 2022

Community first response and out-of-hospital cardiac arrest: Identifying priorities for data collection, analysis, and use via the nominal group technique. Heffernan E, Keegan D, Mc Sharry J, Barry T et al. Resuscitation Plus, Volume 9, 2022,

---

**Key Grants in 2022**

HSE NAS support for MERIT3

---

**Centre News in 2022**

The establishment of the ProfCert in Emergencies in Sport in 2021 has been an important initiative. The programme is now running twice each year, with candidates drawn from a wide range of disciplines (sporting and health!)

Since 2019, almost 200 candidates have completed MScEMS, GradDipEMS, DipMilitaryMedicine, CertMilitaryMedicine courses. While distance learning was necessary for some components during the COVID pandemic, a return to face-to-face learning has been welcome.

Each year, approximately 400 GPs continue to attend our Immediate Care CPD courses.



Established in 2019, CEPHR brings together researchers and research groups from across UCD who focus on infection-related research. CEPHR members comprise clinical, translational, statistical and biomedical researchers working interactively on aspects of host and pathogen research from the UCD School of Medicine, the UCD School of Biology and Biological Sciences, and the UCD School of Politics and International Relations.

**Key Publications  
in 2022**

McCullagh et al: D614G SARS-CoV-2 pseudovirus infectivity and binding of Spike protein to the ACE receptor inversely correlates with serum SARS-CoV-2 specific IgG levels. (2022) *Viral Immunology* (in press)

Wedemeyer et al: Securing Wider EU Commitment to the Elimination of HCV. *Liver Int.* 2022 Oct 5. doi: 10.1111/liv.15446. Epub ahead of print. PMID: 36196744.

O'Kelly B et al.: Safety and efficacy of low dose naltrexone in a long covid cohort; an interventional pre-post study. *Brain Behav Immun Health.* 2022 Oct;24:100485. doi: 10.1016/j.bbih.2022.100485. Epub 2022 Jul 3. PMID: 35814187; PMCID: PMC9250701.

Fogarty H et al. Sustained VWF-ADAMTS-13 axis imbalance and endotheliopathy in long COVID syndrome is related to immune dysfunction. *J Thromb Haemost.* 2022;20(10):2429-2438. doi:10.1111/jth.15830

Lundahl et al: Macrophage innate training induced by IL-4 and IL-13 activation enhances OXPHOS driven anti-mycobacterial responses. *Elife.* 2022 Sep 29;11:e74690. doi: 10.7554/eLife.74690.

Ma R, Gordon SV. Pyruvate supplementation and *Mycobacterium bovis*: A caveat. *Tuberculosis (Edinb).* 2022 Sep;136:102257. doi: 10.1016/j.tube.2022.102257.

Correia et al.: High-resolution transcriptomics of bovine purified protein derivative-stimulated peripheral blood from cattle infected with *Mycobacterium bovis* across an experimental time course. *Tuberculosis (Edinb).* 2022 Sep;136:102235. doi:10.1016/j.tube.2022.102235.

Thapa J, Gordon SV, Nakajima C, Suzuki Y. Threat from *Mycobacterium orygis*-associated tuberculosis in south Asia. *Lancet Microbe.* 2022 Sep;3(9):e641-e642. doi: 10.1016/S2666-5247(22)00149-5.

Foley et al: (2022) Mumps specific IgG, IgG subclasses and Neutralization titres to the Vaccine and outbreak Mumps strains differ in vaccinated healthy controls, breakthrough mumps infection cases and naturally infected individuals. 2022 Sep. *Journal of Clinical Virology* <https://doi.org/10.1016/j.jcv.2022.105296>

O'Morain et al: Faecal calprotectin as a potential biomarker of disease severity in SARS-CoV-2 infection. *J Infect.* 2022;85:436-480.

Bakewell et al: Biomarker Associations with Insomnia and Secondary Sleep Outcomes in Persons with and without HIV in the POPPY-Sleep Sub-study: a cohort study. *Sleep.* 2022.

Group ICC et al: ISARICCOVID-19 dataset: A Prospective, Standardized, Global Dataset of Patients Hospitalized with COVID-19. *Sci Data.* 2022;9:454.

Reyes et al: Respiratory support in patients with severe COVID-19 in the International Severe Acute Respiratory and Emerging Infection (ISARIC) COVID-19 study: a prospective, multinational, observational study. *Crit Care.* 2022;26:276.

Brennan et al: Enhancing the management of long COVID in general practice: a scoping review. *BJGP Open.* 2022 Sep 28;6(3):BJGPO.2021.0178. doi: 10.3399/BJGPO.2021.0178. PMID: 35256357.

---

**Key Publications in 2022 (cont.)** Brehony et al: Evaluation of molecular testing for Mycoplasma genitalium for symptomatic women. Ir J Med Sci. 2022 Aug;191(4):1771-1775. doi: 10.1007/s11845-021-02782-1. Epub 2021 Sep 21. PMID: 34546502.

McCombe et al: Integrating Hepatitis C Care for Opioid Substitution Treatment Patients Attending General Practice: Feasibility, Clinical, and Cost-Effectiveness Analysis. Interact J Med Res. 2022 Aug 23;11(2):e35300. doi: 10.2196/35300. PMID: 35998029.

Savinelli et al: Obesity in HIV infection: host-pathogen interaction. AIDS. 2022 Sep 1;36(11):1477-1491. doi: 10.1097/QAD.0000000000003281. Epub 2022 Jun 21.

