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## YEAR IN NUMBERS

<table>
<thead>
<tr>
<th>Category</th>
<th>Value/Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Grant Value</td>
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<td>Total Number of Grants Registered</td>
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<td>Total No of Publications</td>
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<tr>
<td>Citations</td>
<td>46,432</td>
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<tr>
<td>New Students registered</td>
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<tr>
<td>Total Research Students registered</td>
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<tr>
<td>Number Students Graduated</td>
<td>41</td>
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<tr>
<td>Research Centres</td>
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</table>
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 reenergise 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
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.

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 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 Columcille’s Hospital leads the UCD School of Medicine involvement in a 5-year GERONTE (Streamlined GERiatric and ONcological evaluation based on ICTechnology 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.

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 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.

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.

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.’

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.

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.
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)’.

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.

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.

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.
3
RESEARCH SUPPORT INITIATIVES
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 or Anna Truman | e: 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

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 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

Dr Stephen Thorpe
Ad Astra Fellow, Assistant Professor, UCD School of Medicine
School of Medicine Research Integrity Champion
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
RESEARCH STUDENTS
New Graduate Research Students 2021/22

- Medicine PhD FT
- Medicine PhD PT
- Translational Med PhD FT
- Translational Med PhD PT
- 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

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<td>Medicine PhD Full-Time</td>
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<td>MRLSC015</td>
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<td>X224</td>
<td>Medicine MCh FT</td>
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Total: 54, 74, 40, 27, 8, 3, 3, 209
Research Students Graduated 2022

