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*2016-2021 5-Year Data
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 2020/21 academic year which highlights the achievements from what has been a successful 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 schools research profile has continued to expand with noticeable increases in funding success across the school. In particular, the strong performance of our investigators in securing prestigious European funding and major infrastructural awards, puts us on a strong footing for the coming years. The growing impact of our research is evidenced by the increasing trend towards very high impact publications with 65% of papers from our school being in top 20% journals. Our impact is also extending with our outputs reaching a wider audience as over 60% of our publications are in open access journals. We are also seeing significant growth in the School’s research team with a 25% increase in research staff employed. These additional colleagues are supporting our ambitions to be a leading research focused medical school. We have also continued 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, coupled to our school research symposium 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
The UCD Centre for Precision Surgery working in partnership with RCSI’s Department of Chemistry and IBM Research in Europe, delivered a new fluorescence guidance technique. Artificial Intelligence (AI) which was used to enhance decision making during colorectal cancer surgery for first time.

European Commission launched an EU-wide network to accelerate COVID vaccine trials - VACCELERATE, the European Corona Vaccine Trial Accelerator Platform, will be the pan-European backbone accelerating Phase 2 and 3 COVID-19 vaccine trials, connecting all stakeholders involved in vaccine development and providing a platform for clinical trial design and conduct. The network now constitutes a rapid response single entry-point for all stakeholders from public health authorities to vaccine developers, to address respective needs and kick-start Phase 2 and 3 vaccine trial. VACCELERATE will be an established pandemic preparedness network, ready to face emerging future pandemics, as well as a pivot in Europe’s capacity to develop vaccines.

Study across four Irish hospitals highlights importance of C-19 genomic surveillance to inform where virus has originated, how it changes over time and how it impacts on health.

The UCD Perinatal Research Centre and National Maternity Hospital launched a new, freely available app, Hollestic, that combines nutritional advice, pregnancy advice, and meal suggestions/recipes.

Global study published in NEJM shows significantly improved survival rates in critically ill C-19 patients treated with Tocilizumab. The trials led in Ireland at St Vincent’s University Hospital in partnership with UCD School of Medicine showed that in a study of 2,000 critically ill patients with COVID-19 in 260 hospitals across the world has shown that treatment with the immune modulator, Tocilizumab, was 99 per cent more likely to reduce deaths and time spent in intensive care, compared to patients who did not receive the treatment.

Professor Donal Brennan, UCD Professor of Gynaecological Oncology and Consultant Obstetrician and Gynaecological Oncologist at the Mater and St Vincent’s University Hospitals published in the Annals of Surgical Oncology Journal a study which shows that Multidisciplinary Surgical Teams at Mater & St Vincent’s University Hospitals have increased complete resection rates from 49 – 77% over last four years by pursuing aggressive surgery techniques for ovarian cancer to prevent potential for residual disease and improve survival rates.

Austin Duffy, Associate Professor of Translational Oncology, Mater University Hospital and UCD, published in Journal of Oncology and Haematology a reflection on an experimental treatment (immune checkpoint inhibitor) his patient with advanced liver cancer received at the NIH (National Institute of Health) when Prof Duffy was working there in 2013.

Systems Biology Ireland researchers lead innovative collaboration, pave the way for treating childhood Leukaemia in Tanzania using ‘next-generation’ gene sequencing. An award of £78,303.03 (approximately €90,390) was granted to Professor Jonathan Bond, UCD Brendan McConnell Professor of Paediatric Molecular Haemato-Oncology at SBI.

Research Highlights 2021
UCD Perinatal Research Centre study shows high acceptability of mHealth (mobile health technology) to support positive interventions in overweight and obese women during pregnancy. Fionnuala McAuliffe, Prof of Obstetrics and Gynaecology, NMH, Director, UCD Perinatal Research Centre & JMIR Mhealth paper author.

SBI Researchers combat cancer drug resistance with novel signaling analysis, Prof Boris Kholodenko, corresponding author of the study and Deputy Director, SBI paper titled A systematic analysis of signalling reactivation and drug resistance the SBI researchers dispel the myths about the development of drug resistances and, through experimental validation, show ways to overcome emerging resistances. The team used a systems theory, modular response analysis (MRA) and mechanistic modelling of signalling pathways to systematically investigate and quantify the changing responses of a cell’s networks related to drug interference.

UCD DCRC (Diabetes Complications Research Centre) Researchers took part in exciting public engagement activity with transition year students. Early career researchers from the UCD DCRC helped deliver a weeklong schedule of exciting activities with transition year students on a work experience week in April 2021.

Ronan Cahill, Professor of Surgery at UCD and the Mater Misericordiae University Hospital (MMUH) and Nature Scientific Report paper author shows how dynamic visual appearances obtainable during surgery, using innovative digital processing, can provide more comprehensive information on the extent and type of malignant tissue, especially in colon-rectal cancer, to surgeons in moments. This discovery has the potential to exploit already established microscopic principles in medical oncology and histopathology but principles which have never before, been revealed and understood in real-time, in living tissue. Application of digital visualisation technology can fully determine malignant tissue in real-time and inform immediate individualised cancer treatment.

Extracellular vesicles from monocyte/platelet aggregates modulate human atherosclerotic plaque reactivity. Through a collaborative study between the Godson/Brennan’s lab (UCD DCRC), the Perretti’s lab (QMUL) and other international colleagues, the work from Silvia Oggero et al., was published, as an Open-Access primary research article, on the prestigious Journal of Extracellular Vesicle.

Dr Monica De Gatenao, as Lead Author and Anontino Cacae, Eoin Bennan, Mariam Marai, Andrew Gaffney and Catherine Godson from the DCRC as co-authors. Published Asymmetric Synthesis and Biological Screening of Quinoxaline-Containing Synthetic Lipoxin A4 Mimetics in JMED (Journal of Medicinal Chemistry). This work reported the synthesis and characterization of novel bioactive molecules, supporting their therapeutic potential in acute inflammation. A lead compound based on its anti-inflammatory and pro-resolving profile, including in vitro inhibition of key inflammatory pathways, as well as attenuation of acute inflammation in mice models has been successfully identified through this work.

Dr William Martin (DCRC PhD ICAT Fellow) and UCD DCRC colleagues (Dr E. Brennan, Prof. C Godson) and supervisors (Assoc. Prof. N Docherty, Prof. Carel le Roux) presented Mechanisms underpinning reductions in diabetic renal injury following intentional weight loss at May 2021 EDNSG meeting. Their presentation on mechanisms underpinning reductions in diabetic renal injury following intentional weight loss which was awarded best oral presentation on omics and DKD at the 33rd European Diabetic Nephropathy Study Group (EDNSG) meeting in May 2021. The data points to synergism between weight loss and drug treatments which may improve outcomes for people with diabetic kidney disease.
Researchers at the UCD Charles Institute of Dermatology are developing a new therapy which could potentially transform lives of people with painful skin disease, epidermolysis bullosa (EB). Dr. Irene Lara-Sáez, explained that their work focused on finding a ‘smart scissors’ that would cut the damaged gene which causes the condition and thereby allow patients to heal.

Professor Alistair Nichol, Chair of Critical Care Medicine at UCD School of Medicine, Director of the Health Research Board-funded Irish Critical Care Clinical Trials Network (ICC-CTN) and Consultant in St Vincent’s University Hospital, contributed to the Major international trial which found that cooling critical patients’ body temperature after cardiac arrest does not improve survival.

Dr Eoin Cummins, Assistant Professor in Physiology, UCD School of Medicine and researchers at UCD School of Medicine advance understanding of how CO2 is sensed by cells and impacts on body function findings presented in a collection of PAPERS published in the Royal Society Journal.