---

**Key Awards in 2022**

- Prof Mallon appointed to the COVID Clinical Advisory Group (CAG)
- Dr Cotter in charge of the National Isolation Unit at the MMUH
- Prof Mallon gave an invited plenary Lecture on inflammation in HIV at the bi-annual HIV Glasgow Conference in October 2022.
- Prof Mallon gave an invited plenary lecture on COVID19 Immune Responses at the 13th Congresso Regionale Simit in Sicily, 7-8 October 2022.
- CEPHR Research Highlights 2022 – A one day seminar hosted at the MMUH CRC on Saturday 18th June. The meeting comprised 2 oral abstract sessions on basic and clinical virology and one plenary talk (Prof Alan Landay from Rush U. Chicago).
- Prof Stephen Gordon presented to the Johnes Disease Implementation Group on 25th May on the use of whole genome sequencing for tracking pathogen transmission of infection.
- Prof Stephen Gordon gave a plenary lecture at the international Mbovis 2022 meeting in Galway, 7th-10th June

---

**Key Grants in 2022**

New grants from July 2022 to now:

October 2022: New grant awarded under Health Research Board. MONKEYVAX International collaborative trial. PI Eoin Feeney. Provisional award of €1,194,648

October 2022: New grant registered : SFI Frontiers for Partnership award. ViroSPEC – Developing label free spectroscopic techniques for virology – a novel analytical approach. Partnership with Professor Hugh Byrne, TUD. Lead UCD investigator: Dr Noreen Sheehy CEPHR; Collaborators Dr Jaythoon Hassan UCD NVRL, Professor Ultan Powers, Queen’s University Belfast. €1,000,000.

---





The UCD Perinatal Research Centre based at the National Maternity Hospital, was established since 2012 aiming to improve outcomes for mother and baby through clinically relevant research across the lifecourse.

Multidisciplinary Principal Investigators include collaborators from Obstetrics, Midwifery, Nutrition, Science, Dietetics, Hepatology, Rheumatology, Haematology, Diabetology, Psychology, Medical Education, Public Health, Fertility, Computer Science, Biomedical Engineering

- Key Publications in 2022**
- Lecorguillé M, McAuliffe FM, Twomey PJ, Viljoen K, Mehegan J, Kelleher CC, Suderman M, Phillips CM.J, Maternal glycaemic and insulinemic status and newborn DNA methylation: findings in women with overweight and obesity. *Clin Endocrinol Metab.* 2022 Sep 22:dga553.
- Bartels HC, Kennelly MA, Killeen SL, Lindsay KL, Crowley RK, McAuliffe FM. An mHealth-Supported antenatal lifestyle Intervention may be associated with improved maternal sleep in pregnancy: secondary analysis from the PEARS trial. *BJOG.* 2022 Jul 25.
- Obesity in Adults: A 2022 Adapted Clinical Practice Guideline for Ireland. Breen C, et al. *Obes Facts.* 2022 Oct 24:1-17.
- Delahunt A, Conway MC, Callaghan SL, Brien ECO, Geraghty AA, Reilly SLO, McDonnell CM, Mehegan J, McAuliffe FM. Maternal dietary quality during pregnancy and child appetitive traits at 5-years-old: Findings from the ROLO longitudinal birth cohort study. *Appetite.* 2022 Aug 31:106291. doi: 10.1016/j.appet.2022.106291.
- Aubert AM, Chen LW, Shivappa N, Cooper C, Crozier SR, Duijts L, Forhan A, Hanke W, Harvey NC, Jankowska A, Kelleher CC, de Lauzon-Guillain B, McAuliffe FM, Mensink-Bout SM, Polanska K, Relton CL, Suderman M, Hebert JR, Phillips CM, Bernard JY, Heude B. Predictors of maternal dietary quality and dietary inflammation during pregnancy: An individual participant data meta-analysis of seven European cohorts from the ALPHABET consortium. *Clin Nutr.* 2022 Sep;41(9):1991-2002.
- Killeen SL, Byrne DF, Geraghty AA, Yelverton CA, van Sinderen D, Cotter PD, Murphy EF, O'Reilly SL, McAuliffe FM. Recruiting and Engaging Women of Reproductive Age with Obesity: Insights from A Mixed-Methods Study within A Trial. *Int J Environ Res Public Health.* 2022 Oct 24;19(21):13832.
- O'Brien M, Dempsey B, Higgins M Experiences and outcomes of Gypsy, Roma and Traveller women in pregnancy: a scoping review protocol. *BMJ Open.* 2022 Jul 4;12(7):e057788
- Carey MO, O'Riordan N, Carty M, Ivers M, Taylor LK, Higgins MF Validation of a questionnaire exploring patient attitudes towards bedside teaching. *BMC Med Educ.* 2022 Mar 7;22(1):152
- Dempsey B, Callaghan S, Higgins MF .Providers' Experience of Abortion Care: Protocol for a Scoping Review. *JMIR Res Protoc.* 2022 Feb 2;11(2):e35481
- Leitao S, Manning E, Greene RA, Corcoran P; Maternal Morbidity Advisory Group\*Maternal morbidity and mortality: an iceberg phenomenon. *BJOG.* 2022 Feb;129(3):402-411. doi: 10.1111/1471-0528.16880. Epub 2021 Sep 23.
- Yelverton CA, Rafferty AA, Moore RL, Byrne DF, Mehegan J, Cotter PD, Van Sinderen D, Murphy EF, Killeen SL, McAuliffe FM. Diet and mental health in pregnancy: Nutrients of importance based on large observational cohort data. *Nutrition.* 2022 Jan 5;96:111582.
- Kane D, Ryan G, Mangina E, McAuliffe FM. A randomized control trial of a virtual reality learning environment in obstetric medical student teaching. *Int J Med Inform.* 2022 Oct 31;168:104899. doi: 10.1016/j.ijmedinf.2022.104899
- Petch S, McAuliffe F, O'Reilly S, Murphy C, Coulter-Smith S, de Campos DA, Khattak H, Mahmood T Folic acid fortification of flour to prevent neural tube defects in Europe - A position statement by the European Board and college of obstetrics and gynaecology (EBCOG). *Eur J Obstet Gynecol Reprod Biol.* 2022 Oct 15;279:109-111. doi: 10.1016/j.ejogrb.2022.10.010.