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

<table>
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<tr>
<th>Programme</th>
<th>Student</th>
<th>Thesis title</th>
<th>Supervisor</th>
<th>Special Extern Examiner</th>
<th>Examiner’s Institution</th>
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<tr>
<td>PhD</td>
<td>Abrar Alqattan</td>
<td>The role of diffusion based magnetic resonance imaging in the evaluation of bone bruising of the knee</td>
<td>Associate Professor Jonathan McNulty</td>
<td>Dr Karen Knapp</td>
<td>University of Exeter</td>
</tr>
<tr>
<td></td>
<td>Bernadette Brady</td>
<td>Cardiac and Autonomic Function in Cancer-Related Fatigue</td>
<td>Professor Thomas Declan Walsh</td>
<td>Professor Lukas Radbruch</td>
<td>University of Bonn</td>
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<td></td>
<td>Rachel Byrne</td>
<td>An investigation into the interrelationship between HDL particle composition and anti-atherosclerotic functions in patients with cardio metabolic disease.</td>
<td>Dr Fiona Mcgillicuddy</td>
<td>Dr Elena Osto</td>
<td>University of Zurich</td>
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<td></td>
<td>Michelle Campion</td>
<td>Evaluating 5-Methoxy-N,N-Dimethyltryptamine as a Potential Treatment for Neuropsychiatric Disorders</td>
<td>Professor Martin Steinhoff</td>
<td>Professor John Quinn</td>
<td>University of Liverpool</td>
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<td></td>
<td>Sarah Geoghegan</td>
<td>Investigation of systemic inflammation, risk, and treatment of recurrent vascular events after ischaemic stroke and transient ischaemic attack</td>
<td>Professor Peter Kelly</td>
<td>Professor Craig Smith</td>
<td>University of Manchester</td>
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<td></td>
<td>Sarah Louise</td>
<td>Preparing for a Group B streptococcus Vaccine: Global Perspectives on Maternal Immunization.</td>
<td>Professor Karina Butler</td>
<td>Professor Helen Marshall</td>
<td>University of Adelaide</td>
</tr>
<tr>
<td></td>
<td>Killeen</td>
<td>From Zero to Hero, with the Man in the Mirror: Engagement of Performance Enhancing Drugs (PEDs) in Young Males</td>
<td>Professor Fiona Mcnicholas</td>
<td>Professor S. Bryn Austin</td>
<td>Harvard University</td>
</tr>
<tr>
<td></td>
<td>Farrah-Hani</td>
<td>Addressing gaps in cardiometabolic health and nutrition in women of reproductive age</td>
<td>Professor Fionnuala McAuliffe</td>
<td>Dr Mary McCann</td>
<td>University of Ulster</td>
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<td></td>
<td>Imran</td>
<td>Sex differences in the pulmonary microvascular endothelial responses to hypoxia under physiological shear stress</td>
<td>Professor Paul McLoughlin</td>
<td>Professor Philip Aaronson</td>
<td>King's College London</td>
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<tr>
<td></td>
<td>Shannon Lee</td>
<td>Investigating the crosstalk between RAF oncogenic signalling and tumour cell metabolism in malignant melanoma</td>
<td>Professor Walter Kolch</td>
<td>Professor Jacintha O’Sullivan</td>
<td>Trinity College Dublin</td>
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<tr>
<td>Programme</td>
<td>Student</td>
<td>Thesis title</td>
<td>Supervisor</td>
<td>Special Extern</td>