Eoin Brennan, Assistant Professor, UCD published in Nature Reviews Nephrology Pro-resolving lipid mediators: regulators of inflammation, metabolism and kidney function which explored the role of SPMs in the resolution of inflammation and how they might be used as novel therapies in metabolic disease and complications such as CKD.

In July 2021, 2 million was for the National Irish COVID-19 Biobank (NICB). Prof Paddy Mallon, UCD, highlighted the advancement of high impact research into COVID-19 and inform future biobanking initiatives in other important health areas.

International study published in NEJM show full-dose blood thinners benefit moderately ill COVID-19 patients with patients in Irish ICUs contributing to findings. In Ireland, the trials were supported by the Health Research Board under its Irish Critical Care-Clinical Trails Network at UCD; trial management and data coordination in Ireland was led by Alistair Nichol, Prof of Critical Care at UCD and Intensivist at St Vincent’s University Hospital.

Funding of €1.57 million as part of the overall Disruptive Technologies Innovation Fund (DTIF), was awarded for the Development of first innovative plasma sampling device to detect inflammatory disease and offer new diagnostic pathway will be led by Prof Peter Doran form the UCD Clinical Research Centre UCD and Atturos Ltd, a UCD spin out company, founded by Prof Stephen Pennington, UCD School of Medicine.

Professor Stephen Pennington, Professor of Proteomics, and Professor Oliver FitzGerald, Newman Clinical Research Professor, launched HIPPOCRATES a new €21 million EU and Industry funded Psoriatic Arthritis Research Project led by University College Dublin. It will have an International team of research partners, pharmaceutical companies, SMEs and patient organisations to develop innovative personalised treatment options for people affected by psoriatic arthritis.

Dr Eoin Cummins, Assistant Professor in Physiology, UCD School of Medicine and researchers at UCD School of Medicine advance understanding of how CO2 is sensed by cells and impacts on body function findings presented in a collection of PAPERS published in the Royal Society Journal.

Dr Cormac McCarthy, Consultant Respiratory Physician, SVUH, Associate Professor of Medicine, UCD, published Lymphangioleiomyomatosis: pathogenesis, clinical features, diagnosis, and management in Lancet Respiratory Medicine.
Navin Hyder was the Artist-in-Residence at the Mater Hospital for the last two years, during which time she has captured through her digital drawings in real-time, the intimate ‘shared space’ of the operating theatre and the skill, dedication, and care shown by the staff towards their patients. Her ART OF SURGERY was on display on external walls of Whitty Building at Mater Hospital.

UniCoV, a pilot scheme designed to assist the safe and sustainable re-opening of Higher Education Institute campuses across Ireland was launched in September. It is using rapid antigen and saliva-based nucleic acid testing to explore if an ‘early warning system’ can be developed to prevent and limit future outbreaks at third level institutions.

UCD Clinical Research Centre (CRC) was awarded €5.3 million by HRB to grow clinical research and increase access to clinical trials.

Prof Fionnuala Ni Ainle, Clinical Professor UCD showed that RAPID trial results published in BMJ showed high does of blood thinner reduced risk of death for moderately ill C-10 patients.

Prof Owen Smith, Prof of Paediatrics and Adolescent Medicine, UCD & EWOG-MDS National Coordinator for Ireland published Learning from ‘natural gene therapy’ study in Nature Medicine.

Prof Aiden McCormick, Consultant Hepatologist, SVUH, Clinical Professor, UCD School of Medicine published a study in BJOG, conducted in National Maternity and Rotunda Hospitals, Dublin which showed universal screening, rather than risk based antenatal screening for Hepatitis C, was more efficient and cost-effective.

UCD Chair of Critical Care Medicine, Professor Alistair Nichol received a special commendation for his ‘exceptional contribution’ in the field of medical research, specifically in critical care clinical trials and especially in the global fight against the COVID-19 pandemic by IRC (Irish Research Council).

Amy Hassett Neuroscience PhD Student was announced as a new presenter for Let’s Find Out produced for RTE Jr with SFI support for Science Week 2021.

Ciara Walsh PhD candidate in Dr Dearbhaile Dooleys lab, received an IRC postgraduate Scholarship for her work : Investigating the use of responsive hydrogel as therapeutic delivery vehicles for spinal cord injury and also published this study in Pharmacology & Therapeutics.

Professor Peter Kelly, Clinical Professor, Neurology, UCD, Co-Director, Stroke Service, Mater Misericordiae University Hospital, and Lead Investigator for HRB SCTNI (Stroke Clinical Trials Network Ireland) and Dr Pol Camps Renom, Consultant Neurologist, St Pau Hospital, Barcelona published in NEUROLOGY a study which showed that carotid plaque inflammation, identified by PET imaging is associated with late (5-year) recurrent stroke after adjustment for age, gender, carotid revascularization, stenosis severity, NIH Stroke Scale, and diabetes mellitus.

UCD Clinical Research Centre (CRC) was awarded €5.3 million by HRB to grow clinical research and increase access to clinical trials.

Ciara Walsh PhD candidate in Dr Dearbhaile Dooleys lab, received an IRC postgraduate Scholarship for her work : Investigating the use of responsive hydrogel as therapeutic delivery vehicles for spinal cord injury and also published this study in Pharmacology & Therapeutics.
Research Support Initiatives

Updates 2021
The UCD School of Medicine M&C (Marketing and Communications) function was re-established in April 2020 and since then the function has been providing 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 campaign 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 Jane Curtin, M&C Manager, UCD School of Medicine (jane.curtin@ucd.ie)
Piloted in August 2020 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 supports 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 supports 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 endeavor by 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/aboutus/equalitydiversityinclusion/personalandprofessionaldevelopment/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.
Return to Research Funding

The School of Medicine is committed to supporting members of Academic Staff who are returning from an extended period of leave connected with caring or illness to reactivate their research and launched an initiative this year to support these staff. The Research Grant for Returning Academic Staff can be drawn down on return from leave and is available to staff returning from maternity / adoptive leave, and to any research active academic returning from unpaid carer’s/parental leave or sick leave. The grant will be allocated on the basis of a short application, supported by the Head of School, the Associate Dean for Research, Innovation and Impact and the chair of the School EDI committee. We encourage all eligible staff to apply.

School of Medicine Research Office

The School provides considerable financial and organisational support to our investigators and their teams to allow them compete for external research funding.

As part of the current School of Medicine Research Strategy, the School has assembled and continues to develop a coherent set of supports to assist high calibre groups of investigators achieve their full potential.

The UCD School of Medicine Research office has been developed to act as a central hub to connect our dispersed group of investigators to practical University support for grant writing, programme management, industry liaison and international collaborations. It also offers support to graduate students and to research-Graduate committees such as the School of Medicine Clinical and Biomedical Research Degree committees, and the Summer Student Research (SSRA) Programme.

The UCD School of Medicine Research office is staffed by experienced research administrators, led by Ms Yvonne Barry, Research Administration Manager, and supported by Ms Niamh McCarthy, Senior Administrator - Admin Support Team and Mr Edward Moore Senior Administrator - Admin Support Team. Central to the functions of the office is rapid and effective communication with our investigators and students.

This function is supported by the School of Medicine communications team, who have worked closely with the research office to support initiatives across the school.

Graduate Research Association of Medicine

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 recognize and celebrate milestones of its members, including publication of papers, thesis submission and graduation. It aims to relay information about academic supports and career opportunities. Through these actions, GRAM wishes to promote wellbeing and community amongst researchers in the School of Medicine.