**Key  
Publications in  
2022 (cont.)**

- Philippe K, Perrotta C, O'Donnell A, McAuliffe FM, Phillips CM. Why do preconception and pregnancy lifestyle interventions demonstrate limited success in preventing overweight and obesity in children? A scoping review protocol. *PLoS One*. 2022 Nov 3;17(11):e0276491. doi: 10.1371/journal.pone.0276491. eCollection 2022.PMID: 36327318
- Ryan G, Callaghan S, Rafferty A, Murphy J, Higgins M, Barry T, Mangina E, Carroll L, McAuliffe F. Virtual reality in midwifery education: A mixed methods study to assess learning and understanding. *Nurse Educ Today*. 2022 Sep 21;119:105573. doi: 10.1016/j.nedt.2022.105573
- Cody F, Unterscheider J, Daly S, Geary MP, Kennelly MM, McAuliffe FM, Morrison JJ, O'Donoghue K, Hunter A, Dicker P, Tully E, Fhearaigh RN, Malone FD; Perinatal Ireland Research Consortium. Dynamic growth changes in fetal growth restriction using serial ultrasonographic biometry and umbilical artery doppler: The multicenter PORTO study. *Int J Gynaecol Obstet*. 2022 Sep 21. doi: 10.1002/ijgo.14470.
- Mulcahy C, McAuliffe FM Routine Doppler ultrasound in twin pregnancy. *Best Pract Res Clin Obstet Gynaecol*. 2022 Aug 20:S1521-6934(22)00109-2. doi: 10.1016/j.bpobgyn.2022.08.002.
- Davern R, Balan G, Kilcoyne C, Coveney C, Devine H, Walsh JM, Higgins M, Hatunic M. Cystic Fibrosis-Related Diabetes Mellitus and Pregnancy: A Retrospective Study. *Diabetes Ther*. 2022 Mar;13(3):481-487. doi: 10.1007/s13300-022-01223-1.
- McGovern, L., Geraghty, A., McAuliffe, F. & O'Reilly, S. An exploration of prenatal breastfeeding self-efficacy: a scoping review protocol. *Open Research Europe*. 2022 Jul 22. DOI: 10.12688/openreseurope.14938.1
- Bartels HC, O'Keefe LM, Yelverton CA, O'Neill KN, Geraghty AA, O'Brien EC, Killeen SL, McDonnell C, McAuliffe FM. Associations between maternal metabolic parameters during pregnancy and fetal and child growth trajectories from 20 weeks' gestation to 5 years of age: Secondary analysis from the ROLO longitudinal birth cohort study. *Pediatr Obes*. 2022 Sep 14:e12976. doi: 10.1111/ijpo.12976
- Jacob CM, Inskip HM, Lawrence W, McGrath C, McAuliffe FM, Killeen SL, Divakar H, Hanson M Acceptability of the FIGO Nutrition Checklist in Preconception and Early Pregnancy to Assess Nutritional Status and Prevent Excess Gestational Weight Gain: A Study of Women and Healthcare Practitioners in the UK. *Nutrients*. 2022 Sep 1;14(17):3623. doi: 10.3390/nu14173623.
- Keating N, Coveney C, McAuliffe FM, Higgins MF. Aerobic or Resistance Exercise for Improved Glycaemic Control and Pregnancy Outcomes in Women with Gestational Diabetes Mellitus: A Systematic Review. *Int J Environ Res Public Health*. 2022 Aug 30;19(17):10791.
- Delahunt A, Conway MC, Callaghan SL, O'Brien EC, Geraghty AA, O'Reilly SL, McDonnell CM, Mehegan J, McAuliffe FM. Maternal dietary quality during pregnancy and child appetitive traits at 5-years-old: Findings from the ROLO longitudinal birth cohort study. *Appetite*. 2022 Dec 1;179:106291.
- Bartels HC, Walsh JM, O'Connor C, McParland P, Carroll S, Higgins S, Mulligan KM, Downey P, Brophy D, Colleran G, Thompson C, Walsh T, O'Brien DJ, Brennan DJ, McVey R, McAuliffe FM, Donnelly J, Corcoran SM. Placenta accreta spectrum ultrasound stage and fetal growth. *Int J Gynaecol Obstet*. 2022 Aug 14.
- Gautam D, Ryan GA, McAuliffe FM, Purandare N .Armed Conflict - Women: Most Affected but Least Responsible. *Int J Gynaecol Obstet*. 2022 Jul 20. doi: 10.1002/ijgo.14360
- Killeen SL, Geraghty AA, O'Brien EC, O'Reilly SL, Yelverton CA, McAuliffe FM. Addressing the gaps in nutritional care before and during pregnancy. *Proc Nutr Soc*. 2022 Mar;81(1):87-98
- Delahunt A, Conway MC, O'Brien EC, Geraghty AA, O'Keefe LM, O'Reilly SL, McDonnell CM, Kearney PM, Mehegan J, McAuliffe FM. Ecological factors and childhood eating behaviours at 5 years of age: findings from the ROLO longitudinal birth cohort study. *BMC Pediatr*. 2022 Jun 27;22(1):366.
- O'Reilly SL, Conway MC, O'Brien EC, Molloy E, Walker H, O'Carroll E, McAuliffe FM. Exploring Successful Breastfeeding Behaviors Among Women Who Have High Body Mass Indices. *J Hum Lact*. 2022 Jun 16:8903344221102839.