<td>Examiner’s Institution</td>
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<tr>
<td>PhD</td>
<td>William Martin</td>
<td>Multi-Omic Characterisation of Renal Responses to Intentional Weight Loss in Diabetic Kidney Disease.</td>
<td>Professor Carel Le Roux</td>
<td>Professor Matthias Kretzler</td>
<td>University of Michigan</td>
</tr>
<tr>
<td></td>
<td>John McCabe</td>
<td>Blood and Imaging Markers of Inflammation and Vascular Recurrence after Stroke</td>
<td>Associate Professor Jonathan McNulty</td>
<td>Dr Arthur Leiesz</td>
<td>Ludwig-Maximilians-Univ Munich</td>
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<td></td>
<td>Tara McGinty</td>
<td>Immune dysregulation and bone disease in HIV</td>
<td>Professor Patrick Mallon</td>
<td>Professor Todd Brown</td>
<td>John Hopkins University</td>
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<tr>
<td></td>
<td>Stephanie McKenna</td>
<td>Deciphering the Role of the LATS1 Pro-Apoptotic Signalling Network in Metastatic Melanoma</td>
<td>Professor Walter Kolch</td>
<td>Professor Julio Vera-Gonzalez</td>
<td>University of Erlangen-Nuremberg</td>
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<td></td>
<td>Keith Mulready</td>
<td>Development and clinical validation of novel biomarkers utilising Liquid Chromatography-Tandem Mass Spectrometry</td>
<td>Professor Maria Fitzgibbon</td>
<td>Professor Andrea Urbani</td>
<td>University of Rome Tor Vergata</td>
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<td></td>
<td>Lydia O’Sullivan</td>
<td>Informed Consent in Clinical Trials</td>
<td>Professor Peter Doran</td>
<td>Professor Bronagh Blackwood</td>
<td>Queen’s University Belfast</td>
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<td></td>
<td>Nikolai Pakhomov</td>
<td>Role of Gut Microbiota-Derived Short Chain Fatty Acids in Regulating Inflammation in the Context of Heart Failure</td>
<td>Associate Professor John Baugh</td>
<td>Dr Allan Lawrie</td>
<td>The university of Sheffield</td>
</tr>
<tr>
<td></td>
<td>David Phelan</td>
<td>Determination of the role of nuclear receptor family 4a (NR4A) signalling in hypercapnia</td>
<td>Dr Eoin Cummins</td>
<td>Professor John Laffey</td>
<td>NUIG</td>
</tr>
<tr>
<td></td>
<td>Miguel Camara Pirez</td>
<td>Impact of Bovine Sperm Sex-Sorting on Reproductive Outcomes, Sperm Behaviour and Sperm Molecular Function</td>
<td>Professor Sabine Koelle</td>
<td>Professor Norah Spears</td>
<td>University of Edinburgh</td>
</tr>
<tr>
<td></td>
<td>Maria Cristina Serrangeli</td>
<td>Morphological variation in the human calcaneus: a 3D geometric morphometric study</td>
<td>Dr Robin Feeney</td>
<td>Professor Damiano Marchi</td>
<td>University of Pisa</td>
</tr>
<tr>
<td></td>
<td>Romina Silva</td>
<td>PROVE - Prostate and Ovarian Epigenetics: investigating therapeutic resistance via cfDNA</td>
<td>Professor Donal Brennan &amp; Assoc Prof Antoinette Perry</td>
<td>Dr Alexander Wyatt</td>
<td>University of British Columbia</td>
</tr>
<tr>
<td></td>
<td>Moritz Strowitzki</td>
<td>Elevated CO2 regulates monocyte differentiation and macrophage activation</td>
<td>Professor Cormac Taylor</td>
<td>Professor Erik Swenson</td>
<td>University of Washington</td>
</tr>
</tbody>
</table>
## Research Students Graduated 2022