Following a virtual launch event in October 2020, GRAM sent welcome packs by post to its members. At the beginning of 2021, GRAM distributed a newsletter, highlighting student supports and congratulating recent graduates from the School on their thesis defences and publications. A weekly virtual meet up, titled Rant&Rave was held, where members discussed all things research related, from thesis writing to laboratory techniques. A virtual St. Patrick’s Day themed bingo night was held, where prizes were awarded and lots of fun was had.

In late 2021 GRAM successfully held its first in-person event, an orientation held at UCD Belfield. As we look towards 2022, GRAM hopes to continue to organize social, academic and career orientated events for researchers in the School of Medicine, and to grow its community.
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 recent 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. To date, research integrity activities have focussed 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. It is intended to explicitly engage colleagues at the clinical sites with in-person events in the coming year.

This summer saw the launch of UCD’s Research Culture Initiative. This aims to promote a supportive and positive research culture across the university. The first activity of which was a survey which recently closed. The aim of this is to generate a snapshot of the health of UCD’s research culture from which to identify areas for improvement. The results of this survey as they relate to the School of Medicine will be communicated next year.

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.

School Research Ethics Committee

- Assoc Prof John Baugh
  Chair, UCD School of Medicine
  Undergraduate and Taught Masters Research Ethics Committee (UTMREC-SM)
- Dr Christine Costello
  BSc Physiology
- Dr Dearbhaile Dooley
  Anatomy subject
- Dr Sean Ennis
  Biomedical Sciences
- Dr Rachel Toomey
  Radiography
- Dr Michaela Davis
  Radiography
- Dr Noreen Sheehy
  SSRA programme
- Prof William Watson
  Programme Director - BHLS
- Prof Walter Cullen
  Taught Graduate Programmes – Primary Care & General Practice
- Dr Marie-Louise Ryan
  Taught Graduate Programmes - Radiography
- Mr Asim Sheikh
  Taught Graduate Programmes - Legal Medicine
- Dr Valerie O’Brien
  Taught Graduate Programmes - Psychotherapy
- Dr Marina Everri
  Taught Graduate Programmes - Psychotherapy
- Dr Barry O’Donnell
  Taught Graduate Programmes - Psychotherapy

In 2021, the committee has reviewed 120 low risk projects. These are projects that are exempt from full committee review and are just reviewed by the Chair of the committee. The committee also had 12 applications for full review.
School 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.
New Graduate Research Student Registrations 2020/21

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<th>Major Code</th>
<th>Major Description</th>
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<td>X237</td>
<td>Medicine PhD FT</td>
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<td>DRLSC001</td>
<td>Doctor of Philosophy (Post 06)</td>
<td>X810</td>
<td>PhD Infection Biology(SMMS) FT</td>
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<td>MRLSC013</td>
<td>Master of Science</td>
<td>X218</td>
<td>Medicine MSc FT</td>
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<td>DRLSC004</td>
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<td>MRLSC015</td>
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<td><strong>193</strong></td>
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Research Students Graduated  December 2020 | June 2021 | December 2021