<b>Key Publications in 2022 (cont.)</b>	<p>Woolford S, D'Angelo S, Mancano G, Curtis EM, Ashai S, Shivappa N, Hébert J, Crozier SR, Phillips C, Suderman M, Relton C, Cooper C, Harvey NC; ALPHABET Consortium Investigators. Associations between late pregnancy Dietary Inflammatory Index (DII) and offspring bone mass: a meta-analysis of the Southampton Women's Survey (SWS) and the Avon Longitudinal Study of Parents and Children (ALSPAC). <i>J Bone Miner Res.</i> 2022 Jun 10. doi: 10.1002/jbmr.4623</p> <p>Ryan GA, Finnegan C, McAuliffe FM, Malone FD, Müllers SM, Corcoran S, Mulcahy C, Dalrymple J, Donnelly J, Walsh J, Mcparland P, Martin A, Carroll S, Kent E. Fetoscopic Laser Ablation for Twin-to-Twin Transfusion Syndrome: A 15-year Review of Perinatal Survival. <i>Ir Med J.</i> 2022 May 25;115(5):595</p> <p>Ryan GA, Start AO, Cathcart B, Hughes H, Denona B, Higgins S, Corcoran S, Walsh J, Carroll S, Mahony R, Crimmins D, Caird J, Robinson I, Colleran G, McParland P, McAuliffe FM. Prenatal Findings and Associated Survival Rates in Fetal Ventriculomegaly: A Prospective Observational Study. <i>Int J Gynaecol Obstet.</i> 2022 Apr 3. doi: 10.1002/ijgo.1420.</p> <p>Killeen SL, Byrne DF, Geraghty AA, Kilbane MT, Twomey PJ, McKenna MJ, Yelverton CA, Saldova R, Van Sinderen D, Cotter PD, Murphy EF, McAuliffe FM. Higher inflammation is associated with cardiometabolic phenotype and biochemical health in women with obesity. <i>Ann Nutr Metab.</i> 2022 Mar 18.</p> <p>O'Riordan SL, Ryan GA, Cathcart B, Hughes H, Higgins S, Fitzgerald J, Corcoran S, Walsh J, Mahony R, Carroll S, McAuliffe FM, McParland P. The rate of decline in fetal hemoglobin following intrauterine blood transfusion in the management of red cell alloimmunization. <i>Eur J Obstet Gynecol Reprod Biol.</i> 2022 Feb 12;271:93-96. doi: 10.1016/j.ejogrb.2022.02.005.</p> <p>Killeen SL, Yelverton CA, Geraghty AA, Kennelly MA, Eakins S, Farrell L, Fagan JF, Mehegan J, McAuliffe FM. The Edmonton Obesity Staging System and pregnancy outcomes in women with overweight or obesity: A secondary analysis of a randomized controlled trial. <i>Clin Obes.</i> 2022 Feb 24:e12510.</p> <p>Keating N, Carpenter K, McCarthy K, Coveney C, McAuliffe F, Mahony R, Walsh J, Hatunic M, Higgins M. Clinical Outcomes Following a Change in Gestational Diabetes Mellitus Diagnostic Criteria Due to the COVID-19 Pandemic: A Case-Control Study. <i>Int J Environ Res Public Health.</i> 2022 Feb 8;19(3):1884.</p> <p>Corbett GA, Lee S, Woodruff TJ, Hanson M, Hod M, Charlesworth AM, Giudice L, Conry J, McAuliffe FM. Nutritional interventions to ameliorate the effect of endocrine disruptors on human reproductive health: A semi-structured review from FIGO. International Federation of Gynecology, Obstetrics (FIGO) Committee on Impact of Pregnancy on Long-term Health, the FIGO Committee on Climate Change, Toxic Environmental Exposures. <i>Int J Gynaecol Obstet.</i> 2022 Feb 4.</p> <p>Ryan GV, Callaghan S, Rafferty A, Higgins MF, Mangina E, McAuliffe F. Learning Outcomes of Immersive Technologies in Health Care Student Education: Systematic Review of the Literature. <i>J Med Internet Res.</i> 2022 Feb 1;24(2):e30082.</p> <p>Brennan K, Craven S, Cheung M, Kane D, Noone E, O'Callaghan J, Molloy EJ, Walsh PT, McAuliffe FM, Doyle SL.J. Cytosolic dsRNA improves neonatal innate immune responses to adjuvants in use in pediatric vaccines. <i>Leukoc Biol.</i> 2022 Jan 31.#</p>
<b>Key Awards in 2022</b>	<p>Wellcome Leap award (Euro 2.5 million) to develop a fetal movement monitor in utero together with Prof Niamh Nowlan, Biomedical Engineering and Conway Fellow.</p> <p>In 2022 the team's research was shortlisted for the Spark Frontline Innovation award in Ireland for digitalisation of FIGO nutrition checklist, a nutrition assessment tool for women of reproductive years for use across the globe.</p>
<b>Key Grants in 2022</b>	<p>National Children's Research Centre, Science Foundation Ireland, Tallaght Hospital Fund, NMH Medical Fund, EU Horizon, Wellcome Leap</p>



## Centre news in 2022

- Sarah Louise Killeen was awarded her PhD entitled 'Addressing gaps in cardiometabolic health and nutrition in women of reproductive age'.
- Cara Yelverton was awarded her PhD entitled 'Maternal Health During Pregnancy and Longitudinal Offspring Health; Relationships between Maternal Health and Child Obesity-Related Health Outcomes using Cohort Analysis'.
- Rebecca Moore was awarded her MD entitled 'The Microbe Mom study: insights into metabolic health and the microbiome in early pregnancy'.
- Brendan Dempsey successfully defended his PhD entitled 'An exploration of service providers experiences of providing abortion services in Ireland'.
- Anna Delahunt successfully defended her PhD entitled 'Determinants of appetitive traits in children aged 5 and 9-11 years old: Findings from the ROLO longitudinal birth cohort study'.
- Dr Gillian Corbett joined Dr Cathy McNestry and Dr Fiona O'Toole as Academic Clinical Fellows and PhD/MD students.
- PrePop study actively recruiting women at risk of preterm birth, which is an RCT of probiotics vs placebo to improve vaginal microbiome.
- Latch-on Study completed study recruitment – a multicentre RCT to improve breastfeeding in women with BMI>25.
- Bump 2 Baby and me RCT commenced and > 800 patients recruited worldwide and follow up to 1 year postpartum in progress.
- Ai Premie recruiting women to a prospective study examining the ability of AI to predict the later development of pre-eclampsia

