UCD Medicine Research

Annual Report 2012/13

UCD School of Medicine
& Medical Science
ucd.ie/medicine

On behalf of the UCD School of Medicine and Medical Science, it gives me great pleasure to introduce the first annual report of UCD Medicine Research (UCD MR). This report represents an important milestone, coming half way through the current three-year cycle of the Research Strategy of the UCD School of Medicine and Medical Science (SMMS) and outlines the research profiles and key research outputs from Investigators affiliated with the SMMS Research Strategy for 2011 and 2012.

UCD remains at the forefront of health research both within Ireland and internationally. This report highlights the productive and varied research ongoing within the many campuses affiliated with SMMS. As part of the School's research strategy, UCD MR has engaged with research-active investigators, both clinical and non-clinical, to identify key research areas, with a view to further enriching the quality and quantity of world-class research emanating from UCD SMMS.

This report presents these research areas through four principal research structures; (1) Academic Research Centres, our flag-ship leading research structures, (2) Research Groups, comprising outstanding researchers working in smaller groups on specific fields, (3) Research Themes, comprising large numbers of researchers working in a common broader field of research, and (4) Individual Investigators, who deliver a large proportion of research output arising from SMMS. Through this ongoing research strategy, we have already transitioned one Research Theme successfully into a fully-functioning Academic Research Centre and it is our hope that we will see further Academic Centres created over the coming months.

The generation of this report has been a considerable undertaking, and I am very grateful to the UCD MR project team for managing its production. I would also like to thank all the Investigators who have contributed to this report and the numerous support staff within SMMS who offered input and guidance throughout. Lastly, I would like to thank Clare O' Connell, Journalist with the Irsh Times for helping shape the interviwes that offer specific inputs into the varied research underway within SMMS.

Finally, I hope that this report is a useful source of information and pride for our many funders and supporters, without whom such progress – detailed in the pages within - would not be possible.

Dr Paddy Mallon
Associate Dean, Research & Innovation
UCD School of Medicine & Medical Science

It is my great pleasure to welcome the publication of the first UCD Medicine Research annual report. The information contained within this document underlines the depth of our research expertise, the immense talent of our principal investigators, and the scale of our ambition. I would like to express my gratitude to all who were involved in its production; particularly to Dr Paddy Mallon, Associate Dean for Research and Innovation at the School, and his team at the UCD Medicine Research office.

This document serves a noble purpose; the communication of our research and its impact on human health and society. It is in our collective interest, particularly in these straitened economic times, to communicate more effectively the excellent work that takes place throughout our academic and clinical network, and I am confident that this report will assist us in raising the profile of our research and that of our principal investigators.

At UCD School of Medicine & Medical Science, we are proud to be part of one of Europe's leading research intensive universities – a status to which the School contributes a great deal at home and internationally. In the course of reading this report, it is most gratifying to see the benefits of our scale – at school and university level – translate back into collaborations at centre, group and individual level. With that in mind, I would like to extend my congratulations to Dr Sean Ennis and members of the Academic Centre on Rare Diseases, who were awarded full centre status by the university in the summer of 2013. Further collaboration and synergies are critical to our success, and I look forward in the next year to more groups and research themes moving forward to centre status. It is a tremendously exciting time for UCD Medicine Research, as we strengthen exisiting research links within the UCD College of Health Sciences and the Dublin Academic Medical Centre, and we initiate new research collaborations in the emerging Ireland East Hospital Group.

In the meantime I want to thank you all for your time and effort in helping to make this report a reality. It provides just a snapshot of the work that you all do, and yet still it underlines what a privilege it is to work with such talented investigators.

I hope that you all find this publication useful and I look forward to seeing how the next edition develops over the coming twelve months.

Yours sincerely,

Prof Patrick Murray
Dean of Medicine & Head of School

Welcome to the UCD MR Annual Report

2012/13

The School aims to create an environment which supports world class translational research by providing excellent laboratory and clinical facilities resourced with expert support staff that includes post-doctoral fellows, research nurses, laboratory technicians, data managers and administrative staff. 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 SMMS 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.

UCD Medicine Research (UCD MR) 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-Graaduate committees such as the SMMS Clincial and Biomedical Degrees committees, and the Summer Student Research (SSRA) Programme.

The UCD MR Office is staffed by experienced research administrators, led by Ms Yvonne Barry, Research Administration Manager UCD MR and supported by Ms Densie Gosling , Senior Executive Assistant UCD MR and Ms Niamh Mc Carthy, Senior Executive Assistant UCD MR.

Central to the functions of the UCD MR Office is rapid and effective communication with our investigators and students. This function is supported by Mr Mark Byrne, Communications Manager for the School of Medicine and Medical Science, who has worked closely with the UCD MR Office team to collate the information that has contributed to this annual report.

Project Team

Ms Yvonne Barry
Research Administration Manager

Mr Mark Byrne
Communications Manager

Ms Denise Gosling
Senior Executive Assistant

Ms Jenna Lotkowictz
Project Assistant

Ms Niamh McCarthy
Senior Executive Assistant

UCD MR Office Contacts

Ms Yvonne Barry
Research Administration Manager
UCD School of Medicine and Medical Science
Tel: +353 1 716 6738 | Email: UCDMR@ucd.ie

Ms Denise Gosling
Senior Executive Assistant
UCD School of Medicine and Medical Science
Tel: +353 1 716 6837 | Email: UCDMR@ucd.ie

Ms Niamh Mc Carthy
Senior Executive Assistant
UCD School of Medicine and Medical Science
Tel: +353 1 716 6851 | Email: UCDMR@ucd.ie

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http://www.ucd.ie/medicine/ourresearch/

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Interviews

Looking at disease through a genetic lens

Dr Sean Ennis, head of the new UCD Centre for Research in Rare Diseases talks to Claire O'Connell about how UCD is leading the way in genetic analysis of a range of rare disorders such as autism and familial diseases.

There are some things that run in families, like red hair and blue eyes. And sometimes medical conditions do to. When that happens, it can be helpful to know what genes are involved, to inform genetic counselling, to develop tests to help diagnosis and possibly even to identify new molecular targets for treatments. Dr Sean Ennis is using genetic techniques to analyse a range of inherited conditions, from relatively common disorders such as autism, to rare diseases that tend to concentrate in families.

New technologies, quicker results

The technology to analyse human genetics has developed rapidly over the last two decades or so, explains Dr Ennis, who is a Lecturer at UCD School of Medicine & Medical Science and a Principal Investigator at the National Centre for Genetics in Crumlin.

UCD Conway InstituteInstitute

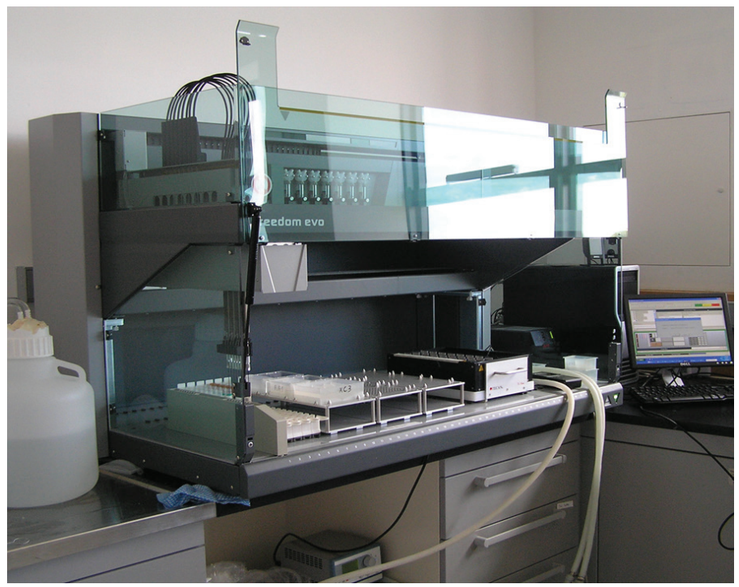
"There was a time when if you wanted to work out the mutations, or changes in DNA, that were linked to an inherited disease, you would get samples from the patients, analyse them and then put them in the freezer and wait for the next generation to be born so you could continue the study," he says.

Times have moved on, he notes, and now approaches such as exome sequencing, which works out the 'letters' in DNA that encode genes, and other techniques offer the chance to find important mutations more rapidly.

Autism - genetic complexity

For many years, Dr Ennis has been working on the genetics of autism with colleagues in UCD, Ireland and internationally. One of their major breakthroughs was to highlight the complex nature of mutations in the condition - by genotyping 9,000 individuals in 3,000 families and looking to see whether there were common changes in the DNA letters that were linked with autism. The results were surprising, and they changed the thinking about autism genetics, explains Dr Ennis.

"Prior to that study it was thought there were a few common genes involved in autism," he says. "But our data showed that there wasn't, that instead there were multiple rare variants."



"My aim in terms of rare diseases is to take it beyond individual investigators"

Above left: Rare disease lab at UCD Health Sciences Centre, Above right: Dr Sean Ennis

Rare diseases - the genetic link

While Dr Ennis remains involved in autism research, he and colleagues at UCD have also developed a particular strength in investigating the genetics of inherited rare diseases. By their nature, individual cases rare diseases may not be numerous, but the sheer numbers in the rare disease category quickly add up, and most have a strong genetic component, he explains. "There are about 6,000 to 8,000 known rare diseases, and about 80 per cent of them are genetic in background."

Because many of those rare diseases tend to involve a small number of key genes and are concentrated in families, it can make the hunt for participating genes and mutations more directed, explains Dr Ennis.

And at UCD there is considerable interest in finding out more about inherited rare diseases among the Traveller community in Ireland, he adds. "We reckon there are around 60 genetic conditions associated with the Traveller community here, and we are looking at some of these conditions."

An eye to diagnosis

They have already had considerable success. One breakthrough was in a rare disease called micro-anophthalmia, where children are born with eyes that are small or missing. One family had seven affected members, so the researchers, including Dr Jillian Casey, compared genetic information from affected people and their close relatives and homed in on a relatively small stretch of DNA that contained two genes of interest.

One of those genes was STRA6, which in involved in vitamin A uptake, an important factor in eye development, and the UCD/Crumlin study showed that mutated STRA6 was at the root of micro-anophthalmia. The findings led to the development of a service test that can be used to inform genetic counselling for potentially affected families.

That's just one of several examples where, by focusing on a rare disease in related groups, UCD research has unveiled important genetic information about rare conditions, and Dr Ennis points out that knowing about these key molecular events can lead to better diagnostic tests and, in the longer term, could possibly inform new approaches to treatment.

Rare Diseases Centre

He now wants to consolidate the ongoing work in rare diseases through a proposed new Rare Diseases Centre, which would harness the expertise that has grown organically in UCD, Crumlin and the Children's University Hospital at Temple Street in recent years.

"My aim in terms of rare diseases is to take it beyond individual investigators," he says. "The study of rare diseases is bringing together clinicians, geneticists, experts in animal models and others who are in position to translate findings into to the clinic. We want to get the research in a more established framework so we can look for longer-term funding and build strategies around rare diseases."

Taking the long view on research

Dr Paddy Mallon speaks to Claire O'Connell about his role as Associate Dean for Research and his plans to maximise the impact and reach of the School's activities.

Dr Paddy Mallon, with M-BRiHT screening system

What makes medical research a success? One key ingredient would be time for the mental and physical focus that research needs. Access to high-quality data is another factor that drives discovery and bringing researchers from different disciplines together can introduce new dimensions to a project. And bringing researchers from different disciplines together can introduce new dimensions to a project.

UCD School of Medicine & Medical Science is looking to enhance these factors through its new research strategy, which has identified several themes of excellence across the School and is looking to bring groups together around them, explains Associate Dean for Research and Innovation, Dr Paddy Mallon.

When he took up the role last year, Dr Mallon saw an opportunity to shape how the School manages research, by encouraging researchers across the School's locations to engage in areas of common interest.

"We have got a very large campus that is spread over clinical and non-clinical sites," he explains. "And in every University teaching facility where you have clinical and non-clinical elements, people can feel separate from each other. So we wanted to create an environment where we can bring people together and they can form an identity."

Enter UCD Medicine Research, a hub and suite of assistive supports that spans the activities at Belfield, the Mater and St Vincent's Hospitals. "No matter where a researcher in the School is based, they can affiliate with that structure," explains Dr Mallon. "And within that umbrella we wanted to identify where our core research strengths were, where we had critical mass and get core groups of people working together in academic research centres. That is a structure that exists in the university but we haven't really explored it."

Themes of common interest

To identify those core themes, the School went to those in the know - the researchers themselves. "We took a bottom-up approach," explains Dr Mallon. "We asked people to list the types of research areas they were interested in, and out of that came some broad areas of strength."

Researcher at UCD Conway Institute

"We asked people to list the types of research areas they were interested in, and out of that came some broad areas of strength"

They include translational oncology, genetic rare diseases, women and children's health, infectious diseases, diabetes and inflammation and fibrosis. "We are now encouraging researchers to co-ordinate themselves and to submit applications for academic research centres in these areas to the university," says Dr Mallon.

HIV - the long view on treatments

His own area of specialty is infectious diseases, particularly the clinical implications of long-term infection with and treatment for HIV, and he tracks his interest back to his college days studying medicine at Queen's University Belfast.

"It was a disease that was just hitting the news and it was affecting my generation," recalls Dr Mallon. During his clinical training in London and Sydney he carried out research into the side-effects of antiretroviral treatment, and in 2008 he set up the HIV Molecular Research Group (HMRG) at the Mater Misericordiae University Hospital, which he leads.

The group's research has a strong focus on the clinical implications of long-term treatment for HIV, particularly on bone and cardiovascular health, and how HIV affects the immune system.

"Cancers, liver disease, bone disease, cardiovascular disease, they are elevated in people with HIV, and this is he major thing that is preventing people with HIV from having completely normal life spans," explains Dr Mallon. "Also the immune system doesn't return to normal and we have programmes trying to understand why that is."

Many of the around 800 HIV-positive patients who attend the Mater take part in the studies, as well as non-HIV-infected controls, plus the HMRG has access to stored samples for research. "The patients are on board, the majority are taking part in the studies, and it's focused on how to improve patient care by understanding ageing with HIV."

What the HMRG is finding is that people living long-term with HIV are at risk of developing osteoporosis and cardiovascular disease at a relatively young age. The studies are also shedding some light at a molecular level on why this happens, and the group's discoveries could help to tailor clinical management of patients with HIV, explains Dr Mallon.

"The more we know about it, the more we realise that screening and monitoring for these diseases in HIV is likely going to be completely different to how you do it for the general population," he says. "Clinically we to know what the right approach to management and monitoring is, and understanding the mechanistic problems will give us an idea about how we could be using treatments more effectively."

Nutrition in pregnancy to protect future health

Prof Fionnuala McAuliffe discusses with Claire O'Connell the long-term benefits - for baby and mother - of nutrition in pregnancy

Professor Fionnuala McAuliffe

A stitch in time saves nine,' according to the old expression. Or, to put it another way, timely intervention can avoid costly problems later on. Could looking after nutrition in pregnancy be the 'stitch in time' that protects the long-term health of both mother and baby?

Prof Fionnuala McAuliffe, who heads Women's and Children's Health at UCD, believes so - and her research is gathering the evidence to inform new nutritional guidelines for expectant mothers. And with a large proportion of children and pregnant women in Ireland being overweight or obese, she believes pregnancy is an important window to get nutrition right.