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

<table>
<thead>
<tr>
<th>Programme</th>
<th>Student</th>
<th>Thesis title</th>
<th>Supervisor</th>
<th>Special Extern</th>
<th>Examiner’s Institution</th>
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<tr>
<td>MSc</td>
<td>Amirah Adlina Binti Abdul Aziz</td>
<td>Investigating the anti-tumour effects of diphenyleneiodonium chloride (DPI) in MYCN amplified Neuroblastoma</td>
<td>Dr Melinda Halasz</td>
<td>Dr Susan Turner</td>
<td>University of Cambridge, United Kingdom</td>
</tr>
<tr>
<td>MSc</td>
<td>Hanieh Bokharaie</td>
<td>Investigating Alternative Splicing in the Vemurafenib-resistant Melanoma cell line SKMEL-239 using RNA Sequencing Analysis</td>
<td>Professor Walter Kolch</td>
<td>Professor Pasha Baranov</td>
<td>University College Cork, Ireland</td>
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<tr>
<td>MSc</td>
<td>Katie Breen</td>
<td>Study of PD-L1 Expression in an Irish Cohort of Non-Small Cell Lung Carcinomas</td>
<td>Assoc Professor Neil Gerard Docherty</td>
<td>Dr Jacqueline James</td>
<td>Queen’s University Belfast, United Kingdom (GB &amp; NI)</td>
</tr>
<tr>
<td>MSc</td>
<td>Leah Ennis Mc Loughlin</td>
<td>The SARS-CoV-2 Nucleocapsid Protein: A Target for SUMOylation</td>
<td>Associate Professor Virginie Gautier</td>
<td>Dr Guillaume Bossis</td>
<td>The Centre National de la Recherche Scientifique (CNRS), France</td>
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<tr>
<td>MSc</td>
<td>Eunice Lim Yuying</td>
<td>The role of viscosity in determining performance of perfusate</td>
<td>Professor Paul McLoughlin</td>
<td>Professor Keith Thornbury</td>
<td>Dundalk IT, Ireland</td>
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<tr>
<td>MSc</td>
<td>Kealan McElhinney</td>
<td>Investigating the apoptotic signature of lamina cribrosa cells and pulmonary fibroblasts</td>
<td>Dr Deirdre Brennan</td>
<td>Professor James Edwards Morgan</td>
<td>Cardiff University, United Kingdom</td>
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<tr>
<td>MSc</td>
<td>Colette Morris</td>
<td>Gabapentinoid Use in Patients with Diabetes Mellitus in the Irish Primary Care Setting</td>
<td>Assoc Professor Helen Gallagher</td>
<td>Dr Richard Pinder</td>
<td>Imperial College London, United Kingdom</td>
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<tr>
<td>MSc</td>
<td>Ross Murtagh</td>
<td>Rational Design of Triple Drug Combinations for HV-1 Latency Reversal and Development of a Multiplex Assay for Detection of SARS-CoV-2</td>
<td>Dr Virginie Gautier</td>
<td>Dr Anna Kula Pacurar</td>
<td>Jagiellonian University, Poland</td>
</tr>
<tr>
<td>MSc</td>
<td>Eileen O’Connor</td>
<td>Exploring the experiences of an at-risk population with chronic hepatitis C infection (HCV) and their perceptions of accessing treatment through an integrated model of care.</td>
<td>Assoc Professor Jack Lambert</td>
<td>Professor Cliona Ni Cheallaigh/</td>
<td>Trinity College Dublin, Ireland</td>
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<tr>
<td></td>
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<td>Professor Meredith Temple-Smith</td>
<td>Monash University, Australia</td>
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<tr>
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<tr>
<td>MSc</td>
<td>Niamh Walsh</td>
<td>Promoting Patient and Public Involvement in research and analysing Low Calorie Sweetener intakes during pregnancy: Findings from the ROLO study</td>
<td>Professor Fionnuala McAuliffe</td>
<td>Dr Alyson Hill</td>
<td>University of Ulster, Coleraine, Northern Ireland</td>
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<tr>
<td>MSc</td>
<td>Hayden Wilkinson</td>
<td>Method Development for O-glycan Analysis and its Application to Parkinson’s Disease</td>
<td>Radka Fahey</td>
<td>Dr Gavin Davey</td>
<td>Trinity College Dublin, Ireland</td>
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<tr>
<td>MSc</td>
<td>Chia Yin Goh</td>
<td>Longitudinal profiling of extracellular vesicles derived from the plasma of women with a diagnosis of metastatic triple negative breast cancer (mTNBC) informs on treatment response and location of distant metastases.</td>
<td>Professor Amanda McCann</td>
<td>Dr Pat Kiely</td>
<td>University of Limerick, Ireland</td>
</tr>
<tr>
<td>PhD</td>
<td>Paula Cornally</td>
<td>Elucidating the effect of follicular environment, ex-vivo culture, and cryopreservation on ovarian cell quality</td>
<td>Dr Lynne O’Shea</td>
<td>Dr Rita Vassena</td>
<td>University of Barcelona, Spain</td>
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<tr>
<td>PhD</td>
<td>Ross Doyle</td>
<td>Gene expression and biomarkers in progressive Chronic Kidney Disease</td>
<td>Professor Catherine Godson</td>
<td>Professor Cathy Quinlan</td>
<td>University of Melbourne, Australia</td>
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<tr>
<td>PhD</td>
<td>Andrew Grannell</td>
<td>The role of fat free mass in appetite regulation in people with severe obesity and the implications for obesity as a disease</td>
<td>Professor Carel Le Roux</td>
<td>Professor John Blundell</td>
<td>University of Leeds, United Kingdom</td>
</tr>
<tr>
<td>PhD</td>
<td>Owen Humphreys</td>
<td>Development of in vitro and ex vivo urethral models to investigate the performance of urinary intermittent catheters</td>
<td>Dr Tom Flanagan</td>
<td>Professor Colin McCoy</td>
<td>Queen’s University Belfast, United Kingdom (GB &amp; NI)</td>
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<td>PhD</td>
<td>Emily J. Stenke</td>
<td>The role of NADPH oxidase 4 in Intestinal Fibrosis and Inflammation</td>
<td>Professor Ulla Knaus</td>
<td>Dr Isabel Fabregat</td>
<td>University of Barcelona, Spain</td>
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<tr>
<td>PhD</td>
<td>Sofia Kivotidi</td>
<td>TPU-based polymers synthesis via novel “green” process and their application as advanced medical device hydrogels for chronic skin wounds</td>
<td>Professor Wenxin Wang</td>
<td>Dr Georgia Charalambopoulou</td>
<td>National Centre of Scientific Research “Demokritos”, Athens, Greece</td>
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<tr>
<td>PhD</td>
<td>Patrick Leydon</td>
<td>Deep Learning for Assessment of Plasma Cell Disorders in 18F-FDG PET-CT</td>
<td>Dr Kathleen Curran</td>
<td>Dr Jim O’ Doherty</td>
<td>National University of Singapore, Singapore</td>
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<tr>
<td>PhD</td>
<td>Xiaolin Li</td>
<td>Functionalised ECM Based Injectable Hydrogel Integrate with Stem Cell for Cartilage Regeneration</td>
<td>Professor Wenxin Wang</td>
<td>Dr Catherine Le Visage</td>
<td>University of Nantes, France</td>
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<td>PhD</td>
<td>May Mohammed S. Almestehi</td>
<td>Assessment of a Transvaginal Ultrasound Simulator as an Educational Tool in an MSc Ultrasound Programme</td>
<td>Dr Mary Moran</td>
<td>Professor Peter Hogg</td>
<td>University of Salford, United Kingdom</td>
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<tr>
<td>PhD</td>
<td>Conor Murphy</td>
<td>Personalising the approach to unintentional weight loss after oesophagectomy by exploring the role of gut-brain signalling</td>
<td>Professor Carel Le Roux</td>
<td>Professor George Hanna</td>
<td>Imperial College London, United Kingdom</td>
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<tr>
<td>PhD</td>
<td>Kieran Murray</td>
<td>Outcomes in Inflammatory Arthritis: Therapeutic Response, Reproductive Health and Infection Risk</td>
<td>Professor Douglas Veale</td>
<td>Dr Grainne Murphy</td>
<td>Cork University Hospital, Cork, Ireland</td>
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<td>PhD</td>
<td>Eimer O’Malley</td>
<td>The diagnosis of Gestational Diabetes Mellitus</td>
<td>Professor Michael Turner</td>
<td>Professor Helen Murphy</td>
<td>University of East Anglia, United Kingdom</td>
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<td>MD</td>
<td>Breefnin Anglim</td>
<td>The Effect of Local Estrogen Therapy on the microbiome composition and relative abundance in the urinary postmenopausal women with/without urinary tract infections</td>
<td>Prof Declan Keane/Prof May Alarab</td>
<td>Dr Christian Phillips</td>
<td>University of Winchester, United Kingdom</td>
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<tr>
<td>MD</td>
<td>David Columb</td>
<td>Behavioural Addictions in an Irish Population</td>
<td>Dr Colin O’Gara</td>
<td>Mr Daniel King</td>
<td>University of Flinders, Australia</td>
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<tr>
<td>MD</td>
<td>Eileen Crowley</td>
<td>Towards Personalised Care in Paediatric Inflammatory Bowel Disease</td>
<td>Professor Billy Bourke</td>
<td>Dr Lissy de Ridder</td>
<td>Erasmus MC-Sophia Children’s Hospital, Rotterdam, The Netherlands</td>
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<tr>
<td>MD</td>
<td>Katherine Cunningham</td>
<td>Temperature Management of Outborn Preterm Infants During Inter-hospital Transfer After Birth</td>
<td>Dr Colm O’Donnell</td>
<td>Professor Benjamin Stenson</td>
<td>University of Edinburgh, Scotland, United Kingdom</td>
</tr>
<tr>
<td>MD</td>
<td>Alison Greene</td>
<td>Epigenetics in the Pathogenesis of Pseudoexfoliation Glaucoma</td>
<td>Dr Deborah Wallace</td>
<td>Professor Ursula Schlotzer-Schrehardt</td>
<td>University of Erlangen-Nürnberg, The Netherlands</td>
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<tr>
<td>MD</td>
<td>Faheem Khan</td>
<td>The Influence of smoking status on Circulating Fibrocytes in Health and in Smoking-related Fibrogenic Lung Diseases States</td>
<td>Dr Marcus Butler</td>
<td>Professor Martin Kolb</td>
<td>McMaster University, Canada</td>
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<tr>
<td>MD</td>
<td>David Kinlen</td>
<td>Childhood obesity is associated with dysregulation of MAIT cells and monocytes, driving production of cytokines linked to insulin resistance</td>
<td>Professor Donal O’Shea</td>
<td>Mr Gerald Denis</td>
<td>Boston University, United States of America</td>
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<tr>
<td>Programme</td>
<td>Student</td>
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<tr>
<td>MD</td>
<td>Nuala McNicholas</td>
<td>A clinical study on diagnostic, cognitive and sleep-related issues in Multiple Sclerosis</td>
<td>Dr Christopher McGuigan</td>
<td>Dr Jonathan O’Riordan</td>
<td>Ninewells Hospital and Medical School, Scotland, United Kingdom</td>
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<tr>
<td>MD</td>
<td>Imran Meurling</td>
<td>Respiratory Characteristics of an Irish Bariatric Population</td>
<td>Professor Donal O’Shea</td>
<td>Professor J Alberto Neder</td>
<td>Queen’s University Belfast, United Kingdom (GB &amp; NI)</td>
</tr>
<tr>
<td>MD</td>
<td>Rebecca Moore</td>
<td>A Microbe Mom study: Insights into metabolic health and the microbiome in early pregnancy</td>
<td>Professor Fionnuala McAuliffe</td>
<td>Professor Juha Rasanen</td>
<td>University of Helsinki, Finland</td>
</tr>
<tr>
<td>MD</td>
<td>Olwen Murphy</td>
<td>Clinical and imaging biomarkers in inflammatory myelopathies and multiple sclerosis</td>
<td>Dr Christopher McGuigan</td>
<td>Professor Eoin P. Flanagan</td>
<td>Mayo Clinic, United States.</td>
</tr>
<tr>
<td>MD</td>
<td>Parthiban Nadarajan</td>
<td>Role of Exosomes in Non-Small Cell Lung Cancer</td>
<td>Professor Michael Keane</td>
<td>Professor Doug Arenberg</td>
<td>University of Michigan, United States of America</td>
</tr>
<tr>
<td>MD</td>
<td>Trevor Nicholson</td>
<td>Pathophysiology and treatment of acute exacerbations of Cystic Fibrosis</td>
<td>Professor Charles Gallagher</td>
<td>Professor Andrew Jones</td>
<td>University of Manchester, United Kingdom</td>
</tr>
<tr>
<td>MD</td>
<td>Susanne O’Reilly</td>
<td>Endoscopic, Psychosocial and Histological Features of a Faecal Immunochemo Test Based National Colorectal Cancer Screening Programme</td>
<td>Dr Garret Cullen</td>
<td>Professor Mark Hull</td>
<td>University of Leeds, United Kingdom</td>
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<tr>
<td>MD</td>
<td>Rajiv Pandey</td>
<td>RetinaScreen: Diabetic Retinopathy Screening and Treatment of People Living with Diabetes in Ireland</td>
<td>Professor David Keegan</td>
<td>Professor Tunde Peto</td>
<td>Queen’s University Belfast, United Kingdom (GB &amp; NI)</td>
</tr>
<tr>
<td>MD</td>
<td>Catherine Rowan</td>
<td>Emerging pathways and evolving therapeutics in IBD.</td>
<td>Dr Glen Doherty</td>
<td>Professor Alexander Moschen</td>
<td>Medical University Innsbruck, Austria</td>
</tr>
<tr>
<td>MD</td>
<td>Gillian Ryan</td>
<td>Myometrial Contractility and Labour in Women with One Previous Caesarean Section</td>
<td>Professor Fionnuala McAuliffe</td>
<td>Professor Asma Khalil</td>
<td>St George’s University of London, United Kingdom</td>
</tr>
<tr>
<td>MD</td>
<td>Piriyah Sinclair</td>
<td>Modelling The Impact Of High Fat Diet Feeding And Intentional Weight Loss On Type 1 Endometrial Cancer In The BDII/Han Rat</td>
<td>Professor Carel Le Roux</td>
<td>Professor Anne Jorns</td>
<td>Hanover Medical School, Germany</td>
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<tr>
<td>MD</td>
<td>Thomas Wall</td>
<td>In vitro, in vivo and clinical translational studies of the effects of perioperative amide local anaesthetic drugs and techniques on breast cancer recurrence</td>
<td>Professor Donal Buggy</td>
<td>Professor David Lambert</td>
<td>University of Leicester, United Kingdom</td>
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<tr>
<td>MD</td>
<td>Michael Wilkinson</td>
<td>Molecular Determinants of Obesity Related Endometrial Cancer</td>
<td>Professor Donal Brennan</td>
<td>Professor Emma Crosbie</td>
<td>University of Manchester, United Kingdom</td>
</tr>
</tbody>
</table>
The Student Summer Research Award (SSRA) programme, established in 2006 under the direction of Professor Amanda McCann, 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 UCD School of Medicine had a particularly challenging environment with the ongoing COVID-19 pandemic. Despite these challenges, a strong research ethos triumphed, and we have continued 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.