## UCD Centre for Precision Surgery

Director Prof Ronan Cahill

[www.ucd.ie/medicine/research/researchcentres/ucdcentreforprecisionsurgery](http://www.ucd.ie/medicine/research/researchcentres/ucdcentreforprecisionsurgery)



The UCD Centre for Precision Surgery, established in 2019, is an applied research, education and training facility dedicated to excellence in surgery and the future of healthcare. The Centre's purpose is to respond to the global imperative to optimise patient safety and clinical outcomes through tangible advancements in surgical research and in the training of the current and next generation of surgeons.

## Key Publications in 2022

Age alone is not a barrier to efficacy of cytoreductive surgery and hyperthermic intraperitoneal chemotherapy for colorectal peritoneal metastases: analysis of 1138 patients from the UK and Ireland Colorectal Peritoneal Metastases Registry. Kelly ME, O'Sullivan NJ, Bolger JC, Polignano F, Youssef H, Renehan A, Malcomson L, Alves S, Cecil T, Mulsow J, Moran B, Mohamed F; UK & Ireland Colorectal Peritoneal Metastases Registry. *Br J Cancer*. 2022 Nov 8. doi: 10.1038/s41416-022-02037-5. Online ahead of print. PMID: 36347966

NIR-ICG identification of ureters during complex colorectal and gynaecological operations: How to do it! - A video vignette. Khan MF, Emma K, O'Brien E, Galvin D, Walsh T, Cahill RA. *Colorectal Dis*. 2022 Oct 14. doi: 10.1111/codi.16374. Online ahead of print. PMID: 36239664

Design and pre-clinical evaluation of a folding magnetic anastomosis device for minimally invasive surgery. Fass TH, Cahill R, Khan M, Hao G, Cantillon-Murphy P. *Minim Invasive Ther Allied Technol*. 2022 Oct;31(7):1050-1057. doi: 10.1080/13645706.2022.2119417. Epub 2022 Sep 15. PMID: 36107490

Global economic burden of unmet surgical need for appendicitis. Reuter A, Rogge L, Monahan M, Kachapila M, Morton DG, Davies J, Vollmer S; NIHR Global Surgery Collaboration. *Br J Surg*. 2022 Sep 9;109(10):995-1003. doi: 10.1093/bjs/znac195. PMID: 35881506

Correction to: Implementation of an on-site simulation programme during COVID-19 and the assessment of its impact on medical students' competence. McInerney NJ, Khan MF, Coady L, Dalli J, Stokes M, Donnelly S, Heneghan H, Cahill R. *Ir J Med Sci*. 2022 Jun 28;1. doi: 10.1007/s11845-022-03088-6. Online ahead of print. PMID: 35760948 No abstract available.

Implementation of an on-site simulation programme during COVID-19 and the assessment of its impact on medical students' competence. McInerney NJ, Khan MF, Coady L, Dalli J, Stokes M, Donnelly S, Heneghan H, Cahill R. *Ir J Med Sci*. 2022 Jun 22;1-6. doi: 10.1007/s11845-022-03057-z. Online ahead of print. PMID: 35732874