Long-lasting Impacts of Pregnancy Diet

"There's a lot of evidence that the pregnancy environment can impact quite significantly on maternal and foetal health during pregnancy, at birth and even in later life," says Prof McAuliffe, who is Associate Prof of Obstetrics and Gynaecology at UCD School of Medicine & Medical Science.

The mother's nutrition and metabolic health can have a particular impact, she notes. "If the mother has diabetes or if the quality of her nutrition is poor during pregnancy, that can lead to the baby being overweight at birth. And babies that are at the heavier end of the spectrum of birth weight have an increased risk of obesity and type II diabetes in later life."

That's why Prof McAuliffe wants pregnancy to be seen as a valuable window where nutritional education and interventions could help to stave off costly health problems later on. "A huge amount of our money in health is being spent on dealing with cardiovascular disease and diabetes, and if we can reduce that by a relatively simple intervention and education in pregnancy then you can see the benefits to society in general," she says. "That will have huge economic implication not just for this generation but for the next one as well."

Professor McAuliffe's education and research team, National Maternity Hospital Holles St.

Professor Fionnuala McAullife, in clinic at National Maternity Hospital Holles St.

Sunshine Vitamin Affects Baby's Bone Growth

A mother's vitamin-D status can affect the growth of the foetus in late pregnancy, according to research recently carried out by Prof McAuliffe and colleagues at UCD and the National Maternity Hospital, where she is a consultant obstetrician and gynaecologist.

"You can get vitamin D through your diet - two portions of oily fish a week will do the trick, though most Irish people don't have even that - and you can also make it in the body through exposure to sunlight, but of course being above 42 degrees north means we don't get a lot of sunlight in Ireland, especially during winter."

The UCD study of 60 Caucasian women found that maternal vitamin-D status was linked to skeletal development. "We found that vitamin D influenced the length of the thigh bone of the foetus and the length of the baby at birth," explains Prof McAuliffe. "It's an example of how maternal nutrition can impact on baby's growth in a physical way, and the message is that a pregnant woman should be eating two portions of salmon or mackerel a week, and if she is not then a vitamin-D supplement should be considered."

Prof McAuliffe is now working as part of a subcommittee in the Food Safety Authority of Ireland to develop recommendations for nutrition in pregnancy, where her research findings will provide supporting evidence.

Sugar Not Such a Treat

Glucose is another area where nutritional guidelines in pregnancy could make a difference - this time to the mother's longer-term health, explains Prof McAuliffe.

She recently directed a randomised controlled trial of 800 expectant women in Ireland to look at the effects of a low glycemic-index (GI) diet on pregnancy. The women, who had each previously delivered a baby weighing 4kg or more, were divided into two groups: one group had their usual diet, while the other group ate low-GI foods such as brown rice and bread instead of high-GI fare like white bread and sugary breakfast cereals that cause spikes in the body's insulin.

"This was the largest trial of its kind internationally," says Prof McAuliffe, who describes how the findings were a little surprising. "We expected to find a difference in birth weight of the babies but we didn't find that. However what we did find was that the mothers put on less weight in pregnancy and they had less pregnancy diabetes."

The results show that following a low-GI diet in pregnancy could help women avoid excessive weight gain, and by all accounts it was a simple change to make.

"This low-sugar, low-GI diet was quite acceptable to the women and it's easy to follow. So it is a good diet to consider if a woman is at risk of excessive weight gain in pregnancy."

The UCD team is now following up with the mothers and babies over the course of five years to look at the longer-term impact of the low-GI diet in pregnancy.

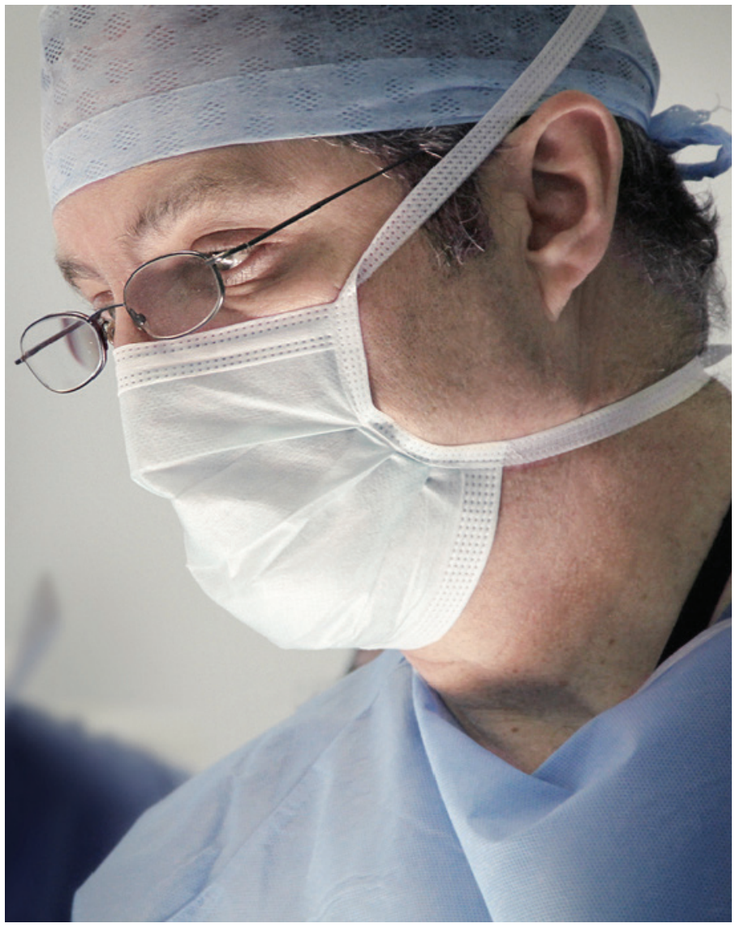
Investment in Future Health

Putting more emphasis on healthy eating in pregnancy would be a sound investment to make in tackling the obesity crisis, according to Prof McAuliffe.

"In Ireland half of all our pregnant women are either overweight or obese and a quarter of all our children are obese," she says. "If an intervention in pregnancy as simple as a low-sugar diet will result in less maternal obesity and less childhood obesity then this is where we should be putting resources. This is a hugely important area to focus on, not just for the mother's health but for the health and wellbeing of the next generation."

Addressing the 'unvoiced epidemic' of faecal incontinence

Head of Surgery Prof Ronan O'Connell speaks to Claire O'Connell about a problem which, despite its prevalence, is still not discussed openly in society.



Professor O'Connell in surgery

Not many people talk about it, but a substantial number of people in Ireland will experience faecal incontinence at some point in their lives. That's why Prof Ronan O'Connell, Prof of Surgery at UCD School of Medicine & Medical Science, is researching ways to address it, and finding success by targeting the nerves involved.

"Faecal incontinence is known as the unvoiced symptom and there is an epidemic of it," he says. "About eight percent of the population have faecal continence difficulties, it is eight times more common in women than men and it is the most common cause, apart from dementia, for people to be institutionalised."

Childbirth changes

Childbirth is a particular risk factor for faecal incontinence in the short or longer term, explains Prof O'Connell, who is a Consultant Colorectal Surgeon at St Vincent's University Hospital.

"Between 15 and 20 per cent of women who give birth vaginally will have some alteration in their continence after childbirth - most recover within six months but the remainder are left with difficulty," he says. "And overall, the number who have ongoing difficulties with continence is between two and four per cent after first childbirth."

Along with Prof Colm O'Herlihy, Prof of Obstetrics and Gynaecology at UCD and Dr Myra Fitzpatrick, he runs the Perineal Clinic at the National Maternity Hospital, where they see between 300 and 400 new patients each year. Many have incontinence problems because tissue has torn during childbirth, but the stretching of the pelvic nerve supply during childbirth can also cause problems in the longer term, explains Prof O'Connell. "We know that nerves can usually be stretched about 15 per cent without being damaged but once you go beyond that, then you start getting disruption."

Many women may simply manage the symptoms for years, but then along comes menopause or more general ageing and those symptoms can become unmanageable, and these are the kinds of issues Prof O'Connell and his colleague Ms Ann Hanly are now seeing at the country's first pelvic floor centre, at St Michael's Hospital, which opened for patients earlier this year.

"We provide comprehensive care with a uro-gynaecologist and a colorectal surgeon for pelvic floor disorders," he says. "The Hospital refurbished the clinic and we how have funding from industry and charitable foundations for state-of-the-art equipment."

Firing up the nerves

So what can be done to help people with faecal incontinence? One approach is to artificially stimulate the sacral nerve, and Prof O'Connell has been using neuromodulation to help patients at SVUH and St Michael's Hospital, working with patients for whom a colostomy is the alternative.

"The system applies a constant nerve stimulus and the person keeps a diary to keep track of how they are doing"

The approach surgically implants a small electrode, which is controlled by a device outside the body. That device can be attached by wires to the electrode, in which case the patient wears it on a belt, or a new device can communicate over Bluetooth with the implanted electrode, which means the patient can simply keep it in a handbag or somewhere in the room.

"The system applies a constant nerve stimulus and the person keeps a diary to keep track of how they are doing," explains Prof O'Connell. "We have been finding that the chance of somebody having a dramatic improvement in continence is about 60 per cent. Then if we implant a permanent pacemaker in patients from that 60 per cent, the chances of that group having long-term success are about 90 per cent."

The Bluetooth system is now making it easier to prolong the initial testing phase to several weeks,

Colo-rectal surgery at St Vincent's University Hospital Dublin

notes Prof O'Connell, whose work in this area is funded through Medtronic, Science Foundation Ireland and the Bowel Research Foundation of Great Britain and Ireland. "It means you can really assess whether someone has had an improvement over time," he says.

Brain changes

Prof O'Connell is also interested in how the brain changes when peripheral nerves are 'fired' through artificial means, and working with Prof James Jones, Prof of Anatomy in UCD, he is looking closely at what happens an animal model. The work has shown how, when the nerve is damaged, the cells in its 'control centre' in the spine die away, and the nerve's representation in the brain's cortex is lost - if you don't use it, you lose it.

However with neuromodulation you see encouraging changes in the brain, as he describes: "You get up-regulation of NCAM [a 'sticky' molecule that facilitates communication between brain cells] and an increased amplitude in the cortical-evoked potential in these animals."

He is also working with a group at the Royal London Hospital to develop a minimally invasive investigation that can identify the patients who are most likely to benefit from neuromodulation.

Magnetic continence

Recently Prof O'Connell and Ms Hanly have been also using another type of technology to help patients who experience faecal incontinence: a magnetic anal sphincter.

How does such a thing work? "It consists of rare-Earth magnets, each one about the size of a small piece of chewing gum. They are linked together by titanium wires, they are in a titanium case, and at rest they are all linked together, closed," explains Prof O'Connell.

"However it takes pressure of about 25 to 30 mm of mercury - about the same as a good push - and they come apart. Then you stop pushing and they come together again."

The Fenix® Continence Restoration System has been used in around 100 patients worldwide to date, and Prof O'Connell's team was one of the first to be invited to use it. "We were the first in these islands to be able to offer this to patients," he says.

Early diagnosis of HIV for survival & prevention

Dr Gerard O'Connor talks to Claire O'Connell about how a rapid HIV screening programme, based at Dublin's Mater Hospital, is changing the way we think about knowing our status.

Dr Paddy Mallon, principal investigator on the M-BRiHT project, and Dr Gerard O'Connor

A positive HIV result is certainly a landmark event in a patient's life, but early diagnosis and treatment can mean a normal life expectancy. And if a person with HIV knows their status, they can take steps to minimise the risk of passing the virus on to others.

That's why the Mater-Bronx Rapid HIV Testing project, a collaboration between UCD, the Mater Misericordiae University Hospital and the Jacobi Medical Centre in the Bronx New York, is encouraging participants to get a HIV test and 'know your status'.

Since September 2012, more than 2,800 people attending the Mater's Emergency Department have taken part in the screening study, which asks participants to watch an educational video, answer questions about their risk factors and take a rapid HIV test.

"Early diagnosis is considered to be best practice," says project lead at the Mater Dr Gerard O'Connor, a Lecturer in Emergency Medicine at UCD School of Medicine & Medical Science. Yet most of the study participants at the Dublin site didn't know their HIV status, he notes: "So a big goal of the study in Dublin is trying to increase awareness of testing and normalise it, so that it is seen as pretty routine."

Taking the Test

How does it work? People attending the Emergency Department are asked if they want to take part in the research study. If they do, they watch a set of short videos on an interactive laptop that explain the project and the process and implications of HIV testing. They complete an online survey and they are offered a HIV test, which involves a quick swab inside the mouth - and 20 minutes later the result is ready.

The immediacy of the result is important, explains Dr O'Connor, who is a Specialist Registrar in Emergency Medicine and Clinical PhD Research Fellow with the HIV Molecular Research Group led by Dr Paddy Mallon. "It means you are not asking people to come back in a day or two, they have the answer pretty much there and then. And if it's positive, the person is immediately linked into care."

So far, the rate of positive testing has been in single digits per 1,000 tests. "Our rates of HIV positive acquisition are comparable to what they have been seeing in the US," says Dr O'Connor: "And the people we have diagnosed so far have had really robust, high CD4 counts so they are hopefully going to stay healthy long into the future now that they are getting the appropriate care. Plus they are now in a position to take precautions and reduce the risk of passing HIV on to others in the community."

The questionnaires have also been yielding some interesting findings, based on interim analysis of about 1,500 surveys. They indicate that less than one-fifth of those who have multiple sexual partners say they always use condoms The answers also help to identify how people want to engage with the video itself, and that will help future design of the screening, explains Dr O'Connor.

"the ultimate aim of the Mater project is to prove that screening can be done, even in a challenging environment like an Emergency Department"

Future Plans

The project, which receives funding from an investigator-initiated unrestricted research grant through healthcare company Gilead Sciences, is now attracting interest from other sites. "We have been asked to roll it out to Manchester and Modena, and in that case Dublin will be the hub in a hub-and-spoke type model," says Dr O'Connor. "And we have had interest from Sydney, they also want to implement this type of project."

And the ultimate aim of the Mater project is to prove that screening can be done, even in a challenging environment like an Emergency Department.: "The ultimate short-term impact would be to argue with health policymakers to say that this is a good idea, we have proven it works, we think you should fund this."

Dr Gerard O'Connor with the M-BRiHT screening kit at the Mater Hospital Emergency Department

Injecting drug users

Injecting drug users are a high-risk group for HIV infection as well as several other clinical problems, but this group is poorly described in the medical literature, according to Dr O'Connor. So another branch of his research is looking to analyse that cohort in the Mater's Emergency Department more closely.

"We have a lot of injecting drug users in the Mater - unfortunately they get caught up in this spiral and for many of them, they never had a chance," he says.

The new project, PRESIDNT (Prospective Epidemiological Study in to Injecting Drug Users in North Dublin), will build on preliminary research at the Mater and will build up one of the largest cohorts of its type in the world, explains Dr O'Connor.

A key outcome will be to understand the types of infection that injecting drug users are likely to experience. "Most of the previous literature would say injecting drug users are infected with Gram positive bacteria, but we have found a lot of Gram negative organisms, so we want to explore that further," says Dr O'Connor. "Also many of them develop pneumonia, so we are looking into maybe vaccinating them as soon as they come to the Emergency Department."

More generally, he would like to build up evidence for prioritising certain types of care for injecting drug users who present. "I would like to see some mechanism where anyone coming to an Emergency Department with injecting drug use is by definition high risk for death, so we could perhaps have more effective intervention perhaps with an improved linkage to community services."

Quenching the flames of inflammation

Prof Cormac Taylor speaks to Claire O'Connell about how his research group is exploring new ways to target chronic inflammation - which is associated with disorders such as inflammatory bowel disease and cancer.