148 students undertook SSRA projects in 2021, including students who were hosted virtually and in person in International institutes and Universities including twenty-three students hosted in institutes across Canada, twelve institutes across the United States, two within Japan, two in Thailand as well as the Arumeru District Hospital Tanzania and the Cachamsi Medical Spanish Program in Ecuador South America.

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 in remote working capacities.

This year, the SSRA International Dean’s Scholarships were also available to successful students and were hosted at Washington University, Hospice Africa Uganda and the University of British Columbia, Canada.

Thanks 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 Alfred Myles Smith Bursary Award for Research Excellence in 2021 in the areas of cardiology and vascular disease and rare cancers.

In addition to the Alfred Myles Smith Bursary, 2021 saw the introduction of two new scholarships for SSRA Students.

The “Clare O’Connor Summer Student Scholarship in Respiratory Research”. 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.

The “Kathleen Lynn Summer Student Scholarship in the History of Medicine/Humanities in Medicine”. This annual award is in memory of Dr. Kathleen Lynn (b. 1874-d.1955). This award is sponsored conjointly 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>Award</th>
<th>Awardee</th>
<th>Project Title</th>
<th>Location</th>
<th>Supervisor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alfred Myles Smith Bursary 2021</td>
<td>Neil Wu</td>
<td>Outcomes Following Minimally-Invasive Valve Surgery: A Retrospective Single-Centre Chart Review To Determine Safety And Durability.</td>
<td>Division of Cardiovascular Surgery, University of British Columbia, Vancouver, British Columbia, Canada.</td>
<td>Dr Richard Cook</td>
</tr>
<tr>
<td>Gold Medal</td>
<td>Anna Lawless</td>
<td>Targeting Mutant P53 For the Treatment of Triple Negative Breast Cancer: A Pre-Clinical Study</td>
<td>UCD Clinical Research Centre, St. Vincent’s University Hospital, Dublin, Ireland.</td>
<td>Professor Michael Joe Duffy</td>
</tr>
<tr>
<td>Silver Medal</td>
<td>Ella Flaherty</td>
<td>Retrospective Case Series of Primary Spinal Tumours at The National Spinal Injuries Unit</td>
<td>National Spinal Injuries Unit, Mater Misericordiae University Hospital, Dublin, Ireland.</td>
<td>Dr Cathleen O’Neill</td>
</tr>
<tr>
<td>Bronze Medal</td>
<td>Lily Farrell</td>
<td>Monitoring Long Term Disease Progression And Vision Loss In Birdshot Chorioretinopathy (BCR): Multimodal Imaging And Clinical Correlates As Well As Quality Of Life Assessment</td>
<td>Department of Ophthalmology, Royal Victoria Eye &amp; Ear Hospital, Dublin, Ireland.</td>
<td>Mr Dara Kilmartin</td>
</tr>
<tr>
<td>Poster Prize 1st Place</td>
<td>Sean Kerr</td>
<td>Optimizing Ipsc Loaded Hyaluronic Acid Scaffold Properties For Spinal Cord And Dorsal Root Ganglia Culture</td>
<td>Tissue Engineering Research Group, Department of Anatomy, Royal College of Surgeons in Ireland, Dublin, Ireland.</td>
<td>Dr Adrian Dervan</td>
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<tr>
<td>Poster Prize 2nd Place</td>
<td>Shin Mei Chuah</td>
<td>The Effect of Chemotherapy, Immunotherapy, And Vaccines In The Survival Of Canine Melanoma: A Systematic Review</td>
<td>UCD Conway Institute of Biomolecular &amp; Biomedical Research, University College Dublin, Ireland.</td>
<td>Professor Amanda McCann, Associate Professor Shirley Potter</td>
</tr>
<tr>
<td>Poster Prize 3rd Place</td>
<td>Ned Quirke</td>
<td>Quantitative Indocyanine Green Fluorescence Angiography Flap Perfusions Analysis</td>
<td>Department of Plastic &amp; Reconstructive Surgery, Mater Misericordiae University Hospital, Dublin, Ireland.</td>
<td>Associate Professor Shirley Potter</td>
</tr>
<tr>
<td>Clare O’Connor Summer Student Scholarship</td>
<td>Iulia Marinescu</td>
<td>Proteomic Analysis of The Nanoparticle Biomolecular Corona Formed In The Plasma Of Lung Cancer Patients And Healthy Controls</td>
<td>Department of Respiratory Medicine, St. Vincent’s’ University Hospital, Dublin, Ireland.</td>
<td>Assoc Prof Cormac McCarthy</td>
</tr>
<tr>
<td>Kathleen Lynn Summer Student Scholarship</td>
<td>Anouchka Lewis</td>
<td>Disability and healthcare Inequalities in 19th and 20th Century Ireland: A Medical and Socio-Cultural history</td>
<td>UCD School of Medicine, Centre for the History of Medicine in Ireland, UCD School of History, University College Dublin, Dublin, Ireland.</td>
<td>Assoc Prof Catherine Cox</td>
</tr>
</tbody>
</table>
Academic Centre Updates 2021

www.ucd.ie/medicine/ourresearch/researchcentres

• 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 Centre for Human Reproduction
• UCD Perinatal Research Centre
• UCD Centre for Precision Surgery
• UCD Academic Centre on Rare Diseases
• UCD Centre in Translational Oncology
• UCD Clinical Research Centre
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 2021