- 
- Key Publications in 2022 (cont.)**
- Deconstructing mastery in colorectal fluorescence angiography interpretation. Dalli J, Shanahan S, Hardy NP, Chand M, Hompes R, Jayne D, Ris F, Spinelli A, Wexner S, Cahill RA. *Surg Endosc.* 2022 Dec;36(12):8764-8773. doi: 10.1007/s00464-022-09299-3. Epub 2022 May 11. PMID: 35543771
- Impact of intra-abdominal insufflation pressure on gas leakage occurring during laparoscopy. Dalli J, Montminy T, Ferguson M, Khan MF, Nolan K, Cahill RA. *Surg Endosc.* 2022 Sep;36(9):7047-7055. doi: 10.1007/s00464-022-09242-6. Epub 2022 May 3. PMID: 35503476
- Evaluation of inter-user variability in indocyanine green fluorescence angiography to assess gastric conduit perfusion in esophageal cancer surgery. Hardy NP, Joosten JJ, Dalli J, Hompes R, Cahill RA, van Berge Henegouwen MI. *Dis Esophagus.* 2022 Nov 15;35(11):doac016. doi: 10.1093/dote/doac016. PMID: 35428892
- A multicentre cohort study assessing the utility of routine blood tests as adjuncts to identify complete responders in rectal cancer following neoadjuvant chemoradiotherapy. Eastern Rectal Cancer Response Collaborative, Ireland. *Int J Colorectal Dis.* 2022 Apr;37(4):957-965. doi: 10.1007/s00384-022-04103-z. Epub 2022 Mar 24. PMID: 35325271
- Practical Perfusion Quantification in Multispectral Endoscopic Video: Using the Minutes after ICG Administration to Assess Tissue Pathology. Epperlein JP, Zayats M, Tirupathi S, Zhuk S, Tchraikian T, Mac Aonghusa P, O'Shea DF, Hardy NP, Dalli J, Cahill RA. *AMIA Annu Symp Proc.* 2022 Feb 21;2021:428-437. eCollection 2021. PMID: 35308965
- The use of fluorescence angiography to assess bowel viability in the acute setting: an international, multi-centre case series. Joosten JJ, Longchamp G, Khan MF, Lameris W, van Berge Henegouwen MI, Bemelman WA, Cahill RA, Hompes R, Ris F. *Surg Endosc.* 2022 Oct;36(10):7369-7375. doi: 10.1007/s00464-022-09136-7. Epub 2022 Feb 23. PMID: 35199204
- Fallibility of tattooing colonic neoplasia ahead of laparoscopic resection: a retrospective cohort study. Sparks R, Power S, Kearns E, Clarke A, Mohan HM, Brannigan A, Mulsow J, Shields C, Cahill RA. *Ann R Coll Surg Engl.* 2022 Feb 17. doi: 10.1308/rcsann.2021.0319. Online ahead of print. PMID: 35175862
- Airborne particle dispersion by high flow nasal oxygen: An experimental and CFD analysis. Crowley C, Murphy B, McCaul C, Cahill R, Nolan KP. *PLoS One.* 2022 Jan 21;17(1):e0262547. doi: 10.1371/journal.pone.0262547. eCollection 2022. PMID: 35061806
- Aerosol release, distribution, and prevention during aerosol therapy: a simulated model for infection control. Mac Giolla Eain M, Cahill R, MacLoughlin R, Nolan K. *Drug Deliv.* 2022 Dec;29(1):10-17. doi: 10.1080/10717544.2021.2015482. PMID: 34962221
- User Evaluation of a Novel Smart Insufflator for Laparoscopic Surgery-The EVA-15. Mclnerney N, Khan MF, O'Malley K, McCormack O, Walsh T, Conneely J, Cahill R. *Surg Technol Int.* 2022 May 19;40:71-77. doi: 10.52198/22.STI.40.GS1532. PMID: 34942676
- Patient generated aerosol in the context of ophthalmic surgery. Anguita R, Brennan N, Ramsden CM, Mehat M, Keegan D, Cahill R, Nolan K, O'Toole L, Wickham L. *Eur J Ophthalmol.* 2022 Jul;32(4):2445-2451. doi: 10.1177/11206721211037823. Epub 2021 Aug 14. PMID: 34392739
- Anal squamous cell carcinoma: a retrospective case series. Houlihan OA, Monaghan O, O'Sullivan S, Nugent K, Dunne M, Neary P, Cahill R, Mehigan B, McNamara DA, Salib O, Gillham C, McVey G, Faul C, Cunningham M, Armstrong J, O'Neill BDP. *Ir J Med Sci.* 2022 Apr;191(2):681-686. doi: 10.1007/s11845-021-02643-x. Epub 2021 May 11. PMID: 33977391
- The age of surgical operative video big data - My bicycle or our park? Cahill RA, Mac Aonghusa P, Mortensen N. *Surgeon.* 2022 Jun;20(3):e7-e12. doi: 10.1016/j.surge.2021.03.006. Epub 2021 May 4. PMID: 33962892
- 

**Key Grants in 2022** CLASSICA – Horizon Europe – Total funding €6 million - UCD funding €1.74 million

---

## Initiation of Horizon Europe funded CLASSICA project

A UCD-Mater Surgical Team is leading a €6 million international research project on real-time decision support in cancer surgery. The Horizon Europe project, CLASSICA, will deliver and clinically validate an AI-based clinical decision support system, allowing rapid identification of the presence and distribution of cancer tumours.

The project is led by Ronan Cahill, Professor of Surgery at University College Dublin (UCD) and the Mater Misericordiae University Hospital, Dublin. Clinical validation of the technology will take place across five leading European cancer centres. CLASSICA builds on breakthrough research by the Irish DTIF Consortium comprising UCD, RCSI and IBM Research over the last three years at the Mater Hospital regarding the use of special dyes and AI to improve outcomes in cancer surgery. The AI-based technology will assist surgeons in real time during operations by accurately identifying cancerous versus healthy tissue. During the operation, a smart camera captures the colour changes in tissue after the administration of a safe fluorescent dye. Video is processed by the AI, helping the surgeon to define excision extent. This added support, combined with the surgeon's judgement and expertise, will minimise post-surgery complications and reduce the risk of cancer recurrence in the patient.

Having developed analytics software, smart cameras and surgical tools as well as trials and technology know-how immersed in real world clinical care at the Mater, this new project will move the technology to the next stage of refinement, validation and use, as well as define the development of clinical guidelines related to AI use in surgery. Eleven partners from nine countries are joining forces to clinically validate this exciting AI technology. Alongside the UCD-Mater surgical team, there are four other clinical sites; Amsterdam UMC, locatie Stichting VUmc, Netherlands; Ziekenhuis Oost-Limburg (ZOL) Hospital, Belgium; University of Turin, Italy; and St John of God Hospital Graz, Austria. The team also includes IRCAD in Strasbourg, Europe's leading surgical education organisation and the European Association of Endoscopic Surgery (EAES). Legal and ethical expertise is provided by Copenhagen University, Denmark and Pennsylvania State University, USA. Arctur in Slovenia contributes advanced AI and high-performance computing. Dublin-based Pintail Ltd will provide project management and administrative support throughout.

Clinical trials over the next four years will include 500 patients, with the technology initially being used for colorectal surgeries. Colorectal cancer is the third most common cancer type globally, and the second most common cause of cancer death, leading to almost one million deaths annually. The methodologies and technology being developed have immense potential for use with other cancers in the future. Reflecting on the pioneering work he and his team have done in recent years, Prof. Ronan Cahill explained the significance of this next phase. "It's really exciting to continue this work to the next step of defining personalised cancer surgery for better patient outcomes. Alongside the clinical and technological expertise in the project there is a strong focus on biomedical, legal and ethical aspects to ensure true validation of AI use for surgical decision support to define the field more broadly."