Professor Cormac Taylor and members of his research team at UCD Conway

What do inflammatory bowel disease, rheumatoid arthritis, cardiovascular disease and cancer have in common? Apart from being debilitating - and in some cases even fatal - conditions, they are all linked through a common process: inflammation. In each case, cells and tissues have turned on chronic inflammatory responses in a way that promotes disease rather than protection.

Prof Cormac Taylor and colleagues at UCD School of Medicine and Medical Science are looking at new ways to dampen down chronic inflammation by making tissues think they have no oxygen to keep that fire burning.

A fine balance between protection and disease

We need inflammation to some extent - it's a front-line response to a threat or injury in the body, explains Prof Taylor. "Inflammation is important because it represents our innate ability to deal with invading organisms – bacteria, viruses and other pathogens which can make their way into our bodies," he says. "They represent a threat to our continued health and existence if we can't deal with them and eliminate them from our body."

Our immune system primarily tackles these potential threats by triggering inflammation, which can kill and eradicate organisms that might be there to cause us harm, he adds. But if the inflammation becomes chronic, or if it flares up in response to our own tissues rather than a real threat, that can cause damage in the longer term.

"Either it is switched on too much or it is not switched off enough but the end point is the same, chronic inflammation," says Prof Taylor. "And that can lead to diseases such as rheumatoid arthritis, IBD, cardiovascular disease and cancer - they all have inflammation at their core."

Dampening the flames

To develop new ways of putting out the fire of chronic inflammation, Prof Taylor is looking at the role of oxygen in affected tissues, particularly in IBD.

"In IBD the inflammatory response becomes overstimulated and large parts of the intestine become chronically inflamed," he explains. "And quite often this means that people have to have that part of their intestine removed."

Prof Taylor has been looking at what happens to oxygen levels in these inflamed cells and tissues. "When a tissue becomes chronically inflamed, because of all this immunological activity trying to eradicate the invading bacteria a lot of oxygen is used up and the tissue becomes starved of oxygen," he says. "What we have found in our lab is that depletion in oxygen actually helps to control the inflammatory response."

> *"We need inflammation to some extent - it's a front-line response to a threat or injury in the body."*

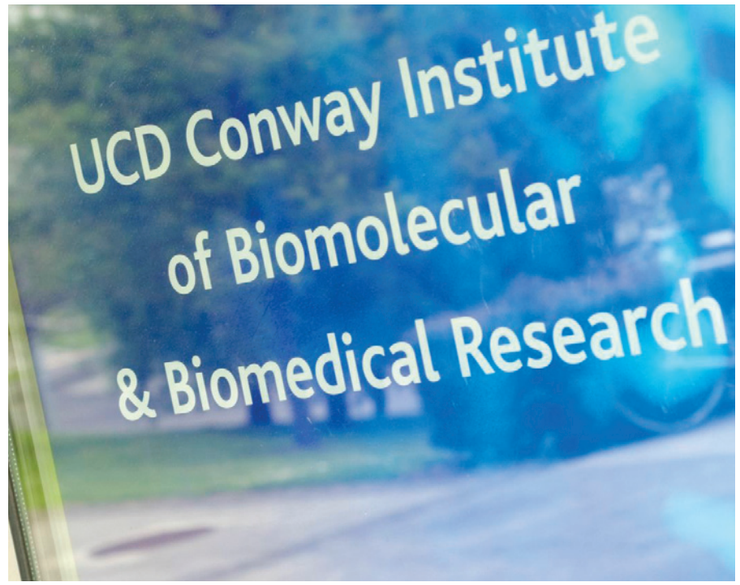
So could we trick tissues into thinking their oxygen is low and so trigger this protection? It turns out that, in the lab at least, this works.

"When a tissue becomes deprived of oxygen it switches on an adaptive response to help deal with inflammation," says Prof Taylor.

His group at UCD has found that making cells and tissues 'think' they are running low on oxygen can trigger a protective response. "By using drugs to mimic this drop in oxygen in the tissue we can induce the tissue to heal itself and turn on protective mechanisms," he explains.

Meanwhile other studies are evaluating such 'hypoxia mimetic' drugs in early clinical trials in patients, and so far the signs are positive, according to Prof Taylor. "The approach has been shown to be safe in terms of administration, and we are really only starting to get an understanding of the clinical utility of these drugs, but the next few years will be very exciting in terms of looking at the outcomes of clinical trials in IBD patients - which we hope of course to be positive," says Prof Taylor.

"And the observations that we have made and the potential clinical importance of these discoveries are not restricted to IBD - we are hoping to start off with IBD but maybe expand our therapies to other diseases such as arthritis and other chronic inflammatory disorders."



Top: UCD Conway Institute, Bottom: Lab coats at UCD Conway Institute

Biomarkers to offer a finer focus on prostate cancer

Prof Bill Watson speaks to Claire O'Connell about how recognising chemical signals in a patient's blood is transforming how we diagnose and treat prostate cancer.

Prof Bill Watson and Susie Boyce, PhD Student

This year in Ireland around 2,500 men will be diagnosed with prostate cancer. In the UK, that figure is expected to be around 40,000, and for the US, that number goes up to around 238,000. Some of those men will benefit from treatment and some might do better without treatment - but how can you tell?

Prof Bill Watson and colleagues are looking at potential 'biomarkers' or biochemical signals in a patient's blood that can help to inform what course of treatment would suit their disease.

"One of the biggest clinical issues at the moment with prostate cancer is around its overdiagnosis and overtreatment," explains Prof Watson, who is Associate Prof of Cancer Biology at UCD School of Medicine & Medical Science.

The standard diagnostic marker for prostate cancer is PSA (prostate specific antigen), which is detectable in the blood, but there is plenty of room for improvement in stratifying patients for appropriate treatments, according to Prof Watson.

"There is this concept of an indolent form of prostate cancer – where a man may have the disease but it is not going to progress within his life span due to its slow progression," he says. "And there is also clearly a more progressive, aggressive form of the disease. So our work is not trying to come up with better tests of prostate cancer, but to actually be able to stratify patient who are diagnosed into those men who need to be treated and those men who would not benefit from treatment at that time."

Banking on Research

In order to look for potential biomarkers, Prof Watson is working with clinicians and patients, and he is Principal Investigator of the Prostate Cancer Research Consortium, which is funded through the Irish Cancer Society.

"Our research is hypothesis driven," he says. "But these hypotheses are informed by the clinical unmet need they are facing when treating patients. There is a strong translational aspect to what we do, and through the PCRC we have put together a bioresource of material from men who are being treated for the disease."

Around 800 patients have now donated samples to the prostate cancer bioresource, which is administered by research nurses. The initiative collects tissue and blood samples from consenting men undergoing prostate surgery at the Mater, St James's and Beaumont Hospitals in Dublin. "We don't know the identity of the patients - the samples are coded - but the clinicians and nurse follow the progress of these patients over time," explains Prof Watson, whose research takes serum and plasma from the banked blood samples and looks for proteins that could help to predict the course of the disease.

Informative Panels

Mining into the biobanked blood samples has already yielded more than 60 proteins of interest - mainly linked with the body's response to a tumour - that seem to stratify patients into having indolent or aggressive disease, explains Prof Watson.

"Around 800 patients have now donated samples to the prostate cancer bioresource"

Researchers at UCD have now whittled those candidates down to smaller panels of potential biomarkers, and their work links in with other groups who are analysing the samples using different approaches. The potential biomarkers are now being put through their paces in international biobanks, being further validated against patient samples where the outcomes are known. And in parallel, the UCD researchers are developing a single assay to measure the proteins in question, which will form the basis of a commercial kit.

Prof Watson led a UCD team of Movember campaigners who raised nearly €10,000 in 2012

Prof Watson's lab at UCD Conway Institute

Any biomarker approach would also need to be integrated into current clinical markers, adds Prof Watson. "At the moment a clinician will take a biopsy, do a digital rectal exam and look at PSA, and we will look at integrating the stratification biomarkers with these current tests," he explains.

"We are looking to develop commercial software that could sit on a urologist's desk, and the clinician could put in the data with the patient and determine what the most appropriate course of action is."

Future Directions

As well as searching for predictive biomarkers of indolent and aggressive disease, Prof Watson and colleagues are looking for molecular clues about why advanced tumours sometimes develop resistance against drug treatments. The work, which is funded by Science Foundation Ireland through Molecular Therapeutics for Cancer in Ireland, has now identified two proteins - both transcription factors - that appear to have key roles, and these could ultimately provide drug targets, he explains. "It further demonstrates the importance of collaborative multi-disciplinary and trans-institutional networks in addressing clinical and scientific questions."

Other sources of funding for Prof Watson's research include the Health Research Board, the Prostate Cancer Foundation in the US and Movember's global fund. The latter supports a collaborative group called ToPCaP, which links UCD and the PCRC with researchers in the UK, Sweden, Italy, Iceland and the US. That group is looking at not only biomarkers but also how different cell types in the prostate interact in cancer and even the role of exercise on treatment outcomes. "Exercise is an emerging area," says Prof Watson. "We want to look at the mechanisms by which exercise decreases side-effect profiles of therapies for prostate cancer, and ultimately outcome."

Academic Centres

UCD Centre for Research in Infectious Diseases

The UCD Centre for Research in Infectious Diseases (CRID), established and directed by Prof William W. Hall, is located in a dedicated research building in UCD. This is specifically designed for research on the pathogenesis of a range of infectious diseases. This centre has Biosafety level 2 (BL2) and BL3 (+) containment facilities and dedicated fully equipped laboratories for molecular virology, cellular biology and immunology.

Director

Prof William Hall

01 716 1236 / william.hall@ucd.ie

UCD Centre for Research in Infectious Diseases

Research Team

Prof William Wall
Professor of Microbiology

Dr Virginie Gautier
Principal Investigator, Infectious Diseases

Dr Noreen Sheehy
Lecturer in Molecular Virology

UCD CRID currently comprises several Principal Investigators and research groups with projects focusing on many aspects of the pathogenesis, immunology and epidemiology of HIV-1, HTLVs, HCV and other human viral infections. Importantly, CRID benefits from a close relationship with the UCD National Virus Reference Laboratory (NVRL), where there are joint research studies and a sharing of resources and expertise. Current and past research programmes are supported by Irish Aid, the Atlantic Philanthropies, Wellcome Trust, Japanese Foundation for AIDS Prevention, Science Foundation Ireland (SFI), Health Research Board (HRB), Irish Research Council(formerly IRSCET) and by UCD-seed funding.

The Ireland Vietnam Blood Borne Virus Initiative (IVVI) is a collaborative programme between UCD and the National Institute of Hygiene and Epidemiology (NIHE) in Hanoi. The programme aims to develop capacity in clinical and diagnostic virology and virus research in Vietnam through infrastructure development and specialized training programmes. The concept was developed by Professor William Hall, Director of CRID, in response to the significant morbidity and mortality associated with blood borne virus (BBV) infections in Vietnam. Initial studies which have been recently published have focused on the molecular epidemiology and analysis of HIV and Hepatitis B and C viruses (HBV, HCV) in Vietnam, which have highlighted the extraordinary diversity of viral species there. The initiative has also been involved in molecular analysis of Dengue and Chikungunya viruses in Vietnam and has demonstrated dynamic changes in circulating Dengue virus serotypes which have significant implications for clinical outcomes.

The Molecular Reference and Research Unit (MRU) carries out molecular epidemiological and pathogenesis studies on a range of blood-borne and respiratory viruses, viral drug resistance and tropism assays and performs World Health Organisation (WHO) surveillance work on influenza, measles, mumps and rubella viruses. Recent research programmes have also focused on developing molecular assays for arbovirus infections (Dengue and Chikungunya viruses).

The Host-virus Interaction Mapping Programme aims at characterising at the molecular and functional levels, interactions between key human viruses (HCV, HTLV-1, HTLV-2 and HIV-1) and the host cellular machinery. To delineate the host-virus interface, we have developed an expanding portfolio encompassing a wide array of tools for cellular biology, molecular virology combined with proteomic and metabolomic approaches.

The Viral Pathogenesis Programme has focused on transgenic and SCID mouse models of adult T cell leukemia (ATL) which is caused by HTLV-1 infection. The studies which are in collaboration with the National Institute of Infectious Diseases (NIID) in Tokyo are designed to identify specific molecular events in disease development so as to design focused treatments for this disease. These have focused on the role of cancer stem cells and have allowed the development of new targeted therapeutics and which are currently being studied in human clinical trials.

Prof William Hall
Professor of Microbiology

Location: UCD Centre for Research in Infectious Diseases
Contact: 01 716 1236
Email: william.hall@ucd.ie

My research interests are focused on viral pathogenesis and specifically involve blood-borne viruses including HIV-1, HTLV-1, HBV and HCV. In terms of the former two viruses the studies have focused on understanding details of virus replication using proteomic approaches. Studies on HBV and HCV are focused on molecular epidemiology.

I am also the founder of the Ireland Vietnam Blood Borne Virus Initiative (IVVI) (www.ivvi.ie) which is a collaborative programme between University College Dublin and the National Institute of Hygiene and Epidemiology (NIHE) in Hanoi. I am also co-founder of the Global Virus Network (www.gvn.org).

For more information about UCD Centre for Research in Infectious Diseases, and for a list of current and future initiative, please visit the School's award-winning website, available at http://www.ucd.ie/medicine/ourresearch/researchcentres/ucdcentreforresearchininfectiousdiseases/

Dr Noreen Sheehy
Lecturer in Molecular Virology

Location: UCD Centre for Research in Infectious Diseases
Contact: 01 716 1255
Email: noreen.sheehy@ucd.ie

My research area is Molecular Virology and specifically relates to the investigation of the pathogenesis of the human retroviruses human T cell leukemia viruses types 1 and 2 (HTLV-1 and HTLV-2, respectively). HTLV-1 causes adult T cell leukemia/lymphoma (ATLL) and chronic inflammatory disorders while HTLV-2 infection is not linked with specific virus related diseases. One key question that still remains unanswered despite intensive research in this area over the past 35 years is why HTLV-1 gives rise to disease while its closely related counter part HTLV-2 is not clearly associated with cancer development. The identification and characterization of key virus/host interactions that contribute to ATLL in individuals infected with HTLV-1 but not HTLV-2 has been the focus of much my HTLV research to date. The overall goal of such work is not only to provide insights into the different clinical outcomes of HTLV infections but also to identify and characterize key cellular players in ATLL and chronic inflammatory disorders.

Dr Virginie W. Gautier
Principal Investigator, Infectious Diseases

Location: UCD Centre for Research in Infectious Diseases Contact: 01 716 1229
Email: virginie.gautier@ucd.ie

Our research programme focuses on HIV/AIDS molecular pathogenesis:

- HIV-1-Host interface: We employ system-wide approaches to dissect the intricate interface between HIV and its host, to delineate how HIV-1 highjacks the cellular machinery.
- HIV-1 Latency: We are investigating the role of novel epigenetic mechanisms regulating HIV latency/reactivation, in an effort to accelerate HIV cure research.
- Subcellular trafficking of viral proteins: We focus on how HIV-1 proteins highjacks transport pathways in order to transit across heterogeneous subcellular compartments.