<table>
<thead>
<tr>
<th>Programme</th>
<th>Student</th>
<th>Thesis title</th>
<th>Supervisor</th>
<th>Special Extern</th>
<th>Examiners Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>PhD</td>
<td>Patrick Swan</td>
<td>An in vitro and in vivo Assessment of the Effects of Alpha-MSH on Skeletal Muscle Glucose Uptake in Healthy Human Volunteers</td>
<td>Associate Professor Neil Docherty</td>
<td>Professor Filip Knop</td>
<td>University of Copenhagen</td>
</tr>
<tr>
<td></td>
<td>Camille Ternet</td>
<td>Conditions-specific quantitative network rewiring of colon cancer-associated KRAS mutations in Caco-2 cell line</td>
<td>Dr Christine Kiel</td>
<td>Professor Ola Soderberg</td>
<td>Uppsala University</td>
</tr>
<tr>
<td></td>
<td>John Travers</td>
<td>Delaying and reversing frailty and building resilience: developing and launching an optimum intervention for older adults in primary care</td>
<td>Professor Peter Doran</td>
<td>Professor Simon Conroy</td>
<td>University College London</td>
</tr>
<tr>
<td></td>
<td>Cara Yelverton</td>
<td>Maternal Health during Pregnancy and Longitudinal Offspring Health; Relationships between Maternal Health and Child Obesity-Related Health Outcomes using Cohort Analysis</td>
<td>Professor Fionnuala McAuliffe</td>
<td>Dr Emeir McSorley</td>
<td>University of Ulster</td>
</tr>
<tr>
<td>MD</td>
<td>Susan Aherne</td>
<td>Validation of tumour budding (TB) as a predictive marker of the effect of neoadjuvant treatment in rectal carcinoma.</td>
<td>Professor Kieran Sheahan</td>
<td>Professor Sabina Berezowska</td>
<td>University of Lausanne</td>
</tr>
<tr>
<td></td>
<td>Lucia Hartigan</td>
<td>Reproduction and Cancer: Optimising fertility for children and young adults</td>
<td>Dr Mary Wingfield</td>
<td>Professor Hamish Wallace</td>
<td>University of Edinburgh</td>
</tr>
<tr>
<td></td>
<td>Maebh Horan</td>
<td>Fertility preservation in young women at risk of ovarian insufficiency due to malignancy or endometriosis</td>
<td>Professor Mary Wingfield</td>
<td>Professor Andrew Horne</td>
<td>University of Edinburgh</td>
</tr>
<tr>
<td></td>
<td>John McMahon</td>
<td>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</td>
<td>Professor Aurelie Fabre</td>
<td>Professor Tim Helliwell</td>
<td>University of Liverpool</td>
</tr>
<tr>
<td></td>
<td>Oonagh Molloy</td>
<td>The assessment of viral infection and its role in psoriasis pathogenesis.</td>
<td>Professor Brian Kirby</td>
<td>Professor Anne Bowcock</td>
<td>Icahn School of Medicine</td>
</tr>
<tr>
<td></td>
<td>Rory Murphy</td>
<td>Matrix Mechanotransduction via Yes-Associated Protein (YAP) in Human Lamina Cribrosa Cells and Implications for Glaucoma</td>
<td>Professor Colm O'Brien</td>
<td>Professor Anthony Khawaja</td>
<td>University College London</td>
</tr>
<tr>
<td>Programme</td>
<td>Student</td>
<td>Thesis title</td>
<td>Supervisor</td>
<td>Special Extern</td>
<td>Examiner’s Institution</td>
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<tr>
<td>MD</td>
<td>Ihedinachi Ijeoma Ndukwe</td>
<td>Studies In Adult-onset Cervical Dystonia motor &amp; non-motor symptoms in relation to health-related quality of life in patients with adult-onset idiopathic cervical dystonia.</td>
<td>Professor Michael Hutchinson</td>
<td>Professor Mark Edwards</td>
<td>St George's University of London</td>
</tr>
<tr>
<td></td>
<td>Ali Raba</td>
<td>The value of Transcutaneous Bilirubinometry in prediction of the need for phototherapy, Accuracy before, during and after Phototherapy in Preterm Infants</td>
<td>Dr Jan Militen</td>
<td>Professor Mikael Norman</td>
<td>Karolinska Institutet</td>
</tr>
<tr>
<td></td>
<td>Faizan Ur Rehman Rathore</td>
<td>Precipitants of Acute Decompensation of Heart Failure (PAD-HF) Study</td>
<td>Professor Kenneth McDonald</td>
<td>Dr Pardeep Jhund</td>
<td>University of Glasgow</td>
</tr>
<tr>
<td></td>
<td>Helen Ryan</td>
<td>Risk Prediction Modelling for Obstetric Women in the ICU: The Collaborative Integrated Pregnancy High-dependency Estimate of Risk (CIPHER) global study</td>
<td>Professor Colm O’Herlihy</td>
<td>Professor Dilly Anumba</td>
<td>University of Sheffield</td>
</tr>
<tr>
<td></td>
<td>Timothy Ryan</td>
<td>Familial Colorectal Cancer Services in Ireland- A Radical Proposal to Improve Survival</td>
<td>Professor Padraic Mac Mathuna</td>
<td>Dr Roland Valori</td>
<td>Gloucestershire Royal Hospital</td>
</tr>
<tr>
<td></td>
<td>Siew-Mei Yap</td>
<td>Multimodal biomarkers of physical and cognitive disability for people with progressive multiple sclerosis</td>
<td>Professor Christopher McGuigan</td>
<td>Professor Olga Ciccarelli</td>
<td>University College London</td>
</tr>
<tr>
<td>MSc</td>
<td>Ana Le Chevillier</td>
<td>Design of a Tri-Layered Tissue-Engineered Heart Valve Scaffold using Electrospinning and Melt Electrowriting: Proof of Concept</td>
<td>Dr Tom Flanagan</td>
<td>Associate Professor Matthias H. Wilhelmi</td>
<td>Hannover Medical School</td>
</tr>
<tr>
<td></td>
<td>Emer O’Byrne</td>
<td>The Molecular Epidemiology of Respiratory Syncytial Virus in Ireland, 2015-2018</td>
<td>Dr Cillian De Gascun</td>
<td>Dr Simon Drysdale</td>
<td>St George’s Hospital</td>
</tr>
<tr>
<td></td>
<td>Christina Rushe</td>
<td>Exploring molecular mechanisms underlying the pathology of human Crohn’s Disease: An Investigation into Nod-like receptor pyrin domain-containing protein 6 (NLRP6)</td>
<td>Dr Glen Doherty</td>
<td>Dr Aideen Ryan</td>
<td>NUIG</td>
</tr>
</tbody>
</table>