### Key Awards in 2021

The Bryan Alton Medal was awarded to Prof Geraldine McCarthy MD, FRCPI Consultant Rheumatologist Mater Misericordiae University Hospital Dublin and Professor of Medicine, in recognition of her contribution to clinical and academic medicine.

### Key Grants in 2021

Profs Oliver Fitzgerald and Steve Pennington are leaders of the €21m EU funded ‘HIPPOCRATES’ collaborative partnership. The 5-year project will examine the clinical, genetic and environmental factors that lead to psoriatic arthritis. This is a chronic immune-mediated inflammatory disease affecting the musculoskeletal system. The aim is to discover novel biomarker signatures that could identify those at risk of developing the disease, and those in the early stage.

### Centre news in 2021

The centre has very active public and patient involvement. It holds an annual half day conference. The theme of the November 2021 event was ‘New treatments’ and involved a range of national and international speakers. It was again a virtual event with over 160 registrants. Full details, including recordings of speakers, will shortly be available on the CAR website.
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 2021**

<table>
<thead>
<tr>
<th>Key Publications in 2021</th>
<th>Authors</th>
<th>Journal</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>410354 Short linear motif candidates in the cell entry system used by SARS-CoV-2 and their potential therapeutic implications</td>
<td>Mészáros B; Sámano-Sánchez H; Alvarado-Valverde J; Čalyševa J; Martínez-Pérez E; Alves R; Shields DC; Kumar M; Rippmann F; Chemes</td>
<td>Science Signaling</td>
<td>2021</td>
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<tr>
<td>425342 Predictive modelling of hypoxic ischaemic encephalopathy risk following perinatal asphyxia.</td>
<td>Mooney C; O’Boyle D; Finder M; Hallberg B; Walsh BH; Henshall DC; Boylan GB; Murray DM</td>
<td>Heliyon</td>
<td>2021</td>
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<tr>
<td>421195 SCLpred-MEM: Subcellular localization prediction of membrane proteins by deep N-to-1 convolutional neural networks</td>
<td>Kaleel M; Ellinger L; Lalor C; Pollastri G; Mooney C Proteins: Structure Function and Bioinformatics</td>
<td>10/2021 1233 1239</td>
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<td>416953 Population genomics of the pathogenic yeast Candida tropicalis identifies hybrid isolates in environmental samples</td>
<td>O’Brien CE; Oliveira-Pacheco J; Cinnéide E; Haase MAB; Hittinger CT; Rogers TR; Zaragoza O; Bond U; Butler G</td>
<td>PLoS Pathogens</td>
<td>2021</td>
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<tr>
<td>439756 Comprehensive prediction of robust synthetic lethality between paralog pairs in cancer cell lines.</td>
<td>De Kegel B; Quinn N; Thompson NA; Adams Dj; Ryan Cj</td>
<td>Cell systems</td>
<td>2021</td>
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<td>407654 The Clustal Omega Multiple Alignment Package Journal article Sievers F; Higgins DG</td>
<td>Multiple Sequence Alignment, 01/2021 3 16</td>
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<td>402323 DOME: recommendations for supervised machine learning validation in biology</td>
<td>Walsh I; Fishman D; García-Gasulla D; Titma T; Pollastri G; Capriotti E; Casadio R; Capella-Gutierrez S; Cirillo D; Del Conte A</td>
<td>Nature Methods</td>
<td>2021</td>
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**Key Grants in 2021**

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<th>Amount</th>
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<tr>
<td>Kenneth Wolfe: Molecular arms race between a yeast homing genetic element and its genomic target</td>
<td>SFI €1,279,805</td>
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<tr>
<td>Colm Ryan: Understanding and predicting context-specific synthetic lethality in cancer</td>
<td>SFI €545,044</td>
<td></td>
</tr>
<tr>
<td>Catherine Mooney: AI-Based Digital Pathology &amp; Molecular Profiling to Improve Treatment Decisions for Cancer Patients</td>
<td>Enterprise Ireland €293,604</td>
<td></td>
</tr>
</tbody>
</table>

**Centre News in 2021**

Six more students have recently chosen UCD for their PhD as part of the Genomics Data Science SFI CRT, bringing the total number of UCD PhD students funded through this programme to 14, across a number of schools, helping to advance highly interdisciplinary research.
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), the European Union (EU), Innovations Medicine Initiative (IMI) 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), and School of Public Health, Physiotherapy and Sport Science (SPPSS). We are based in the UCD Conway Institute of Biomolecular and Biomedical Research.

Key Publications 2021


Asymmetric Synthesis and Biological Screening of Quinoxaline-Containing Synthetic Lipoxin A4 Mimetics (QNXLXs). de Gaetano M et al., J Med Chem. 2021 Jul 8;64(13):9193-9216


- Recent advances in the design and development of formyl peptide receptor 2 (FPR2/ALX) agonists as pro-resolving agents with diverse therapeutic potential. Maciuszek M et al., Eur J Med Chem. 2021 Mar 5;213:113167.


A Pilot Study of Gut-Brain Signaling After Octreotide Therapy for Unintentional Weight Loss After Esophagectomy. Murphy CF et al., J Clin Endocrinol Metab. 2021 Jan 1;106(1):e204-e216

Methodological issues in assessing change in dietary intake and appetite following gastric bypass surgery: A systematic review. Redpath TL Obes Rev. 2021 Feb 1..


Asymmetric Synthesis and Biological Screening of Quinoxaline-Containing Synthetic Lipoxin A4 Mimetics (QNX-sLXms). de Gaetano M, et al., J Med Chem. 2021 Jul 8;64(13):9193-9216


Recent advances in the design and development of formyl peptide receptor 2 (FPR2/ALX) agonists as pro-resolving agents with diverse therapeutic potential. Maciuszek M et al., Eur J Med Chem. 2021 Mar 5;213:11316


### Key Awards in 2021

**Catherine Godson**
Graves Medal of the Royal Academy of Medicine in Ireland, December 2021. Outstanding Achievement Award of the Eicosanoid Research Foundation to be awarded 2022.