Grants:

Title: SIN3/HDAC complex transcriptional silencing activities at the HIV-1 LTR: Novel mechanistic insights into the epigenetic control of HIV-1 post-integration latency
Funder: Health Research Board (HRB)
Start/End Dates: 01-DEC-12 / 01-JUN-14
Amount: €77,527.93

Title: SIN3/HDAC complex transcriptional silencing activities at the HIV-1 LTR: Novel mechanistic insights into the epigenetic control of HIV-1 post-integration latency
Funder: Health Research Board (HRB)
Start/End Dates: 01-JAN-11 / 31-DEC-13
Amount: €259,026.07

Title: A targeted RNAi screen to uncover cellular signaling molecules involved in HIV latency
Funder: University College Dublin (UCD)
Start/End Dates: 01-MAY-12 / 31-OCT-13
Amount: €10,000.00

Title: Deconstructing HIV-1 latency to uncover novel signaling molecules involved in HIV-1 latency
Funder: Irish Research Council (IRC)
Start/End Dates: 01-OCT-12 / 30-SEP-15
Amount: €72,000.00

Publications:

1. Ahlén G, Chen A, Roe B, Falkeborn T, Frelin L, Hall WW, *et al.* Limited effect on NS3-NS4A protein cleavage after alanine substitutions within the immunodominant HLA-A2-restricted epitope of the hepatitis C virus genotype 3a non-structural 3/4A protease. *J Gen Virol* 2012,**93**:1680-1686.

2. Crowley A, Connell J, Schaffer K, Hall W, Hassan J. Is there diagnostic value in detection of immunoglobulin g antibodies to the epstein-barr virus early antigen? *Biores Open Access* 2012,**1**:291-296.

3. De Gascun CF, Waters A, Regan CM, O'Halloran J, Farrell G, Coughlan S, et al. Human immunodeficiency virus type 1 in Ireland: phylogenetic evidence for risk group-specific subepidemics. *AIDS Res Hum Retroviruses* 2012,**28**:1073-1081.

4. Dunford L, Carr MJ, Dean J, Nguyen LT, Ta Thi TH, Nguyen BT, *et al.* A multicentre molecular analysis of hepatitis B and blood-borne virus coinfections in Viet Nam. *PLoS One* 2012,**7**:e39027.

5. Dunford L, Carr MJ, Dean J, Waters A, Nguyen LT, Ta Thi TH, *et al.* Hepatitis C virus in Vietnam: high prevalence of infection in dialysis and multi-transfused patients involving diverse and novel virus variants. *PLoS One* 2012,**7**:e41266.

6. Gu L, Tsuji T, Jarboui MA, Yeo GP, Sheehy N, Hall WW, *et al.* Intermolecular masking of the HIV-1 Rev NLS by the cellular protein HIC: novel insights into the regulation of Rev nuclear import. *Retrovirology* 2011,**8**:17.

7. Hassan J, Dean J, Moss E, Carr MJ, Hall WW, Connell J. Seroepidemiology of the recent mumps virus outbreaks in Ireland. *J Clin Virol* 2012,**53**:320-324.

8. Jarboui MA, Bidoia C, Woods E, Roe B, Wynne K, Elia G, *et al.* Nucleolar protein trafficking in response to HIV-1 Tat: rewiring the nucleolus. *PLoS One* 2012,**7**:e48702.

9. Jarboui MA, Wynne K, Elia G, Hall WW, Gautier VW. Proteomic profiling of the human T-cell nucleolus. *Mol Immunol* 2011,**49**:441-452.

10. Luu QP, Dean J, Do TT, Carr MJ, Dunford L, Coughlan S, *et al.* HIV type 1 coreceptor tropism, CCR5 genotype, and integrase inhibitor resistance profiles in Vietnam: implications for the introduction of new antiretroviral regimens. *AIDS Res Hum Retroviruses* 2012,**28**:1344-1348.

11. Mannonen L, Vainionpää R, Kauppinen J, Lienhard R, Tritten ML, Cannon G, *et al.* Evaluation of multiplex polymerase chain reaction and microarray-based assay for rapid herpesvirus diagnostics. *Diagn Microbiol Infect Dis* 2012,**73**:74-79.

12. Marban C, McCabe A, Bukong TN, Hall WW, Sheehy N. Interplay between the HTLV-2 Tax and APH-2 proteins in the regulation of the AP-1 pathway. *Retrovirology* 2012,**9**:98.

13. Shi W, Carr MJ, Dunford L, Zhu C, Hall WW, Higgins DG. Identification of novel inter-genotypic recombinants of human hepatitis B viruses by large-scale phylogenetic analysis. Virology 2012,**427**:51-59.

14. Shi W, Freitas IT, Zhu C, Zheng W, Hall WW, Higgins DG. Recombination in hepatitis C virus: identification of four novel naturally occurring inter-subtype recombinants. *PLoS One* 2012,**7**:e41997.

Related Content
Ireland Vietnam Blood Borne Virus Initiative (IVVI)

The IVVI is a collaborative program between University College Dublin (UCD) and the National Institute of Hygiene and Epidemiology (NIHE) in Hanoi. The programme, which began in 2007, aims to develop capacity in clinical and diagnostic virology and virus research in Vietnam through infrastructure development and specialized training programmes. The concept was developed by Professor William Hall, Director of CRID in response to the significant morbidity and mortality associated with blood borne virus (BBV) infections in Vietnam. Professor Hall is partnered in the IVVI by Professor Hien Tran Nguyen, the Director of NIHE. Dr Lan Anh Thi Nguyen, Head of the Laboratory of Molecular Biology and Immunology at NIHE oversees

The initiative has established specific MSc and PhD training programmes for Vietnamese staff and has constructed a custom-built laboratory building (IVVI Building) on the NIHE Campus which is furnished with state of the art equipment for virus diagnostics and research. Staff at NIHE and CRID are currently carrying out large scale epidemiological studies on BBV infections in Vietnam. The ultimate goal of the IVVI is to inform and develop public health initiatives to prevent and treat BBV infections in Vietnam.

UCD Diabetes Complications Research Centre

The UCD Diabetes Complications Research Centre (DCRC) investigates the microvascular complications of diabetes. Our work focuses on identifying novel drivers of disease progression, regression and genetic susceptibility with a view to identifying and developing innovative therapeutic paradigms and biomarkers.

Director

Prof Catherine Godson
01 716 6731 / catherine.godson@ucd.ie
UCD Conway Institute of Biomolecular & Biomedical Research

Research Team

Prof Catherine Godson
Professor of Molecular Medicine

Dr John Crean
Lecturer in Pharmacology

Prof Carel Le Roux
Head of Pathology/Professor of Experimental Pathology

Prof Finian Martin
Emeritus Associate Professor of Pharmacology

Dr Yvonne O'Meara
Senior Lecturer/Consultant Nephrologist

Dr Denise Sadlier
Senior Lecturer/Consultant Nephrologist

Mr Andrew Gaffney
Senior Technician/Lab Manager

Dr Debra Higgins
Research Fellow

Dr Madeline Murphy
Research Fellow

The DCRC comprises a multidisciplinary research group with expertise in molecular cell biology, genetics, bioinformatics, pharmacology, systems biology, chemical pathology and clinical medicine. Investigators at the UCD Conway Institute and the Mater Misericordiae University Hospital 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 Institute of Health (NIH), the Juvenile Diabetes Research Foundation (JDRF), European Renal Association (ERA) and bio pharma industry.

Over the past decade we have applied differential gene expression technologies to identify novel genes expressed in in vitro and in vivo models of diabetic nephropathy [DN] and, importantly, in human renal tissue. Current efforts focus on mining these datasets and probing the regulation of expression and actions of specific molecules. We have identified novel roles for molecules such as the BMP antagonist Gremlin, induced by high glucose-1, IHG-1, a protein that amplifies fibrotic responses in the context of DN and Connective Tissue Growth Factor, a growth factor which drives scarring in the kidney and other organs. As part of an international consortium with investigators at Harvard, Massachusetts Institute of Technology (MIT) and Queen's University Belfast (QUB) we have used genome wide association studies to identify genetic polymorphisms linked to DN, which will help understand the genetic susceptibility to this devastating condition. We have explored the potential of the anti-inflammatory eicosanoid lipoxin to promote resolution and inhibit pathologic responses in models of disease. Thus, we have identified factors that may influence progression of DN and are potential targets for novel therapies including IHG-1, CTGF and Gremlin which exacerbate renal injury and protective lipid mediators such as lipoxins which are protective. These agents target distinct cell types and processes and may also implicated in the pathogenesis of diabetic retinopathy. We have further characterised these and related modulators in order to define the molecular mechanisms underlying DN. Our access to human samples including blood, urine and renal biopsy materials facilitates our efforts to identify those targets most relevant to human disease.

In 2012 noteworthy achievements for DCRC investigators included Prof le Roux's highly prestigious President of Ireland Young Researcher Award, NIH funding for the Diabetes Complications Consortium, EU Marie Curie Outgoing fellowship award to Dr Emma Borgeson to UC San Diego. Investigators were invited to make presentations at several important international conferences including the Keystone Conference on Diabetic Complications (USA), the International Society for Nephrology Conference on Systems Biology of the Kidney (USA), and the International Society for Nephrology Conference on Tubulointerstial Fibrosis (Australia).

Prof Catherine Godson
Professor of Molecular Medicine

Location: UCD Conway Institute
Contact: 01 716 6731
Email: catherine.godson@ucd.ie

I lead an international, multidisciplinary group of investigators including faculty, postdocs, clinical fellows, graduate students and undergraduates whose research focuses on innate immunity and chronic complications of diabetes. Our investigations have identified several novel modulators of disease and potential markers of susceptibility and progression of diabetic nephropathy.

We collaborate closely with biopharma in an open innovation model. I have supervised 16 PhD students to completion and these are now engaged in industry, policy, clinical medicine and academic spheres.

I play a leadership role nationally and internationally including board membership of the Health Research Board, Ireland (2007-2012), the European Medical Research Council (2007-2012) and the Wellcome Trust Physiological Sciences Committee (2006-2009). I was elected to the Royal Irish Academy in 2011.

For more information about the work of DCRC researchers, please visit the School's award-winning website, available at www.ucd.ie/medicine

Dr John Crean
Lecturer in Pharmacology

Location: UCD Conway Institute
Contact 01 716 6747
Email: john.crean@ucd.ie

My research team is primarily focused on understanding the underlying mechanisms regulating microvascular complications of diabetes as a result of longstanding hyperglycemia. New concepts on therapeutic intervention have begun to take hold; in particular the idea that populations of cells within the kidney have the capacity for self-renewal and that by exploiting these stem-cell like properties researchers can aim for effective clinical regression. Evidence suggests that this process involves renewal of cells from a resident "stem cell-like" niche. We are using TGF receptor silencing RNAs and receptor targeting extracellular antagonists to manipulate epithelial cell fate and determining the mechanism through which resident cells can be reprogrammed to effect repair. We work closely with industry partners and clinical colleagues in the University hospitals in a programme that is significantly translational in its ambition, reconciling data from gene expression studies, animal models of disease and cell biology to inform the development of de novo therapeutics

Dr Debra Higgins
Research Fellow

Location: UCD Conway Institute
Contact: 01 716 6947
Email: debra.higgins@ucd.ie

I am a Health Research Board Translational Medicine Fellow investigating the potential of hypoxia-responsive proteins as diagnostic biomarkers for early detection of renal disease and as therapeutic targets for treatment of kidney injury.

Prof Finian Martin
Emeritus Associate Professor of Pharmacology

Location: UCD Conway Institute
Email: finian.martin@ucd.ie

I am an Investigator in the UCD Diabetes Complications Research Centre. I am a molecular cell biologist with interests in TGF-beta super-family signalling in disease progression in diabetic nephropathy and the identification of novel therapeutic targets in and the design of novel therapeutics for DN in this signalling network. I also contribute to gene expression profiling studies in DN.

Dr Madeline Murphy
Research Fellow

Location UCD Conway Institute
Email: madeline.murphy@ucd.ie

My research focuses on differential gene expression in diabetic nephropathy with a view to identifying novel therapeutic targets and mediators of disease progression. Our most recent discoveries include novel fibrosuppressant biomolecules.

Dr Yvonne M. O'Meara
Senior Lecturer/Consultant Nephrologist

Location: Mater Misericordiae University Hospital
Contact: 01 716 4517
Email: yomeara@mater.ie

I am a consultant nephrologist at the Mater Misericordiae University Hospital. My research interests include diabetic nephropathy, the biology of inflammation and fibrosis, and chronic kidney disease. I am a co-supervisor of both MD and PhD students. Our efforts form an important part of the critical link between the bedside and the bench, helping to further the goals of translational research and improving the care delivered to our patients.

Prof Carel le Roux
Head of Pathology/Professor of Experimental Pathology

Location: UCD Conway Institute
Contact: 086 411 7842
Email: carel.leroux@ucd.ie

I was appointed in March 2012 as Head of Pathology. After establishing a successful independent research group within the UCD Diabetes Complication Research Centre I published 20 papers in 2012. I have focussed on translational research and understanding how diabetic kidney disease can be reversed and was the first recipient of the International Federation for Surgery of Obesity's Nicola Scopinaro medal in 2012. I have also been able to take up a variety of editorial positions of peer reviewed journals.

Dr Denise M Sadlier
Senior Lecturer/Consultant Nephrologist

Location: Mater Misericordiae University Hospital
Email: denise.sadlier@ucd.ie

My primary research interest is in chronic kidney diseases including diabetic nephropathy and renal fibrosis. I lead the clinical activities of the DCRC through development of the North Dublin Renal Biobank (along with colleagues from elsewhere) and additional translational activities.

I am a co-investigator in the international GENIE consortium which investigates the genetic susceptibility to diabetic nephropathy.

Researchers Supported:

Dr Madeline Murphy
Dr Fionnuala Hickey
Dr Eoin Brennan
Dr Aisling Kennedy
Dr Caitriona McEvoy
Dr Eileen Nolan
Dr Karl Neff
Dr Aidan Ryan
Mr James Corcoran
Mr Noel Faherty
Ms Karen Nolan
Mr Satnam Surae
Ms Sabrina Jackson
Ms Hayley Beaton
Ms Darrell Andrews
Mr Oisin Gough
Ms Emma Borgeson

More information

The World Health Organisation (WHO) estimates that by 2016 the number of people with diabetes will double from current numbers to 240 million worldwide. Currently the direct cost of healthcare provision to people with diabetes is estimated at over $286 billion and the cost in terms of human suffering is enormous.

In the Republic of Ireland alone it is estimated that up to 14% of the population over 40 years of age has diabetes and that 10% of our healthcare budget is spent treating diabetes and its complications. Every year over 2,000 people in Ireland die from diabetes-related diseases.