For more information, please visit <https://classicaproject.eu/> or for regular updates follow CLASSICA on Twitter @classicaproject.

---





The UCD Centre in Translational Oncology (UCTO) consolidates and gives a unified identity to cancer research across basic and clinical academic staff affiliated to UCD (~80) who are dedicated to foster excellence in cancer research, with the ultimate goal of improving personalised patient treatment and care. UCTO membership spans across two UCD Colleges (College of Health and Agricultural Sciences (CHAS) and the College of Science), five UCD Schools (School of Medicine, School of Veterinary Science, School of Public Health Physiotherapy and Sports Science, School of Nursing Midwifery and Health Systems, School of Biomolecular and Biomedical Science), affiliated institutes (for example UCD Conway Institute, Systems Biology Ireland and UCD Hospital Cancer Centres of Excellence/affiliated teaching Hospital sites (including Saint Vincent's University Hospital (SVUH), the Mater Misericordiae University Hospital (MMUH) and Our Lady's Children's Hospital Crumlin (OLCHC)). These hospitals represent 3 of the 9 designated cancer centres of excellence in Ireland. The amalgamation of this critical mass of clinical and research expertise in the UCTO, continues to foster multidisciplinary research and collaboration into the future, to the benefit of increasing knowledge about cancer and enhance patient care across all ages and cancer types.

The UCTO has established channels of communication with patients, through clinical members, and through the director's (AMcC) additional role as Chair of the Patient Voice in Cancer Research (PVCR) committee for which she was awarded a UCD Values in Action (VIA) award in 2019. These links give UCTO colleagues unprecedented possibilities to implicitly involve patients in the research journey from hypothesis inception to grant application and project implementation, through to public/scientific/funder dissemination. Patient involvement is a key strategic vision for

UCTO.

UCTO was approved in February 2017 and officially launched by Professor Cecily Kelleher (CHAS Principal) and UCTO Director 21st September 2018.



The UCD-CRC is based at the Mater Misericordiae, St. Vincent's University Hospital, National Maternity Hospital, Holles Street, National Rehabilitation Hospital (NRH), St Luke's Hospital Kilkenny and Wexford General Hospital.

Patients with different chronic diseases including end-stage kidney disease, pulmonary fibrosis and cancer, donate samples to the Centre on a regular basis, and these are assessed in the context of their own treatment and for the development of more accurate therapies for these diseases.

The CRC has created core research infrastructure to support and advance high quality, impactful investigator-led translational and personalised medicine research.

The clinical research infrastructure includes:

- Eight out-patient interview rooms for patient examination and tissue collection
- Four procedure rooms for more complex patient studies
- An endoscopy suite for internal medical examination, including arthroscopy and bronchoscopy
- Recovery room facilities for patients' post-procedure
- Dual Energy X-ray Absorptiometry (DEXA) Scanner with full body composition analysis capabilities which support osteoarthritis/osteoporosis studies
- Climate-controlled storage facilities for Investigational Medicinal Product materials

The CRC on-site laboratory facilities support the immediate processing of biological samples collected during research studies. The laboratory infrastructure on hospital sites complements biomedical research facilities on the University campus and includes:

- Cell and tissue culture suites for primary cultures, equipped with sterile cell culture hoods & incubators
- A molecular biology laboratory with standard equipment and facilities for molecular analysis
- Imaging Laboratory (with contrast and fluorescence microscopy)
- UCD-Abbott Core Biomarker Laboratory including ARCHITECT i2000SR, ARCHITECT ci4100, the new Alinity ci and the Roche Cobas411 high throughput analysers. A Quanterix multiplex Elisa machine was added to the portfolio in 2019.

The UCD CRC has developed a network of biological resource centres for sample receipt, storage, and processing across the hospital campuses in recognition of the importance of access to appropriately consented, well phenotyped quality controlled biological samples to translational research.

This network includes;

- Dedicated biobank rooms with monitoring and control
- Multiple freezer units with temperatures ranging from -20 to -80°C (11 -20°C; 4 -40°C and 34 -80°C freezer)
- Large Liquid Nitrogen storage capacity
- 24/7 monitoring of freezer and temperature-controlled storage
- Comprehensive security and emergency response plans

The appropriate use of intelligent and secure IT solutions is key to the Centre's translational research mission, permitting the generation and exchange of data and information between the 'bed' and the 'bench'.

The CRC is addressing these challenges by implementing cost-effective IT solutions which combine to create a sophisticated clinical research information infrastructure that supports all aspects of clinical research.

---

**Centre news in 2022**

The UCD Clinical Research Centre (UCD CRC) received funding of €5.3 million to build on and strengthen significant positive achievements realised since opening in 2006. This funding from the HRB has allowed the UCD - CRC to expand the supports available to investigators and to widen our research network, thereby ensuring that more of our hospitals, staff and patient share access to cutting edge research. The funding has allowed us to expand, into four more sites during 2022, including the National Rehabilitation Hospital (NRH), the National Maternity Hospital (NMH), St Luke's Hospital Kilkenny and Wexford General Hospital to widen opportunities for new studies focused on rehabilitation, women's health, and primary care and in doing so, to improve patient access to new trials. In addition, it is enhancing the way in which we do trials, by focusing on enabling technologies and creating pathways to enhanced patient participation and involvement. In summary this HBR funding awarded to UCD -CRC is enabling;

- Increased access to patients and clinicians to trials
- Expansion of geographical access to research
- Improvement in clinical trial, design, co-ordination, and methodology
- Enhancement of integration of clinical research into health system at six network sites
- Expansion of educational programmes to train researchers and clinicians of the future
- Integration of research results into clinical practice
- Embedding of patient perspective in shaping and informing clinical trial design, development and delivery

**Widening Participation, Ensuring Access, and Enhancing Support**

Establishing UCD CRC at additional sites is ongoing. We have completed a launch event at all additional sites, presenting to the hospital community and clearly communicating the additional supports being delivered through the HRB investments. These launch events were held as follows;

- National Maternity Hospital, 3rd of December 2021
- National Rehabilitation Hospital, 22nd Feb 2022
- St Luke's Kilkenny Hospital, 5th March 2022
- Wexford General Hospital, 4th June 2019

In addition, we have created linkages between investigators at the new sites and our core CRC team, in key areas including data management, protocol development, study/protocol design, statistics support/analysis, database creation/hosting, support with ethics application(s) and GCP training.