**Dr William Martin**

### Centre news in 2021

**Catherine Godson**
- American Society of Nephrology, Annual Meeting Program Co-Chair, 2022
- American Society of Nephrology, Annual Meeting Program Committee Member, 2021
- Elected Science Secretary, Royal Irish Academy, 2020 & 2021
- [https://www.irishtimes.com/special-reports/r-d-ireland/conducting-research-on-what-has-been-a-stop-start-basis-1.4638897](https://www.irishtimes.com/special-reports/r-d-ireland/conducting-research-on-what-has-been-a-stop-start-basis-1.4638897)

**Tani Vartek**
Tanwi Vartak, 2nd Year PhD Candidate at the DRCC (Diabetes Complications Research Centre), UCD Conway Institute, presents her personal video ‘My Day as Researcher’ compiled as part of the TY Student Outreach Programme. During the video Tanwi introduces us to her Tissue Culture related work and her work in the Conway Geonomics Facility all aided by lots of coffee. [https://drive.google.com/file/d/1wpoPxjFD2e8nTDZ-pQD6qYcooYkc4hc/view?usp=sharing](https://drive.google.com/file/d/1wpoPxjFD2e8nTDZ-pQD6qYcooYkc4hc/view?usp=sharing)

**James White**
UCD DCRC (Diabetes Complications Research Centre) Researchers take part in exciting public engagement activity with transition year students

(18th June 2021) Early career researchers from the UCD DCRC helped deliver a weeklong schedule of exciting activities with transition year students on a work experience week in April 2021. [www.ucd.ie/medicine/news/2021/newsstories/dcrcpublicengagementactivity](http://www.ucd.ie/medicine/news/2021/newsstories/dcrcpublicengagementactivity)
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.

Our main teaching programmes include:

1. Advanced Paramedic Training Programme (GradDipEMS) – a one-year programme with 48 graduates per year, for the National Ambulance Service, Dublin Fire Brigade, DAA and Irish Defence Forces.
2. Immediate Care CPD courses – Cardiac, Trauma and Paediatric course are taken by 500-600 GPs each year, at many sites around the country.
3. Combat Medical Technician Programme (DipMilMed) – a one-year programme with 24 graduates per year, for the Irish Defence Forces.
4. MScEMS programmes – two programmes enrol around a dozen students annually.
5. EMS Skills Courses – all 180 medical students undertaking final year PCM, take a 2-day skills course, taught in small groups – the highlight of PCM (besides graduating)!
6. Emergencies in Sports & Exercise Medicine programme – Diploma (Lead Dr. MDoheeny)
7. Primary Care Technician programme – CPD award, for up to 40 staff / year.

Our main research programmes include:

1. MERIT: 520 general practices in our network report data on all OHCAs they deal with.
2. MERIT3: 200 volunteer doctors (mainly GPs) are alerted to OHCAs in their communities by the Ambulance Service Operations Centre.
3. MERIT4/ICRR: 12 volunteer doctors (mainly GPs and Emergency Medicine consultants) respond to a broad range of life-threatening emergencies, using Rapid Response Vehicles.
4. HRB APA (PI SMasterson/TBarry) – Community First Response to OHCA.
5. HRB Clinician Scientist (TBarry) – predeictors of OHCA survival
6. HRB APA (PI EMcAuliffe) – CUPID (Children’s Unscheduled Primary and Emergency Care in Ireland).

Also, PhD and MD candidates are conducting work on neonatal resuscitation, treat and referral by ambulance services and community-based response to OHCA.
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 Biological and Biological Sciences, and the UCD School of Politics and International Relations.

**Key Publications in 2021**


Kelly C, Gurung R, Kamng’ona R et al. Circulating microparticles are increased amongst people presenting with HIV and advanced immune suppression in Malawi and correlate closely with arterial stiffness: a nested case control study [version 1; peer review: 1 approved with reservations]. Wellcome Open Res 2021, 6:264


Key Publications in 2021 (cont.)


Abstracts presented at Scientific Meetings 2021

Short Course Alendronate for The Prevention of Art-Associated Bone Loss.

Tara McGinty, Elena Alvarez-Barco, Willard Tinago, Cathal O’Brien, Alan Macken, Aoife Cotter1, Eoin Feehney, Geraldine McCarthy, Eoin Kavanagh, Alan Landay, Peter Doran, Sam McConkey, Patrick W. G. Mallon, on behalf of the APART Study group


Pro-atherogenic apolipoproteins and lipids are not increased in a contemporary cohort of PLWH, but increased body fat percentage is associated with lower HDL. Savinelli S, Heeney A, Tinago W, Garcia Leon AA, Cotter AG, Walsh I, Fitzgibbon M, Mallon PWG, Feeney ER. Presented at EACS. October 2021.


Key Awards in 2021
Distinction Awarded to Laura McCullagh for MSc submitted September 2021. Supervisor Dr. J. Hassan

Key Grants in 2021
EU H2020 – Vaccelerate Network. A Multinational, Phase 2, Randomised, Evaluator-Blinded, Adaptive Master Protocol to Evaluate the Impact of Different COVID-19 Vaccine Booster Strategies in Adults Already Vaccinated Against SARS-CoV-2. UCD is the Sponsor for this protocol (Ci: Prof Mallon). October 2021 – €2,437,000

HEA Covid Funding Consumables Award – €52,000. October 2021. PI: Prof Mallon.

EU H2020 – VACCELERATE – European Corona Vaccine Trial Accelerator Platform. 26,5M. Includes 1 clinical trial sponsored by UCD (3,19M) and another 2 clinical trials in which UCD has a key role as central lab within the EU network. Ci: Prof Mallon

9 SFI COVID Rapid Response Call – Total funding €4,37M. Includes UniCoV (May 2021, €2,19M) Co-I: Prof Mallon.

3 HRB COVID-19 Pandemic Rapid Response Funding Call – Total funding €558K Co-I: Prof Mallon.

National Irish Covid Biobank. Apr 2021. €2M over 2 years. Co-lead applicants: Prof Mallon (UCD) and Prof Bergin (TCD).

HRB - Clinical Trials Network. Mar 2021. €913,000 over 5 years. Lead Applicant: Prof Mallon. Co-lead: Prof Doran

2021-2025. 2021 IRC Government of Ireland Postgraduate Scholarship Programme-. €110,000 Applicant Ms Leah Ennis. PI: Virginie Gautier.


New grants from March 2021 to date
IRC Government of Ireland Postgraduate Scholarship - Development and validation of Vibrational Spectroscopic Techniques for detection and characterisation of Virus genotypes- September 2021 - €96,000 (Collaborator: Dr. J. Hassan)

Enterprise Ireland Commercialisation Feasibility grant awarded September 2021- €15,000 (Co-PI: Dr. J. Hassan)

Ongoing grants:
• HRB Investigator-Led Project (ILP) – €368,774.50
• HRB Knowledge Exchange Dissemination Scheme – €59K
• UCD WELLCOME TRUST ISSF – €52K
• UCD Foundation – €300K
• Smurfit Kappa – €200K
• 2019 Government of Ireland Postgraduate Scholarship Programme
• Gilead Sciences Educational Grant – €1M over three years. Year 1 funding secured.
• DAFM (Dec 2019) – €538K
• SRSS (Structural Reform Support Service) of the European Commission – €443K
• Health Service Executive – €125K
• 2019 Temple Street Foundation Children’s University Hospital – €261K
Research proposals submitted:


- SFI Partnership Funding Call - Developing label free spectroscopic techniques for virology - a novel analytical approach through multidisciplinary partnership (ViroSPEC). Lead applicant Prof High Byrne TU Dublin; Co-applicant Dr Noreen Sheehy. Collaborator = Dr. J. Hassan. Requested funding €999,698. Submitted May 2021.

- SFI INFRASTRUCTURE CALL: "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.” Requested Funding €2.2M PI: Virginie Gautier.