Grants:

Title: LOX proteins as predictors of renal disease [Dr Debra Higgins, Career Development Award in Translational Medicine]
Start/End Dates: 1/12/2011 – 30/11/2015
Funder: Health Research Board
Amount: €378,208

Title: Effect of Roche compounds in in vitro and in vivo models of fibrosis
Start/End Dates: 1/02/2011 – 31/1/2013
Funder: Roche Pharmaceuticals
Amount: €89,858

Title: Changes in brain after bariatric surgery
Start/End Dates: 2008-2013
Funder: Diabetes Foundation
Amount: £500,000

Title: Holistic patient benefit after bariatric surgery
Start/End Dates: 2009-2013
Funder: Ethicon Surgery for Patient benefit grant
Amount: £150,000

Title: Mechanisms of immediate glycaemic control after bariatric surgery
Start/End Dates: 2010-2013
Funder: ONO pharmaceutical (2010)
Amount: £270,000

Title: Optimised management of patients with type 2 diabetes before and after bariatric surgery
Start/End Dates: 2011-2013
Funder: Moulton foundation
Amount: £240,000

Title: Functional role of candidate genes emerging from GWAS in Diabetic Nephropathy
Start/End Dates: 2012-2013
Funder: Pilot Grant US Diabetes Complications Consortium [NIH]
Amount: €50,000

Title: Novel approaches targeting renal fibrosis
Start/End Dates: 2012-2015
Funder: Hoffman LaRoche PostDoctoral Fellowship Award
Amount: €280,000

Title: Solving CKD
Start/End Dates: 2012-2015
Funder: EU Marie Curie International Mobility Fellowship to Dr Emma Borgeson
Amount: €270,000

Title: GWAS in Diabetic Nephropathy
Start/End Dates: 2009-2014
Funder: SFI US-Ireland R&D Partnership Award Co-funded NIH [PI Hirschhorn, Broad Institute MIT] NIO [PI Maxwell, QUB]
Amount: €890,000 [to UCD]

Title: The molecular mechanisms underlying the initiation progression and potential regression of diabetic kidney disease
Start/End Dates: 2007-2013
Funder: SFI Investigator Programme Grant
Amount: €2,800,00

Title: Computational design of novel TGF-b superfamily members {Satnam Surae PhD studentship]
Start/End Dates: 2010-2013
Funder: IRCSET Computational Biology PhD Programme
Amount: €75,000

Title: Novel mediators of renal fibrosis [Karen Nolan PhD studentship]
Start/End Dates: 2010-2013
Funder: IRCSET
Amount: €72,000

Title: Gene regulatory networks in Diabetic Nephropathy [Oisin Gough PhD Studentship]
Start/End date: 2012-2016
Funder: Molecular Medicine Ireland
Amount: €100,000

Title: ROS Regulated Gene Expression in Diabetic Nephropathy [Dr Fionnuala Hickey, HRB Post-Doctoral Fellowship Award]
Start/End date: 2010-2013
Funder: HRB
Amount: 278,000

Title: Microparticle regulation of inflammatory responses in kidney disease [Dr Eileen Nolan, European Renal Association Travel Fellowship]
Start/End date: 2012-2013
Funder: ERA/EDTA
Amount: €10,000

Title: A cross-sectional search for genetic determinants of diabetic nephropathy
Start/End date: 2012-2016
Funder: Juvenile Diabetes Federation [US] Diabetes Complications Consortium
Amount: $1,380,000

Publications:

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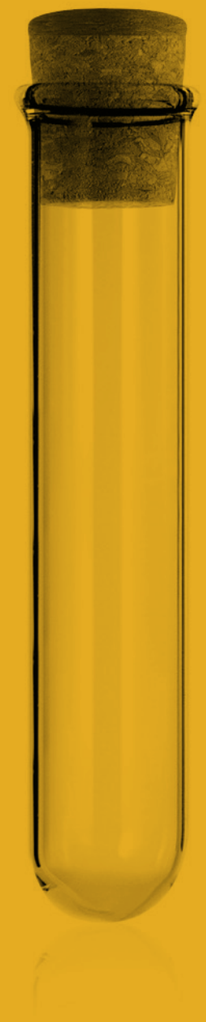
UCD Academic Centre on Rare Diseases



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.

Director

Dr Sean Ennis
01 716 6685 / sean.ennis@ucd.ie
UCD Health Sciences Centre /
National Centre for Medical Genetics

Research Team

Dr Sean Ennis
Lecturer in Medical Genetics

Professor David Barton
Associate Professor

Dr Oliver Blacque
College Lecturer

Dr Paula Byrne
Senior Lecturer in Medical Genetics

Dr Ellen Crushell
Consultant Paediatrician

Dr Patrick Felle
Senior Lecturer/Associate Dean

Prof Andrew Green
Professor of Medical Genetics

Professor Michael Hutchinson
Consultant Neurologist

Dr Breandán Kennedy
Senior Lecturer/Conway Fellow

Prof Mary King
Professor of Paediatrics/Head of Subject

Dr Sally Ann Lynch
Consultant Geneticist/Senior Clinical Lecturer

Professor Eileen Treacy
Consultant in Inherited Metabolic Disorders

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.

Rather than employing the traditional approach of a large, disease-specific research group which focuses on a common disorder, our PIs focus on rare genetic disorders and utilise new tools from the genomics revolution to aid our study of common and rare disorders. We pursue an integrated approach to our work, which involves close collaboration across clinical and research teams. In Ireland there are about 280,000 individuals with a rare disease. In addition, there are approximately 60 identified recessive disorders in the Traveller population. In a pilot study we have completed data analysis on six of ten rare disorders of unknown genetic basis, affecting 25 small Irish families. Of the six studies, the disease mutation has been successfully identified for five families, of which three studies have been published to date, with four translated back into the clinical setting. This translational success demonstrates our ability to identify rare disease genes in small families.

We have recently consolidated our various working groups under one recognisable centre to harness the successful outputs and future studies for UCD. Ireland is required to submit a National Plan for Rare Diseases by 2013. A UCD academic centre on rare diseases iis uniquely positioned to contribute to this plan. The centre aims to make a meaningful contribution in the progression of gene discovery to diagnostics, and ultimately in the cure or prevention of serious genetic conditions.

Dr Sean Ennis
Lecturer in Medical Genetics

Location: UCD Health Sciences Centre / National Centre for Medical Genetics
Contact: 01 716 6685 / 409 6841
Email: sean.ennis@ucd.ie

I am interested in the application of Genomics to genetic diseases. The main focus of my group is to make a meaningful contribution to the field of Human genetics. I am particularly interested in contributing to the progression of gene discovery to diagnostics, and ultimately to the cure or prevention of serious genetic conditions. I have been involved in establishing international collaborative approaches to the study of the genetics of Autism Spectrum Disorder (ASD) and rare genetic diseases.

For more information about the work of UCD researchers working in the area of Rare Diseases, please visit the School's award-winning website, available at www.ucd.ie/medicine

Dr Paula Byrne
Senior Lecturer in Medical Genetics

Location: UCD Conway Institute
Contact: 01 716 6737
Email: paula.byrne@ucd.ie

My main laboratory based research is in Hereditary Spastic Paraplegia (HSP), a group of rare inherited neurodegenerative disorders. In collaboration with St Vincent's University Hospital we have been performing genotype phenotype correlations and identifying and characterising novel causative loci. We have been studying the molecular mechanisms involved in this form of neurodegeneration. I am also interested in optimising methods of educating medical professionals on rare genetic disorders.

Prof Andrew Green
Professor of Medical Genetics

Location: Our Lady's Children's Hospital
Contact: 01 409 6902
Email: andrew.green@ucd.ie

My main interest is the research and clinical application of new genetic technologies in human disease, specifically the genetics of tuberous sclerosis, the genetics of autism, and genetic diseases in the Irish Traveller population. I also have involvement in medical ethics, and am chair of the Irish National Advisory Committee on Bioethics. I was a member of the Irish Council for Bioethics, the Commission for Assisted Human Reproduction and local and national bioethics committees.

Prof Mary King
Professor of Paediatrics/Head of Subject

Location: Our Lady's Children's University Hospital, Temple Street
Contact: 01 878 4309
Email: mary.king@ucd.ie

My research interest has always focused on the causation of neurological disorders in children in the broad sense and recently has focused on three areas: 1) Risk factors in neonatal hypoxic ischaemic encephalopathy 2) The molecular genetics of severe undiagnosed early onset epileptic disorders and Landau Kleffner syndrome (an older age dependent epileptic encephalopathy) 3) Movement disorders : novel genotype-phenotype associations. This research involves collaboration with researchers at UCD (SMMS) Mater and Rotunda Hospitals and internationally.

Dr Sally Ann Lynch
Consultant Geneticist/Senior Clinical Lecturer

Location: Our Lady's Children's Hospital
Contact: 01 409 4110
Email: sally.lynch@ucd.ie

My research interests are in rare disease gene identification and its translation into the clinical setting. New technologies have made it possible to identify disease-causing genes in small families. We have had success in identification of several rare disease genes and have developed simple cost-effective genetic tests, which are currently being translated into the diagnostic laboratory. Some of these disorders are unique to Ireland. Local research is important as researchers can feedback results quickly through grand rounds which generates interest and new collaborations.

Researchers Supported / External Collaborators:

Dr Jillian Casey,
National Childrens Research Centre
Dr Judith Conroy,
Temple Street Children's University Hospital
Dr Harinder Gill,
Nation Centre for Medical Genetics
Dr Tiago R Magalhaes,
National Childrens Research Centre
Dr Paul McGettigan,
UCD School of Agriculture & Food Science
Dr Regina Regan,
National Childrens Research Centre
Dr Nicholas Allen,
Children's University Hospital, Temple Street

Grants:

Title: Identifying the genetic basis of Landau-Kleffner syndrome. Prof Mary King [PI] &Dr Sally Ann Lynch [Children's University Hospital Temple Street].
Start/End Dates: 2011-2012
Funder: Children's Fund for Health Ltd, Children's University Hospital, Dublin 1
Amount: €50,580

Title: Genotype-Phenotype Characterisation of the Undiagnosed Early Onset Epileptic Encephalopathies in an Irish Cohort [Dr Nicholas Allen, Dr SA Lynch, Dr S Ennis, Prof Mary King (PI)] Children's University Hospital Temple Street & University College Dublin
Start/End Dates: 2012/2014
Funder: Children's Fund for Health Ltd, Children's University Hospital, Dublin 1
Amount: €250,000

Title: Clinician Scientist Award for Dystonia research (to Prof Michael Hutchinson)
Start/End Dates: July 2013 – June 2018
Funder: HRB
Amount: €800,000

Title: Investigation into the aetiology of Landau-Kleffner syndrome.
Funder: Children's Fund for Health, Temple Street University Hospital
Applicants: Prof Mary King and Dr Sally Ann Lynch [co-applicant]
Duration: January 2012- November 2012
Amount: €50,892

Title: Knowledge exchange and dissemination scheme for 'Identifying recessive genes for primary ciliary dyskinesia, microcephaly, and cardiomyopathy with retinopathy'
Funder: Health Research Board KEDS scheme
Applicants: Dr Sally Ann Lynch, Dr Jillian Casey, Dr Amanda McCann
Duration: December 2012-November 2013
Amount: €9,999

Title: Identification of the genetic basis of a syndrome causing cleft palate, microcephaly and developmental delay in an Irish Traveller family attending Temple Street Hospital.
Funder: Children's Fund for Health, Temple Street University Hospital
Applicants: Dr Sally Ann Lynch and Dr Jillian Casey
Duration: August 2012-July 2013
Amount: €4,783.33

Funder: Medical Research Charities groups [NCRC/HRB]
Title: Identifying recessive genes for primary ciliary dyskinesia, microcephaly, and cardiomyopathy with retinopathy (salary and dissemination costs only).
Applicants: Dr Sally Ann Lynch, Ms Jillian Casey, Dr Amanda McCann
Duration: October 2011-September 2013
Amount: €95,580

Title: Identifying the genetic basis of three recessive disorders, primary ciliary dyskinesia, microcephaly and cardiomyopathy and retinopathy (consumable costs only).
Funder: Children's Fund for Health, Temple Street University Hospital
Applicants: Dr Sally Ann Lynch, Dr Dubhfeasa Slattery, Ms Jillian Casey
Duration: January 2011-December 2012
Amount: €39,580

Title: Genomics of Paediatric Autism Spectrum Disorder
Start/End Dates: Sept 2011 – Sept 2014
Funder: MRCG/HRB
Amount: €265,905

Title: The characterization of recessive mutations in homozygous haplotypes implicated in Autism Spectrum Disorders
Start/End Dates: Mar 2013- Mar 2016
Funder: MRCG/HRB
Amount: €296,424

Publications:

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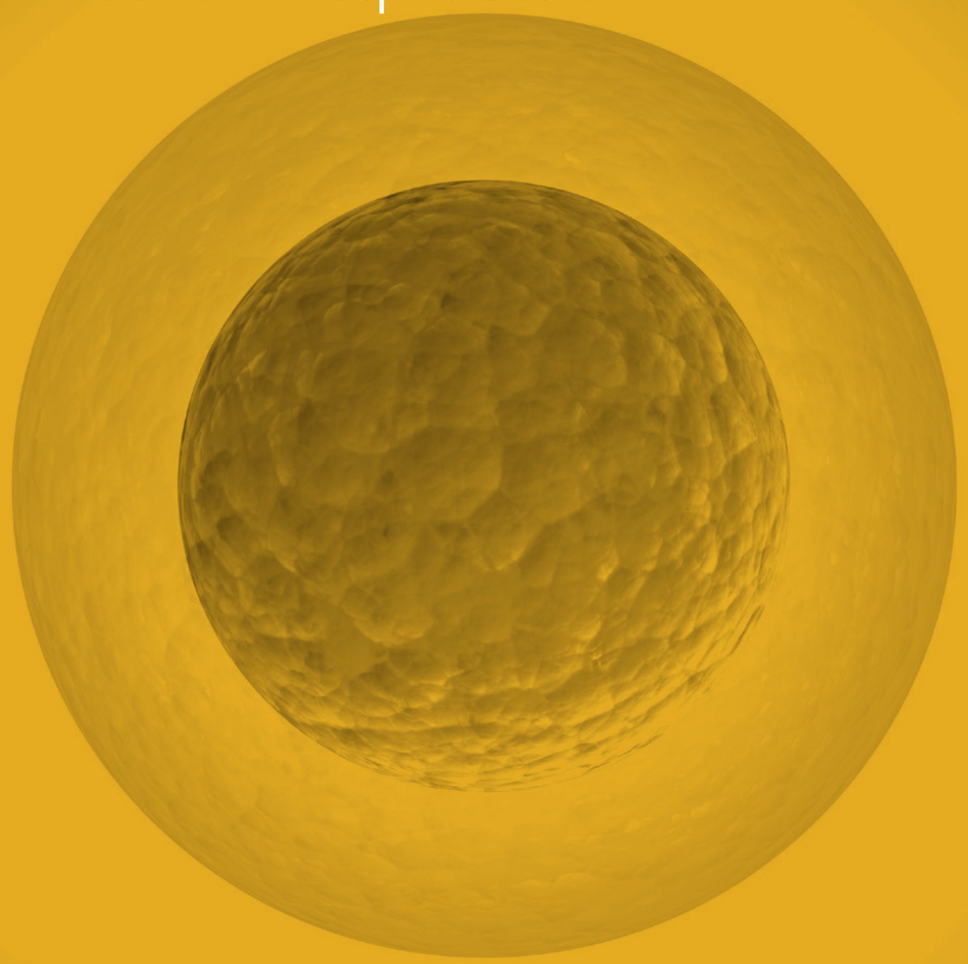
UCD Centre for Human Reproduction



The UCD Centre for Human Reproduction was established in 2007 to conduct clinical research in obstetrics and gynaecology at the Coombe Women and Infants University Hospital. Our present research focus is on maternal obesity and nutrition, intrauterine fetal development and caesarean section.

Director

Prof Michael Turner

01 408 5760 / michael.turner@ucd.ie

UCD Centre for Human Reproduction,

Coombe Women & Infants University Hospital

Research Team

Prof Michael Turner
Consultant and Professor of Obstetrics and Gynaecology

Dr Niamh Daly
Clinical Lecturer

Dr Mairead Kennelly
Senior Lecturer and Consultant in Obstetrics and Gynaecology

Dr Aoife McKeating
Research Fellow

Dr Bernard Stuart
Associate Clinical Professor of Obstetrics

1. Maternal obesity

(a) Due to concerns about rising levels of maternal obesity, new revised American recommendations on gestational weight gain (GWG) were published in 2009 for obese women. There are, however, considerable research gaps on the subject. Dr Amy O'Higgins is conducting an observational longitudinal study on 1,000 women attending for antenatal care.