Research Students Graduated 2022
5

STUDENT SUMMER RESEARCH AWARD 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

<table>
<thead>
<tr>
<th>Gold Medal</th>
<th>Silver Medal</th>
<th>Bronze Medal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sarah Kelly</td>
<td>Louise Costello</td>
<td>Ashokkumar Singaravelu</td>
</tr>
</tbody>
</table>

**Supervisor:**

- Assoc Prof Austin Duffy
- Dr Dearbhaile Dooley
- Prof James Jones

<table>
<thead>
<tr>
<th>Poster prize 1st Place</th>
<th>Poster prize 2nd Place</th>
<th>Poster prize 3rd Place</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catherine Glazier</td>
<td>Lee Onn</td>
<td>Kieran Beirne</td>
</tr>
<tr>
<td>The Effect Of Sterile Intra-Amniotic Inflammation On Neonatal Life (Wayne State University)</td>
<td>Adenosine Receptor Signalling Increases Mucin Production In The Intestinal Epithelium (UCD)</td>
<td>The Clinical Significance Of Tickborne Fever On Irish Sheep Farms (UCD)</td>
</tr>
</tbody>
</table>

**Supervisor:**

- Assoc Prof Nardhy Gomez-Lopez
- Dr Carol Aherne
- Assoc Prof Annetta Zintl

### Alfred Myles Smith Bursary 2022

<table>
<thead>
<tr>
<th>Matthew Thomas</th>
<th>Mohamed Al Ghammari</th>
<th>Joshua Tan Tai Kuang</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ep4 Deletion And Atherosclerotic Burden In Pd-1 Deficient Hyperlipidaemic Mice (University of Pennsylvania)</td>
<td>Impact Of Sumoylation Inhibitor (Tak-981) Treatment On Sars-Cov-2 Nucleoprotein Multimerization (UCD)</td>
<td>Sexually Transmitted Diseases In Ireland During The 19th And 20th Century (UCD)</td>
</tr>
</tbody>
</table>

**Supervisor:**

- Prof Garret A. FitzGerald
- Assoc Prof Virginie Gautier
- Assoc Prof Catherine Cox
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
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.

**Key Publications in 2022**


**Key Grants in 2022**

HRB Investigator Led Projects (G Wilson):

- *Discovering and modulating mechanisms by which Peptidylglycine alpha-Amidating Monoxygenase (PAM) influences the risk of genetically inherited tissue damage in Rheumatoid Arthritis*. €368,365 (PI)

- *PRedicting Onset, Variation and Effect of treatment in Rheumatoid Arthritis (PROVE-RA).* €369,035 (Co-applicant)

**Centre news in 2022**

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 (https://findanexpert.unimelb.edu.au/profile/427602-michelle-hall). Her research focus centres on hip and knee osteoarthritis with particular interest on the effects of exercise.
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., Khodolenko, 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 Amminger, 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
- 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


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 TGFβ signalling to chromatin during the origin of fibroblasts. The FASEB journal, 36, n/a-n/a.


Key Grants in 2022

1. 2023-2027 US Ireland R&D Partnership Award €780,000, Prof Catherine Godson [US PIs: Hirschhornn & 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 (Role 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. 2022-2026 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

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


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


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.

UCD School of Medicine Research Report 2021/22 Academic Year

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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.

<table>
<thead>
<tr>
<th>Key Publications in 2022</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>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)</td>
<td></td>
</tr>
</tbody>
</table>
**Key Publications in 2022 (cont.)**


**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**


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.


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.

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.

National Children’s Research Centre, Science Foundation Ireland, Tallaght Hospital Fund, NMH Medical Fund, EU Horizon, Wellcome Leap
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
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


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 pheno-typed 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 -80oC (11 -20o C, 4 -40o C and 34 -80o 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.
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