**Centre news in 2021**

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree</th>
<th>Status</th>
<th>Supervisor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr Ross Murtagh</td>
<td>MSc</td>
<td>completed (Thesis submitted and approved)</td>
<td>Prof Mallon</td>
</tr>
<tr>
<td>Ms Leah Ennis McLoughlin</td>
<td>MSc</td>
<td>completed (Thesis submitted and approved)</td>
<td>Prof Mallon</td>
</tr>
<tr>
<td>Tara McGinty</td>
<td>PhD</td>
<td>Submitted May 2021. VIVA Completed July 2021.</td>
<td>Prof Mallon</td>
</tr>
</tbody>
</table>
Established in 2007, the UCD Centre for Human Reproduction at the Coombe Women and Infants University Hospital was recognised in 2015 by the Academic Council as one of the university’s designated research centres. In 2018, the Academic Council in UCD renewed its approval for the UCD Centre for Human Reproduction to continue as one of the University's designated research centres. The Director is Professor Michael Turner and the Centre's Advisory Board include: Dr Brendan Egan, Prof Chris Fitzpatrick, Prof Mairead Kennelly, Prof Richard Layte, Prof Aisling Martin, Prof Jan Miletin, Prof Ann Molloy and Prof Carel le Roux.

The main research focus of the Centre is on modifiable pregnancy risk factors including maternal obesity, gestational diabetes mellitus, aberrant fetal growth, inadequate maternal diet, inadequate folic acid supplementation, cigarette smoking, infection and physical inactivity. In the decade 2010-20, Professor Turner served as the National Director for the HSE Clinical Programme in Obstetrics and Gynaecology and, as a result, the Centre has also provided leadership on maternity services implementation science projects.

**Key Publications in 2021**


The UCD Perinatal Research Centre based at the National Maternity Hospital, was established since 2012 aiming to improve outcomes for mothers and their infants.

**Key Publications in 2021**


Key Awards in 2021

International Federation of Gynaecology and Obstetrics (FIGO) Women’s Award: Fionnuala McAuliffe received prestigious award for her contribution to women’s health worldwide.

HSE Spark Ignite Award: Sarah Louise Killeen & Fionnuala McAuliffe were regional winners for digitalisation of FIGO Nutrition Checklist.

British Maternal and Fetal Medicine Society: Cara Yelverton received best student award at meeting for paper on fetal growth trajectories.

Key Grants in 2021

NCRC, SFI, Tallaght Hospital Fund, NMH Medical Fund, EU Horizon

Centre news in 2021

- Dr Grace Ryan was awarded her MD on VR in medical education
- Grace Mealy was appointed as research assistant
- Sophie Callanan commenced as Masters student
- Dr Cathy McNestry and Dr Fiona O’Toole joined team as Academic Clinical Fellows and MD students.
- Sharleen O’Reilly PI was promoted to Associate Professor in UCD
- We completed 390 mother and child in person visits at 10 years of age in ROLO study
- PrePop study commenced – 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
- B2B RCT commenced and > 600 patients recruited worldwide
The UCD Centre for Precision Surgery, established 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.

The Centre incorporates:

- The UCD-MMUH Clinical Anatomy Centre, an advanced skills training and simulation facility located in the original theatres of the Mater Hospital.
- The Digital Surgery Unit, a platform for world-class research into future modes of human-machine collaboration in the surgical theatre through interdisciplinary collaboration across surgery, engineering, computer science, chemistry and mathematics.

The UCD Centre in Translational Oncology

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 Academic Centre on Rare Diseases (ACoRD) was awarded formal centre status in June 2013. The focus of the centre is to investigate rare genetic diseases, particularly those affecting the Irish population and the Irish Traveller population.

The Centre's aims are focused on the study of rare genetic diseases, with a view to the identification of the mutation(s) causing the disease. Once a causal mutation(s) is established, the objective is to develop diagnostic tests for translation back into a clinical setting. Once a gene is implicated, our PIs work to further investigate the gene function and biological pathways involved in the condition. The ultimate aim is to investigate those conditions / genes which might be amenable to drug targeting or gene therapy.

Rarely in a lifetime does a scientific or medical field of research 'come of age'. The revolution that was the ‘Human Genome Project’, coupled with the latest technological advances in genomics is set to transform the field of rare genetic diseases. An ad hoc group of UCD based clinicians, scientists, specialists in bioinformatics and cell biologists have long since recognised these developments, and the rare disease group – prior to its establishment as a centre – has achieved considerable national and international recognition.
The UCD Clinical Research Centre (UCD CRC) is an academic led, multi-site centre supporting clinical and translational research. It operates under a single governance structure within the UCD School of Medicine and the College of Health and Agricultural Sciences. The UCD CRC is at the core of the Health research and innovation strategy and provides a focal point for collaborative, multidisciplinary patient-focused research. The centre links the clinical community to core university research institutes including the UCD Conway Institute, Systems Biology Ireland and the UCD Charles Institute of Dermatology.

The UCD CRC has a significant track record of supporting both investigator and industry-initiated clinical research projects. Full study supports are available; from experimental design to study analysis and reporting. Throughout the life cycle of a research project, the CRC provides quality oversight from initiating all staff under the CRC’s SOPs and quality management system, providing GCP training and risk assessment of our trials, monitoring and consultation through the maintenance of the study.

UCD CRC supports research staff with collection of high-quality, reliable data throughout their clinical research project. Assistance is provided with development of clinical trial protocols, biostatistics, advice on data protection issues, efficient data collection and CRF design, and establishment of electronic databases.

The UCD CRC has developed significant infrastructure to enable the collection, processing and storage of biological samples from patients with a range of diseases. We provide both the support and facilities that investigators need to establish high quality sample collections. The UCD CRC bio-banking service currently houses over 40 major ongoing collections and registries. Our biomarker validation laboratory, developed in partnership with Abbott, provides state of the art equipment and for high throughput, high fidelity biomarker analysis.

Over the last years, the UCD CRC has developed a comprehensive taught graduate programme including an MSc in Clinical and Translational Research and a Graduate Certificate in Clinical Trials. This exciting education initiative is training the next generation of investigators and research professionals.

Support available to investigators:

**Proposal Phase**
- Grant Application
- Budget Review
- UCD Sponsorship
- EudraCT Number
- Study Design Review
- Statistical Planning
- Protocol Finalisation
- PIL & Consent Form
- Insurance
- Contracts

**Pre-Initiation Phase**
- HPRA & Ethics submission
- Investigator Site File
- GCP Training
- Trial Registration
- Monitoring Plan
- Randomisation and Blinding Procedures
- Site Initiation

**Study Contract Phase**
- First Patient In
- ISF Maintenance
- Study Monitoring
- Amendments
- Data Collection & Cleaning
- Pharmacovigilance
- DSMB/Interim Analysis
- DSUR Submission
- Audits/Inspections

**Reporting Phase**
- Last Patient Last Visit
- Study Close-out Visit
- End of Trial Notification
- Archiving
- Data Lock and Cleaning
- Data Transfer
- Statistical Analysis
- Budget Close Review
- Clinical Study Report Submission

Director Dr Sean Ennis
Director Prof Peter Doran
Useful Contacts

Student Summer Research email:
ssra@ucd.ie

For Graduate Research Student Queries email:
medicine.research@ucd.ie

For PI Support Queries email:
ucdmr@ucd.ie

UCD School of Medicine - Research Office

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

Ms Yvonne Barry
Research Administration Manager
e: yvonne.barry@ucd.ie
t: 01 716 6600

Ms Niamh McCarthy
Senior Administrator-Admin Support Team
e: niamh.mccarthy@ucd.ie
t: 01 716 6585

Mr Edward Moore
Senior Administrator-Admin Support Team
e: edward.moore@ucd.ie
t: 01 716 6589

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

www.ucd.ie/medicine/ourresearch