(b) In association with Professor Layte and using data from the Growing Up in Ireland study, Professor Turner is studying the social and demographic factors which influence postpartum weight retention and the subsequent development of maternal obesity.

(c) In association with Dr Andrew Hogan and Professor Donal O'Shea, Dr Nadine Farah found that specific circulating cytokines such as IL-6, are increased in obese women in the third trimester.

d) Previous meta-analysis reported a two-fold increase in CS rates in obese women. Dr Vicky O'Dwyer completed her MD on CS rates analysed according to maternal adiposity measured using both Body Mass Index and advanced Bioelectrical Impedance Analysis. Increases in CS rates are due to an increase in emergency CS in primigravidas.

2. Maternal nutrition

In association with Dr Bob McDonnell in the HSE (EUROCAT), a comprehensive 3 year national audit of Neural Tube Defects is being conducted. It is expected that the findings will inform future health policies.

3. Intrauterine fetal growth

There is emerging interest in intrauterine fetal programming. Under the supervision of Dr Kennelly, Dr Clare O'Connor is conducting a longitudinal observational study examining the role of fetal pulse wave Doppler and ultrasound measurement of soft tissue markers in evaluating aberrant fetal growth.

4. Caesarean section

In association with Professor Richard Layte from the ESRI, Professor Turner is conducting a 20 year review of the factors that are causing caesarean section rates in Ireland and other developed countries to escalate. The study will combine obstetric outcomes from the Hospital Inpatient Enquiry (HIPE) and the National Perinatal Reporting Systems (NPRS).

Prof Michael Turner
Consultant and Professor of Obstetrics & Gynaecology'

Location: UCD Centre for Human Reproduction, Coombe Women and Infants University Hospital
Contact: 01 408 5760
Email: michael.turner@ucd.ie

Prof Michael Turner is the UCD Prof of Obstetrics and Gynaecology based in the UCD Centre for Human Reproduction at the Coombe Women and Infants University Hospital. He served as Master of the Hospital from 1992-8 and is currently the National Director of the HSE Clinical Programme in obstetrics and gynaecology. Prof Turner's research interests include the management of labour, caesarean delivery, maternal obesity, infertility and intrauterine fetal growth.

For more information about the work of Prof Michael Turner and the UCD Centre for Human Reproduction, please visit the School's award-winning website, available at www.ucd.ie/medicine

Dr Mairead Kennelly
Senior Lecturer in Obstetrics & Gynaecology

Location: UCD Centre for Human Reproduction, Coombe Women and Infants University Hospital
Contact: 01 408 5760
Email: mairead.kennelly@ucd.ie

Dr Mairead Kennelly is the UCD Senior Lecturer in Obstetrics and Gynaecology, Consultant and Subspecialist in Fetal and Maternal Medicine at the Coombe Women and Infants University Hospital. Dr Kennelly's research interests include fetal growth profiles including intrauterine growth restriction and epidemiological review of fetal abnormalities. At present, we are reviewing antenatal maternal and fetal predictors of abnormal fetal growth trajectories. We also establish normograms for fetal cerebral indices.

Grants:

The Cerviva Consortium
(Co-applicant)
HRB €690,000

National variation in caesarean section rates
(Coinvestigator with Prof Richard Layte, ESRI)
HRB €300,000

Dr Bernard Stuart
Associate Clinical Professor of Obstetrics

Location: UCD Centre for Human Reproduction, Coombe Women and Infants University Hospital
Contact: 01 408 5760
Email: bernardstuart@hotmail.com

I am now retired from practice. From 1984-2009 I served as a Consultant in Obstetrics and Gynaecology at the Coombe Women and Infants University Hospital. I was Director of Ultrasound from 1985-2009. I am currently supervising postgraduate students' and MD candidate research. One supervised student successfully achieved MD status in 2012.

Researchers Supported:

Dr Vicky O'Dwyer, Clinical Lecturer
Dr Clare O'Connor, Clinical Research Fellow

Publications:

1. Hogan JL, Anglim B, O'Dwyer V, Farah N, Stuart B, Turner MJ.
Body Mass Index and hypertensive disorders of pregnancy.
Hypertens Pregnancy 2012;**2**:28-31.

2. Leader J, Letshwiti J, Stuart B, Turner MJ, White M, Kennelly MM.
Fetal Hydronephrosis: Optimal renal pelvic measurement to increase detection rate for renal pathology. **IMJ** 2012;**105**:180-2.

3. O'Dwyer V, Farah N, Hogan J, Kennedy C, Kennelly MM, Turner MJ.
Maternal mortality and the rising caesarean section rate. *Int J Gynecol Obstet* 2012;**116**:162-4

4. Kennedy C, O'Dwyer V, O'Kelly S, Farah N, Kennelly MM, Turner MJ.
Thromboprophylaxis for women undergoing caesarean section. *Ir Med J* 2012;**105**:56-7.

5. McGinty P, Farah N, O'Dwyer V, Hogan J, Reilly A, Stuart B, Turner MJ, Kennelly M. Ultrasound assessment of placental function: the effectiveness of placental biometry in a low-risk population as a predictor of a small for gestational age fetus. *Prenatal Diagnosis* 2012; **32**:620-6.

6. Farah N, McGoldrick A, Fattah C, O'Connor N, Kennelly MM, Turner MJ
Body Mass Index and Glucose Intolerance during pregnancy in white European women. *J Reprod Infertil* 2012;**13**:95-99.

7. Farah N, Hogan AE, O'Connor N, Kennelly MM, O'Shea D, Turner MJ.
Correlation between maternal inflammatory markers and fetomaternal adiposity. *Cytokine* 2012;**60**:96-9.

8. O'Connor C, Stuart B, Turner MJ, Kennelly MM.
A case of toxoplasmosis causing severe ventriculomegaly in association with reproductive immunotheraphy. *J Obstet Gynaecol* 2012;**32**:595-6.

9. Kennelly MM, Farah N, Hogan J, Reilly A, Turner MJ, Stuart B. Longitudinal studies on Aortic Isthmus Doppler in appropriately grown and small for gestational age fetuses with normal and abnormal umbilical artery Doppler. *Ultra Obstet Gynecol* 2012;**39**:414-20.

10. O'Dwyer V, Managhan B, Fattah C, Farah N, Kennelly MM, Turner MJ.
Miscarriage after sonographic confirmation of an ongoing pregnancy in women with moderate and severe obesity. *Obes Facts* 2012;**5**:393-8.

11. O'Dwyer V, Farah N, Hogan J, O'Connor N, Kennelly MM, Turner MJ.
Timing of screening for gestational diabetes mellitus in women with moderate and severe obesity. *Acta Obstet Gynecol Scand* 2012;**91**:447-51.

12. O'Dwyer V, Monaghan B, Fattah C, Hogan JL, Kennelly MM, Turner MJ.
Miscarriage after sonographic confirmation of an ongoing pregnancy in women with moderate and severe obesity. *Obesity Facts* 2012;**5**:393-8.

13. O'Connor C, Stuart B, Fitzpatrick C, Turner MJ, Kennelly MM. A review of contemporary modalities for identifying abnormal fetal growth. *J Obstet Gynaecol* 2013;**33**:239-45.

14. Kent E, O'Dwyer V, Fattah C, Farah N, O'Connor C, Turner MJ.
Correlation between birth weight and maternal body composition.
Obstet Gynaecol 2013;**121**:46-50.

15. K Whyte, H Kelly, V. O'Dwyer, M. Gibbs, A O'Higgins, MJ Turner. Offspring birth weight and maternal fasting lipids in women screened for Gestational Diabetes Mellitus (GDM). *Eur J Obstet Gynaecol Reprod Biol* 2013 *[Epub ahead of print].*

16. McVey RM, Clarke E, Joyce P, Turner MJ, Gannon MJ. Toward a wiki guide for obstetrics and gynaecology trainees in Ireland. *Int J Gynaecol Obstet* 2013;**120**:301-6.

17. O'Dwyer V, Layte R, O'Connor C, Farah N, Kennelly MM, Turner MJ.
International variation in caesarean section rates and maternal obesity.
J Obstet Gynaecol 2013;**33**:466-70.

18. O'Connor C, Farah N, O'Higgins A, Segurado R, Fitzpatrick C, Turner MJ, Stuart B, Kennelly MM. Longitudinal measurement of fetal thigh soft tissue parameters and its role in the prediction of birth weight. *Prenat Diagn* 2013 *[Epub ahead of print].*

19. Farah N, Kennedy C, Turner C, O'Dwyer V, Kennelly MM, Turner MJ.
Maternal obesity and pre-pregnancy folic acid supplementation. *Obes Facts* 2013;**6**:211-5.

20. Turner MJ, Layte R. Obesity levels in a national cohort of women 9 months after delivery. *Am J Obstet Gynecol* 2013;**6**:211-5.

21. Fida A, Farah N, O'Dwyer V, Dunlevy F, Turner MJ. The impact of new guidelines on screening for gestational diabetes mellitus. *Ir Med J* 2013;**106**:57-9.

22. O'Dwyer V, Turner MJ. Caesarean section and maternal obesity.
www.intechopen.com/download/pdf/37217

23. Turner MJ. Uterine Rupture (*Chapter*). Munro Kerr's Operative Obstetrics (*12th edition*). Saunders Elsevier 2013 (*in press*).

24. White C, Keegan H, Pilkington L, Ruttle C, Kerr P, Sharp L, O'Toole S, Turner MJ, Prendiville W, D'Arcy T, Fitzpatrick M, Lenehan P, Flannelly G, O' Leary J, Martin C. Evaluation of the clinical performance of the cobas® 4800 1 HPV test in a colposcopy referred population. *J Clin Microbiol* 2013 Jul 31. *[Epub ahead of print]*

25. O'Dwyer V, Bonham S, Mulligan A, O'Connor C, Farah N, Kennelly MM, Turner MJ. Antenatal rubella immunity in Ireland. *IMJ (in press).*

26. O'Higgins A, Dunne F, Lee B, Smith D, Turner MJ. A national survey of implementation of guidelines for gestational diabetes mellitus. *IMJ (in press).*

Research Groups

Clinical Bioinformatics

The Clinical Bioinformatics group focuses on basic computational research underlying peptide therapeutic development, and on clinically relevant genetic variation. Peptide development focuses on platelet, cancer, infection and food areas, while genetic studies include cardiovascular and autism genetics, with a particular focus on genetic combination effects.

Group Head

Prof Denis Shields
01 716 5344 / denis.shields@ucd.ie
Belfield Office Park

Research Team

Prof Denis Shields
Professor of Clinical Bioinformatics

Dr Anthony Chubb
Bioinformatics PhD Programme Manager

We are physically located in the Complex and Adaptive Systems Laboratory, currently in Belfield Office Park, which has help drive collaborations with computer scientists (CLIQUE network analysis cluster; machine learning) and physicists (molecular modelling). We are a multidisciplinary group focussed on computational analysis and modelling of biological and clinical processes (see http://bioinfo-casl.ucd.ie/shields/ for more details of our group's members backgrounds activities and interests).

Activities 2012:

(1) We have expanded our cardiovascular genetics collaborations allowing us to pool resources with consortia of collaborators in Europe and US, so that genetic discoveries in the Anglo-Scandinavian Coronary Outcomes Trial (ASCOT) may be replicated elsewhere. Our genetic collaborations with various groups have advanced understanding of genetic factors in cardiovascular disease, renal transplant and autism, including ongoing collaborations with the UCD and TCD autism research groups of Sean Ennis and Louise Gallagher.

(2) We have been active in software development for the prediction of short protein and peptide motif regions likely to contribute to bioactivity. Further details of this publically available software may be accessed at our web server, http://bioware.ucd.ie. This software is used extensively by researchers worldwide.

(3) We completed a survey of novel protein motifs in man, and this published resource (Molecular Biosystems vol 8 pp282-295, 2012) makes our findings available to the scientific research community interested in discovering new roles for short protein regions involved in controlling protein-protein interactions, signalling, and other processes. We continued researches into better understanding the role of disordered regions in proteins.

(4) We continued to investigate experimentally the role of peptides predicted from our computational predictions, in collaboration with Niamh Moran, RCSI. A particular focus is on the integrin and cadherin adhesion complexes, which play key roles in thrombosis, cancer and other processes.

(5) Our involvement in the Food for Health Ireland (FHI) collaboration with industry and academia partners in Ireland has helped to characterise and prioritise particular food hydrolysates for further investigation, based on analysis of their peptide content by mass spectrometry, in parallel with computational prediction and testing of active synthetic peptides.

(6) We initiated the ICON Newman Genomics Fellowship funded by ICON plc. The fellow is exploring the role of genetic factors in complex disease.

The results of our findings were presented at international conferences and in the peer-reviewed literature.

Prof Denis Shields
Professor of Clinical Bioinformatics

Location: Belfield Office Park
Contact: 01 716 5344
Email: denis.shields@ucd.ie

I am a Computational biologist focusing on physical interactions mediated by short protein regions, that can be translated into bioactive peptides acting as therapeutic lead compounds, especially in cancer. My interest is in functional interactions of peptides, and of inherited synergistic variants (polymorphisms).

I direct the interdisciplinary Bioinformatics & Systems Biology PhD programme (>€5M funding) and am deputy director of the Wellcome Trust Computational Infection Biology PhD programme (more than €3M funding).

Dr Anthony Chubb
Bioinformatics PhD Programme Manager

Location: Belfield Office Park
Contact: 01 716 5390
Email: anthony.chubb@ucd.ie

My pre-doctoral training is in molecular and cellular biology. My post-doctoral training includes structural biology, chemoinformatics and computer-aided drug design. I am currently developing high thoughput methods for drug discovery in malaria - FightMalaria@Home (http://www.fightmalaria.org/).

Active national and international collaborators & projects:

Prof Des Higgins, UCD Conway Institute
Dr Ger Cagney, UCD Conway Institute
Prof Finian Martin, UCD Conway Institute
Dr Gianluca Pollastri, UCD Complex & Adaptive Systems
Dr Sean Ennis, UCD School of Medicine & Medical Science
Dr Seamas Donnelly, UCD School of Medicine & Medical Science
Dr Glen Doherty, St Vincent's University Hospital
Dr Louise Gallagher, Trinity College Psychiatric genetics
Dr Niamh Moran, Royal College of Surgeons in Ireland, Platelet biology
Dr Marc Devocelle, Royal College of Surgeons in Ireland,Peptide synthesis
Dr Gianpiero Cavelleri/Prof Peter Conlon, Royal College of Surgeons in Ireland, Genetics of renal transplant
Dr Alice Stanton, Royal College of Surgeons in Ireland, Cardiovascular genetics
Dr Ronen Zaidel Bar, Integrin/cadherin biology, National University of Singapore
Mrs Alessandra Bianchin, PhD

Grants:

Title: The co-evolution of human, bifidobacteria, and milk as a means for the discovery of novel therapeutic strategies
Funder: Irish Research Council for Science Engineering and Technology (IRCSET)
Start/End Dates: 10-SEP-10 / 31-JAN-13
Amount: €180,000

Title: Functional Food Centre (WP1)
Funder: Enterprise Ireland (EI)
Start/End Dates: 01-JUN-08 / 31-MAY-13
Amount: $260,000

Title: Towards the druggable interactome: bioinformatic analysis of protein
Funder: Science Foundation Ireland (SFI)
Start/End Dates: 01-JAN-09 / 31-DEC-13
Amount: €1,100,000

Title: Bioinformatics and Computational Biomedicine PhD Programme
Funder: Irish Research Council for Science Engineering and Technology (IRCSET)
Start/End Dates: 01-OCT-07 / 31-DEC-15
Amount: €5,400,000

Title: Prof of Clinical Bioinformatics Start-up Funding
Funder: UCD Conway Institute
Start/End Dates: 01-OCT-05 / 30-JUN-15
Amount: €239,000

Title: ICON Newman Fellowship in Genomics
Funder: UCD Foundation/ICON plc
Start/End Dates: Aug 2012 - July 2014
Amount: €100,000

Publications:

1. Alendé N, Nielsen JE, Shields DC, Khaldi N. Evolution of the isoelectric point of mammalian proteins as a consequence of indels and adaptive evolution. *Proteins* 2011,**79**:1635-1648.