We have continued to develop strong relationships with other research centres both nationally and internationally

Through these networks we are developing partnerships, enabling research, and critically ensuring that UCD is central to and supportive of the national trial ecosystem, aligning clearly with the HRB's vision.

We have recently expanded geographical access to research with the addition of a partnership with the Ireland East / UCD General Practice (GP) Research Network. The GP Research Network currently has fifteen GP sites, primarily in the eastern region of Ireland (five in Dublin, four in Wexford, three in Kilkenny, two in Meath, one in Cork). The 'Network' aims to enhance patient care by facilitating impactful, interdisciplinary, and practice-based research in general practice. It is especially concerned with conducting GP focused research that aims to inform scientific advancement and healthcare policy nationally on the question of how to best promote access to and integration of primary and secondary care. The CRC has recently recruited a full-time GP Research Network Coordinator to support its role in growing the Network and managing its everyday operations, and this brief update will outline progress that has been made with regards to the Networks' research activity during this time.



## **Improving Design & Supporting Outputs**

UCD CRC is focused on ensuring that investigators have access to biostatistics, data management and trial analytics supports. UCD CRC has recruited additional statistical expertise to support our growing trial portfolio. This facilitates provision of CRC statistical advice before submission to the UCD CRC management team. This also expands our data management capability to protect data integrity.

Over the last year, the team has provided pharmacovigilance support for safety monitoring activities and processing of serious adverse events (SAEs) that occur in UCD-sponsored regulated clinical trials - thus far in 2022, 568 new SAE reports have been processed.

We have also provided support and advice to ensure collection of high quality, reliable data on our studies. Assistance is provided with development of clinical trial protocols, advice on data protection issues, efficient data collection and CRF design, and establishment of electronic databases to ensure the right data is collected for each study protocol

## **Strengthening Understanding & Increasing Engagement**

UCD CRC is continuing to build on the existing UCD commitment to ensuring that our patients, their families and the wider community are aware and informed. Linking with the national PPI programme, this activity is progressing well. UCD CRC has recruited a dedicated Research Subject Advocate to expand the current Patient Education Programme partnership (IPPOSI), to provide further training in trial management and improve access to trials.

UCD CRC have continued to provide a patient education programme, and are working with HRB-Trials methodology Research Network to further expand this activity. A suite of educational programmes are being developed which will be publicly available to the wider community.

In addition, and recognising the importance of an engaged community, the UCD CRC team also led on a number of initiatives for International Clinical Trials Day in May 2022. Information stands were set up at all our participating hospitals, to share information on clinical research with hospital staff, patients, and the general public.

UCD CRC participated at the Annual UCD Festival in June 2022 where UCD opened its doors to community, staff, students, and alumni, providing an opportunity to meet our team and see the science behind clinical trials.

## **Coordination & Collaboration**

UCD CRC draws together multiple partnerships, collaborations and joint ventures that support the overall research ambition of the UCD CRC and maximise our impact on patients, the healthcare system and wider society. UCD CRC has revised CRC management structures allowing for additional site and activity representation. UCD CRC has also recruited a Practice Based Network Manager and a National Clinical Trial Coordination Programme Officer to continue engagement in collaborative international trial networks and partnerships.

The UCD CRC continues to support significant research activity across all parts of the clinical and translational research continuum. In addition to the trial metrics reported herein we support a large number of observational, biobanking and epidemiological studies.

During the last 12 months UCD CRC has been supporting 158 non-clinical trial studies: 119 observational studies, 20 biobank collections, 11 registry studies, 4 translational and 4 studies classified as other. Fifty of these studies are in a set up stage, 90 studies are currently active, 18 in a closeout stage. Eighty of the non-clinical trial studies have been set up at SVUH site, 67 at MMUH site, 1 in NCH, 5 in NMH, 1 in SLK, 2 in UHG, 2 at UCD campus (CARAT and UniCoV). UCD CRC has provided nursing support to 59 studies, laboratory support has been given to 42 studies and data management to 46 studies. The studies were predominantly investigator-initiated (136). Eight studies were approved for the support this year, 150 have been approved before 2022.

## UCD School of Medicine - Research Office

---

### **Prof Peter Doran**

Associate Dean for  
Research, Innovation &  
Impact  
UCD School of Medicine  
e: peter.doran@ucd.ie

### **Elaine Byrne**

Research Office  
Programme Manager  
e: elaine.byrne@ucd.ie

### **Niamh McCarthy**

Senior Administrator-  
Administration Support  
Team  
e: niamh.mccarthy@ucd.ie

### **Edward Moore**

Senior Administrator-  
Administration Support  
Team  
e: edward.moore@ucd.ie

## Useful Contacts

---

### **For Graduate Research Student Queries**

email: [medicine.research@ucd.ie](mailto:medicine.research@ucd.ie)

### **For PI Support Queries**

email: [ucdmr@ucd.ie](mailto:ucdmr@ucd.ie)

### **Student Summer Research**

email: [ssra@ucd.ie](mailto:ssra@ucd.ie)



University College Dublin  
Ireland's Global University  
Belfield, Dublin 4.  
Ireland.

[www.ucd.ie/medicine/research](http://www.ucd.ie/medicine/research)