2. Casey F, Krogan N, Shields DC, Cagney G. Distinct configurations of protein complexes and biochemical pathways revealed by epistatic interaction network motifs. *BMC Syst Biol* 2011,**5**:133.

3. Casey JP, Magalhaes T, Conroy JM, Regan R, Shah N, Anney R, *et al.* A novel approach of homozygous haplotype sharing identifies candidate genes in autism spectrum disorder. *Hum Genet* 2012,**131**:565-579.

4. Davey NE, Cowan JL, Shields DC, Gibson TJ, Coldwell MJ, Edwards RJ. SLiMPrints: conservation-based discovery of functional motif fingerprints in intrinsically disordered protein regions. *Nucleic Acids Res* 2012,**40**:10628-10641.

5. Deshmukh HA, Colhoun HM, Johnson T, McKeigue PM, Betteridge DJ, Durrington PN, *et al.* Genome-wide association study of genetic determinants of LDL-c response to atorvastatin therapy: importance of Lp(a). *J Lipid Res* 2012,**53**:1000-1011.

6. Dorschner KV, Toomey D, Brennan MP, Heinemann T, Duffy FJ, Nolan KB, *et al.* TIN - A Combinatorial Compound Collection of Synthetically Feasible Multicomponent Synthesis Products. *J Chem Inf Model* 2011.

7. Duffy FJ, Verniere M, Devocelle M, Bernard E, Shields DC, Chubb AJ. CycloPs: generating virtual libraries of cyclized and constrained peptides including non-natural amino acids. *J Chem Inf Model* 2011,**51**:829-836.

8. Haslam NJ, Shields DC. Peptide-binding domains: are limp handshakes safest? *Sci Signal* 2012,**5**:pe40.

9. Haslam NJ, Shields DC. Profile-based short linear protein motif discovery. *BMC Bioinformatics* 2012,**13**:104.

10. Khaldi N, Shields DC. Shift in the isoelectric-point of milk proteins as a consequence of adaptive divergence between the milks of mammalian species. *Biol Direct* 2011,**6**:40.

11. Lanktree MB, Guo Y, Murtaza M, Glessner JT, Bailey SD, Onland-Moret NC, *et al.* Meta-analysis of Dense Genecentric Association Studies Reveals Common and Uncommon Variants Associated with Height. *Am J Hum Genet* 2011,**88**:6-18.

12. Lombardi F, De Chaumont C, Shields DC, Moran N. Platelet signalling networks: pathway perturbation demonstrates differential sensitivity of ADP secretion and fibrinogen binding. *Platelets* 2012,**23**:17-25.

13. Montanari F, Shields DC, Khaldi N. Differences in the number of intrinsically disordered regions between yeast duplicated proteins, and their relationship with functional divergence. *PLoS One* 2011,**6**:e24989.

14. Mooney C, Davey N, Martin AJ, Walsh I, Shields DC, Pollastri G. In silico protein motif discovery and structural analysis. *Methods Mol Biol* 2011,**760**:341-353.

15. Mooney C, Haslam NJ, Pollastri G, Shields DC. Towards the improved discovery and design of functional peptides: common features of diverse classes permit generalized prediction of bioactivity. *PLoS One* 2012,**7**:e45012.

16. Rue-Albrecht K, Shields DC, Khaldi N. Correlation of disorder between S. cerevisiae interacting proteins. *Mol Biosyst* 2012,**8**:417-425.

17. Stavropoulos I, Khaldi N, Davey NE, O'Brien K, Martin F, Shields DC. Protein disorder and short conserved motifs in disordered regions are enriched near the cytoplasmic side of single-pass transmembrane proteins. *PLoS One* 2012,**7**:e44389.

18. Sudol M, Shields DC, Farooq A. Structures of YAP protein domains reveal promising targets for development of new cancer drugs. *Semin Cell Dev Biol* 2012,**23**:827-833.

19. Vangjeli C, Dicker P, Tregouet DA, Shields DC, Evans A, Stanton AV, *et al.* A polymorphism in ACE2 is associated with a lower risk for fatal cardiovascular events in females: the MORGAM project. *J Renin Angiotensin Aldosterone Syst* 2011,**12**:504-509.

20. Vijayakumar V, Guerrero AN, Davey N, Lebrilla CB, Shields DC, Khaldi N. EnzymePredictor: a tool for predicting and visualizing enzymatic cleavages of digested proteins. *J Proteome Res* 2012,**11**:6056-6065.

Diagnostic Imaging

Diagnostic Imaging in UCD is the national training centre for radiography. The facilities for education and research include a dedicated "State of the Art" imaging suite on the UCD campus, equipped with computed and direct imaging technologies and NIMIS aligned PACS, Tobii Eye tracking facilities and a growing Image perception suite, multiple anthropomorphic phantom models, and on-site dosimetry capability. The lecturers in Diagnostic Imaging are involved in research studies both in Ireland and internationally with PhD research studies incorporating work in the United States, Europe and Asia.

Group Head

Dr Louise Rainford
01 716 6537 / louise.rainford@ucd.ie
UCD Health Sciences Centre

Research Team

Senior Lecturers

Dr Louise Rainford
Ms Kate Matthews

Lecturers

Dr Marie Louise Butler
Dr Kathleen Curran
Dr Michaela Davis
Dr Shane Foley
Ms Jennifer Grehan
Ms Therese Herlihy
Ms Joanna Lowe
Ms Marion Maher
Mr Jonathan Mc Nulty
Ms Mary Moran
Dr Desiree O'Leary
Dr John Ryan
Ms Marie Stanton
Mr John Stowe
Ms Edel Thomas
Dr Rachel Toomey

Research is focused upon imaging of cellular, animal or human biological processes and translating this knowledge into improved diagnosis, management, treatment and prevention of disease. A key strength of the group is its broad medical and allied healthcare professional expertise and on-going collaborations with the American Board of Radiology, several American Health Centres and numerous International Academic Institutions. Researchers in the group are professionally affiliated radiographers, nurses, computer scientists with several staff bringing the experience of senior management from the industrial aspect of Imaging to the groups' activity.

Current research areas focus on: image perception and user validation to investigate human perceptual limitations with respect to accurate diagnosis and improved patient outcomes; the quantification of disease states using MR, PET/CT and Ultrasound and related segmentation and visualization; CT raw data processing; foetal and adult electrophysiology and simulation with the aim of enriching cardiological diagnosis and treatment; neuro and cardiac applications and post-processing developments in MR diffusion imaging; RIS/PACS networking solutions in medicine and optimization of practice across a broad spectrum of imaging modalites.

The group continues to grow as an increasing number of staff completed their research studies, having moved from the clinical environment to work in the academic section. Dr Shane Foley and Dr Marie Louise Butler completed their PhD study in 2013. In addition to the peer reviewed publications in the academic year strong representation was made at the European Congress of Radiology, Vienna, with six oral presentations. Mr Jonathan Portelli, UCD PhD researcher, was awarded " Best Scientific Paper Presentation Award 2013" within the topic "Radiographers". This is the second consecutive year that PhD researchers from UCD have won this award, Dr Frankie Zarb being the 2012 recipient. In addition to the conference presentations Jonathan McNulty, Shane Foley and Marie Stanton were invited guest speakers during specialised Workshop sessions and delivered excellent talks on MRI Spectroscopy, Innovation in CT technology and Clinical audit in Ultrasound to maximum capacity audiences.

The group also presented at several other international events including the SPIE Medical Imaging Conference, Florida, USA. Dr Louise Rainford and Mr Jonathan Mc Nulty represented UCD as invited speakers to Portuguese and Italian national congress meetings to promote research in Radiography.

Research collaborations continued in 2013 with the American Board of Radiology and across several centres in Europe, in collaboration with research colleagues in the European Federation of Radiography Societies.

Dr Louise Rainford
Senior Lecturer

Location: UCD Health Sciences Centre
Contact: 01 716 6537
Email: louise.rainford@ucd.ie

Dr Louise Rainford's background is in the area of medical imaging, training as a radiographer in Manchester, UK. Following a twelve year clinical career in the Mater Misericordiae University Hospital she commenced as a UCD lecturer in 1997, and from 2006 she was appointed as the Head of Teaching for the Radiography Programmes and lead the development of Radiography education at undergraduate and graduate level. In early 2009 she was appointed as the Head of Diagnostic Imaging within the UCD School of Medicine and Medical Science. Her supervision of research projects to date have incorporated a broad range of imaging modalities including X-ray, computerised tomography, fluoroscopic guided interventional procedures, and mammography, and her findings published in several international peer reviewed journals.

Dr Rainford has presented at many international imaging meetings including the annual meetings of the Radiological Society of North America, UK Radiological Congress, International Society of Optical Engineering and Medical Imaging Perception Society. She has successfully supervised 11 graduate research students, including 9 PhD projects. She is a distinguished teacher with awards excellence for teaching.

In 2013 Dr Rainford took up a role on the HENRE Management group within the European Federation of Radiographers Societies and is currently involved in several multi-centred research studies.

Dr Marie Louise Butler
Lecturer in Diagnostic Imaging

Location: UCD Health Sciences Centre
Contact: (01) 716 6529

Marie-Louise Butler is a Diagnostic Imaging lecturer and researcher in the School of Medicine and Medical Science. She is involved in a number of teaching disciplines and research areas, including collaborations with various professions and international bodies. She coordinates the UCD postgraduate radiation safety programs which are delivered to industrial and medical professionals across Ireland. Marie-Louise holds the National Education Seat on the Irish Institute of Radiographers and Radiation Therapists council and has a particular interest in Continuing Professional Development in this role. Her research interests include medical education, radiation dose optimisation, implementation of research in clinical practice and image perception.

Dr Kathleen Curran
Lecturer

Location: Complex & Adaptive Systems Laboratory
Contact: 01 716 5305
Email: kathleen.curran@ucd.ie

My research interests are in medical image analysis, image registration and modelling Diffusion Tensor Magnetic Resonance Imaging data. My group conducts basic and applied research in developing new methods for registration, tractography and finite element modelling of DT-MR images of the heart and musculoskeletal system and developing novel computed tomography reconstruction techniques. These multidisciplinary, international collaborations, spanning medical imaging, computer science and engineering have a proven success in international peer reviewed publications.

Affiliations:
- member of Complex & Adaptive Systems Laboratory

Dr Michaela Davis
Lecturer

Location: UCD Health Sciences Centre
Contact: 01 716 6538
Email: michaela.davis@ucd.ie

I am a diagnostic radiographer by profession.
My research interests are focussed around child protection in relation to Non Accidental Injury in children, which was the topic of my PhD.
I also have diverse research interests in equine radiography, qualitative approaches to children and adolescents experiences of diagnostic imaging, and forensic radiography, especially in relation to radiographic imaging and evidence collection.

Affiliations:
- Child Health

Dr Shane Foley
Lecturer

Location: UCD Health Sciences Centre
Contact: 01 716 6543
Email: shane.foley@ucd.ie

I qualified from UCD with a BSc (Radiography) and subsequently completed a Post graduate diploma and PhD in Computed Tomography. Main research interests are in CT, radiation dose and optimisation methods.

Ms Joanna Lowe
Lecturer

Location: UCD Health Sciences Centre
Contact: 01 716 6564
Email: Joanna.lowe@ucd.ie

Current research interests involve display quality assurance and calibration. This research predominately investigates general off-the-shelf displays as well as primary class displays used for medical diagnosis. At present an international collaboration between the University of Sydney and various manufacturers across Europe and the USA is on-going. Other research areas include Forensic radiography, DEXA, and Continuing Professional Development in the clinical radiology department.

I am currently one of the clinical co-ordinators for Diagnostic Imaging liaising with 8 public teaching hospitals within Ireland. For which I am module co-ordinator for 4 undergraduate Radiography clinical modules across stages 2 to 4. In addition to my clinical responsibilities I am also actively involved in a variety of other Diagnostic Imaging modules covering a broad spectrum of the teaching curriculum some of which include radiographic technique, radiographic equipment, anatomy, digital radiology systems, and trauma imaging, amongst others.

In relation to post-graduate responsibilities I am the course director for the professional certificate in DEXA Imaging and I have an active role in the three post-graduate RIS/PACS modules also.

Ms Marion Maher
Lecturer

Location: UCD Health Sciences Centre
Contact: 01 716 6542
Email: marion.maher@ucd.ie

My role in Diagnostic Imaging is as both a lecturer and a stage co-ordinator for the undergraduate programme. I am currently developing a post graduate course for radiographers in Interventional Radiology commencing in January 2014. My research interests lie in fertility ultrasound and I am developing innovative practices for sonographers in this area.

Ms Kate Matthews
Senior Lecturer

Location: UCD Health Sciences Centre
Contact: -
Email: kate.matthews@ucd.ie

I worked as a radiographer, particularly in trauma, paediatrics, angiography and computed tomography before coming to UCD as a lecturer. As Head of Diagnostic Imaging from 1993 to 2006 I led the development of the first radiography degree in Europe in 1989, and in 1993 directed the redevelopment of this degree as a four year honours programme. Between 1993 and 2003, I was responsible for the burgeoning graduate profile of Radiography in UCD, overseeing the introduction of postgraduate courses and research in Diagnostic Imaging.

I retain my enthusiasm for paediatric radiography and promotion of independent research in Radiography, leading undergraduate modules in these areas, and continuing my own research in paediatric radiography.

Mr Jonathan McNulty
Head of Teaching & Learning,
Diagnostic Imaging Programmes

Location: UCD Health Sciences Centre
Contact: 01 716 6530
Email: jonathan.mcnulty@ucd.ie

My research areas of interest include dosimetry and image quality studies, image perception and observer performance, MRI (image quality / clinical applications / patient care) and forensic imaging. As one of the UCD Fellows in Teaching and Academic Development and Head of Teaching and Learning in Diagnostic Imaging I am interested in all aspects of educational research and am currently involved in several projects in this area.

Affiliations:
Diagnostic Imaging / Biological Imaging

Researchers Supported:
Dr Aurelia Ciblis, Post-Doctoral Research Fellow *(NeuroSKILL project)*
Mr James Durkan, Educational Technologist *(NeuroSKILL project)*
Dr Layan Akijian, PhD
Mr Daniel McIlgorm, MSc

Ms Mary Moran
Lecturer, Co-ordinator

Location: UCD Health Sciences Centre
Contact: 01 716 6536
Email: moran.mary@ucd.ie

My background is as a midwife sonographer and I joined the academic staff at UCD in 2007. I currently co-ordinate all of the postgraduate Obstetric & Gynae Ultrasound Programmes for UCD. My research interests cover all aspects of obstetric & gynae ultrasound, with a particular interest on ultrasound assessment of placental function. This is the topic I am researching for my PhD, which will be completed in 2013.

Dr Desiree O'Leary
College Lecturer

Location: UCD Health Sciences Centre
Contact: 01 716 6535
Email: desiree.oleary@ucd.ie

I am a college lecturer in Diagnostic Imaging and the programme co-ordinator for the Breast Imaging programme. My research interests currently include all aspects of mammographic imaging and examinations, Nuclear Medicine, infection control in diagnostic imaging and interventional radiology. I was an invited speaker for the European Congress of Radiologists in March 2012 in the "Breast screening programmes: roles and issues for radiographers" section of the programme where I spoke on: The radiographer's role in optimisation of dose and image quality in mammography.

Dr John Ryan
Lecturer

Location: UCD Health Sciences Centre
Contact: 01 716 6539
Email: john.ryan@ucd.ie

Me and my team are currently addressing several imaging problems including the automatic quantification/visualisation of disease states from MRI, CT, ultrasound and PET-CT datasets as well as preclinical imaging datasets from Micro-MRI and HREM. I recently returned from a three year Senior Lecturer appointment at the University of Sydney and last year spent three months on sabbatical at Brigham Women's/Harvard Medical School in Boston where I undertook research in Breast Imaging.

Ms Marie Stanton
Lecturer

Location: UCD Health Sciences Centre
Contact: 01 716 6531
Email: marie.stanton@ucd.ie

I am in the final year of a PhD in Education. My research involves investigating the effect of Problem-based learning on critical thinking abilities.

Mr John Stowe
Lecturer

Location: UCD Health Sciences Centre
Contact: 01 716 6539
Email: john.stowe@ucd.ie

I joined the UCD School of Medicine and Medical Science in January 2007. This followed from 20 years of experience in the Diagnostic Imaging industry. John lectures at Under Graduate on Physics and Technology subjects, is Stage 2 coordinator for the BSc Radiography programme, is the Technology Module Coordinator for the MSc CT programme and is the programme coordinator for the post graduate RIS/PACS Management programme.

I am currently engaged in PhD research in the field of CT Beam Hardening image artefact. The research will investigate a novel predictive algorithm correction technique that may identify structures generating beam hardening, and effectively reduce or even eliminate the artifact in an independent single iteration correction step.

The research is now in it's final year and has attracted funding & support from sources including UCD, Siemens Healthcare & Enterprise Ireland. The prototype program containing the automated correction algorithm is currently undergoing validation through the use of the UCD onsite CT reconstruction engine funded by Enterprise Ireland.
In addition I support under graduate research as part of the BSc programme and can be supervising up to 5 such research projects at a given time.

Ms Edel Thomas
College Lecturer

Location: UCD Health Sciences Centre
Contact: 01 716 6653
Email: edel.thomas@ucd.ie

I graduated from UCD with BSc Radiography in 1993. I spent most of my radiography career in St Vincent's University Hospital, Dublin. In 1997, I was awarded the H.Dip. Radiography (CT) and began working as an occasional lecturer on the postgraduate CT course in UCD. In 2003, I was appointed to a lecturing post in UCD and am programme director of Graduate Diploma and Masters programme in CT. I lecture on various undergraduate Radiography modules.

My research interests include professional practice issues relating to CT imaging, radiation dose reduction and optimisation of CT practice.

Dr Rachel Toomey
Lecturer

Location: UCD Health Sciences Centre
Contact: 01 716 6587
Email: rachel.toomey@ucd.ie

I graduated from UCD with my PhD in 2010 before taking up a postdoctoral position in the Institute for Medical Science and Technology at the University of Dundee, gaining invaluable experience. In September 2011, I returned to UCD, having been appointed to a lecturing post in the Diagnostic Imaging division. My research interests are diverse; however, at present my work is principally concentrated in the areas of medical image display and perception.

Grants:

Title: Registration of Diffusion Tensor Magnetic Resonance Imaging Cardiac
Data with Cardiac CINE MRI Data
Funder: Science Foundation Ireland
Start/End dates: 01/10/2009 – 01/10/2013
Amount: €267,117

Title: PreTRACT: Sports Injury Prediction (Commercialisation Feasibility Study)
Funder: Enterprise Ireland
Start/End Dates: 01/07/2012 – 1/09/2012
Amount: €14,768

Title: FP7 Proposal Preparation Coordinator Support
Funder: Enterprise Ireland
Start/End Dates: 01/12/2012 – 21/03/2013
Amount: €12,200

Active national and international collaborators & projects:

Ms Joanna Santos, PhD
Mr Johnathan Portelli, PhD
Ms Joanna Lowe, PhD
Ms Muna Al Mulla, PhD
Mr David Leong, PhD
Ms Allison Mc Gee, PhD
Mr Jonathan Mc Nulty, PhD
Dr Marie Louise Butler, PhD
Mr Francis Zarb, PhD
Dr Shane Foley, PhD
Dr Ben Donlon, PhD
Dr Gergely Zombori, PhD
Dr Tadhg O'Sullivan, PhD
Ms Karen Grima Borg, PhD
Dr Tanuj Puri, PhD
Dr Carla Gil, PhD
Mr John Stowe, PhD
Prof Gerard Fealey, UCD
Dr Maria Joyce, PhD
Dr Joseph Chinedu Ndwodo, PhD
Mr Wijdan Alomaim, MSc
Ms Zaina Al Maskari, MSc
Ms Rhona Leahy, BSc
Ms Mairead Kearney, BSc
Mr Kevin Cronin, BSc
Mr John McGarry, BSc
Mr Niall Burke, BSc
University of Malta, Malta
University of Coimbra, Portugal
Higher Education Network for Radiography in Europe;(HENRE)
European Federation of Radiographer Societies, Educational Wing
Dr Ken Holmes, Diagnostic Imaging, St Martin's Lancaster, UK
Ms Tina Starc, Radiography and Imaging University of Ljubjlana Slovenia
Mr Eric Sundqvist, Department of Radiography, Oslo University
Dr Philippe Van Laer, EHSAL, Belgium
Dr Jos Peteers, University of Professional Education Fontys, Eindhoven
Dr Sundaran Kada, Bergen University, Norway
Carsten Lavidson, Diagnostic Imaging, Univerity of Copenagen
Prof Gerold Unterhumer, Vienna
Kent Fridell, Karolinska Institute, Stockholm
Dominique Zerroug, Jean Monnet University,
Allison Wright, Diagnostic Radiography, Suffolk College, UK
Dr Paul Bezzina,University of Malta
Dr Pauline Reeves, Sheffield Hallam University
Dr John Devaney, Queens University Belfast
Mr Colm Dempsey, National Director, National Child Protection Training Centre, Galway

Publications:

1. Donlon B, Veale D, Brennan P, Gibney R, Carr H, Rainford L, *et al.* MRI-Based Visualisation and quantification of Rheumatoid and Psoriatic Arthritis of the Knee. In: Visualisation in Medicine and Life Sciences II. Edited by Linsen L, Hagen H, Hamann B. Berlin Heidelberg New York: *Springer*; 2012.

2. Foley SJ, McEntee MF, Achenbach S, Brennan PC, Rainford LS, Dodd JD. Breast surface radiation dose during coronary CT angiography: reduction by breast displacement and lead shielding. *AJR Am J Roentgenol* 2011,**197**:367-373.

3. Foley SJ, McEntee MF, Rainford LA. Establishment of CT diagnostic reference levels in Ireland. *Br J Radiol* 2012,**85**:1390-1397.

4. Gil C, Meredith S, Curran K. Full tensor registration of diffusion tensor magnetic resonance imaging for assessment of cardiac pathologies. *Journal of Cardiovascular Magnetic Resonance* 2012,14.

5. Leong DL, Rainford L, Haygood TM, Whitman GJ, Tchou PM, Geiser WR, *et al.* Verification of DICOM GSDF in complex backgrounds. *J Digit Imaging* 2012,**25**:662-669.

6. McNulty JP, Ryan JT, Evanoff MG, Rainford LA. Flexible image evaluation: iPad versus secondary-class monitors for review of MR spinal emergency cases, a comparative study. *Acad Radiol* 2012,**19**:1023-1028.

7. Mohan S, McNulty J, Portelli J, Bezzina P, Rainford L. Paediatric radiation dose levels and consent implications for patients undergoing high dose medical imaging examinations. *Irish Journal of Medical Science* 2012,**181**:439-456.

8. Moran M, Higgins M, Zombori G, Ryan J, McAuliffe F. Computerised assessment of placental calcification post ultrasound - a novel new software tool. *Ultrasound Obstet Gynecol* 2012.

9. Moran M, Higgins M, Zombori G, Ryan J, McAuliffe FM. Computerized assessment of placental calcification post-ultrasound: a novel software tool. *Ultrasound Obstet Gynecol* 2012.

10. Moran M, McAuliffe FM. Imaging and assessment of placental function. *J Clin Ultrasound* 2011,**39**:390-398.

11. Moran M, Ryan J, Higgins M, Brennan PC, McAuliffe FM. Poor agreement between operators on grading of the placenta. *J Obstet Gynaecol* 2011,**31**:24-28.

12. O'Leary D, Rainford L. A comparison of mean glandular dose diagnostic reference levels within the all-digital Irish National Breast Screening Programme and the Irish Symptomatic Breast Services. *Radiat Prot Dosimetry* 2013,153:300-308.

13. O'Leary D, Rainford L. Differences in mean glandular doses between the national breast screening programme and the symptomatic breast services in Ireland. *Diagnostic Imaging Europe* 2012.

14. Puri T, Blake GM, Curran KM, Carr H, Moore AE, Colgan N, *et al.* Semiautomatic region-of-interest validation at the femur in (18)F-fluoride PET/CT. *J Nucl Med Technol* 2012,**40**:168-174.

15. Puri T, Blake GM, Frost ML, Siddique M, Moore AE, Marsden PK, *et al.* Comparison of six quantitative methods for the measurement of bone turnover at the hip and lumbar spine using 18F-fluoride PET-CT. *Nucl Med Commun* 2012,**33**:597-606.

16. Puri T, Blake GM, Siddique M, Frost ML, Cook GJ, Marsden PK, *et al.* Validation of new image-derived arterial input functions at the aorta using 18F-fluoride positron emission tomography. *Nucl Med Commun* 2011,**32**:486-495.

17. Reed WM, Ryan JT, McEntee MF, Evanoff MG, Brennan PC. The effect of abnormality-prevalence expectation on expert observer performance and visual search. *Radiology* 2011,**258**:938-943.

18. Ryan JT, Haygood TM, Yamal JM, Evanoff M, O'Sullivan P, McEntee M, *et al.* The "memory effect" for repeated radiologic observations. *AJR Am J Roentgenol* 2011,**197**:W985-991.

19. Singan VR, Handzic K, Curran KM, Simpson JC. A method for improved clustering and classification of microscopy images using quantitative co-localization coefficients. *BMC Res Notes* 2012, **5**:281.

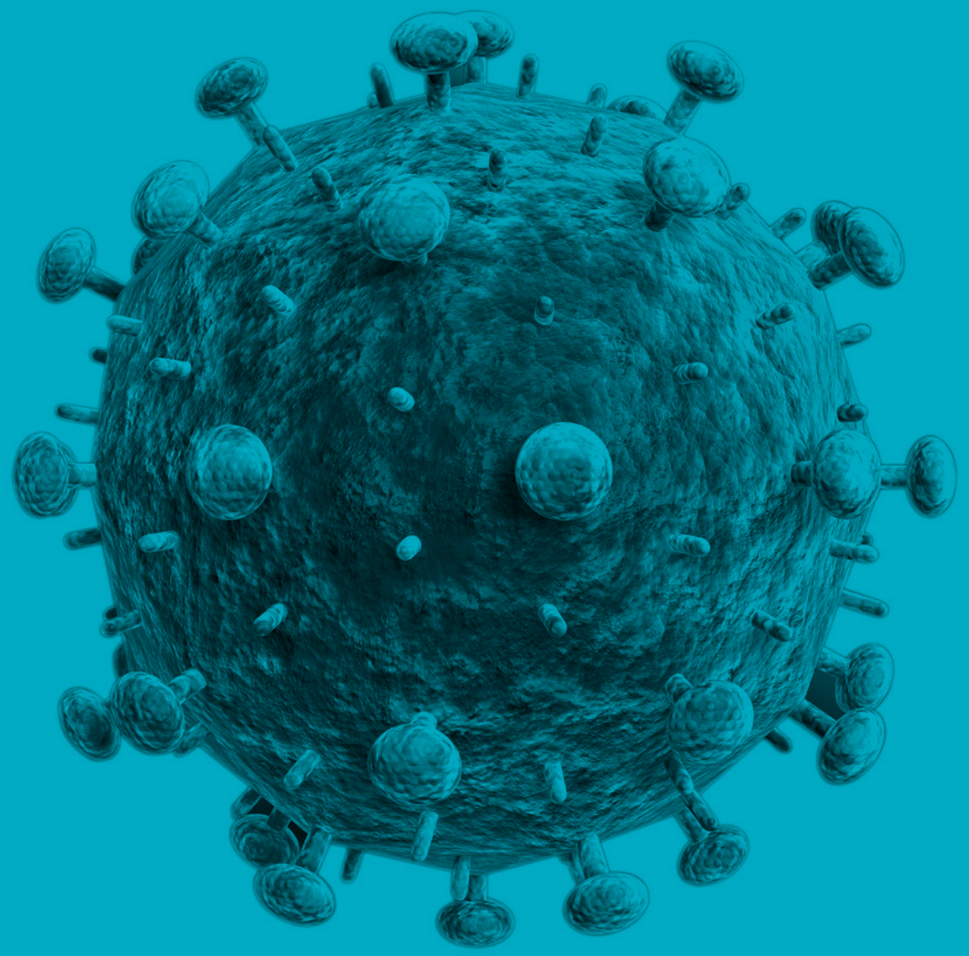
20. Singan VR, Jones TR, Curran KM, Simpson JC. Dual channel rank-based intensity weighting for quantitative co-localization of microscopy images. *BMC Bioinformatics* 2011,**12**:407.

21. Zarb F, McEntee M, Rainford L. Maltese CT doses for commonly performed examinations demonstrate alignment with published DRLs across Europe. *Radiat Prot Dosimetry* 2012,**150**:198-206.

22. Zarb F, Rainford L, Mc Entee M. Frequency of CT examinations in Malta. *Journal of Medical Imaging and Radiation Sciences* 2011,**42**:4-9.

23. Zarb F, Rainford L, Mc Entee M. Developing optimized CT scan protocols: Phantom measurements of image quality. *Radiography* 2011:109-114.

The HIV Molecular Research Group



Established in 2008, the HIV Molecular Research Group (HMRG) is internationally recognized for its translational research into long-term co-morbidities associated with HIV infection and its treatment with antiretrovirals and research into models of testing to increase early diagnosis of HIV.

Group Head

Dr Patrick Mallon
01 716 4519 / paddy.mallon@ucd.ie
UCD School of Medicine & Medical Science,
Catherine McAuley Education & Research Centre

Research Team

Dr Patrick Mallon
Associate Dean for Research and Innovation, UCD SMMS and Consultant Infectious Diseases Physician

Dr Jack Lambert
Senior Lecturer in Medicine and Consultant in Infectious Diseases

Dr Gerard Sheehan
Senior Lecturer in Medicine and Consultant in Infectious Diseases

The HMRG, based on the Mater Misericordiae University Hospital (MMUH) campus, coordinates international, collaborative, translational research in HIV. The group comprises researchers with laboratory, statistical and clinical research expertise and is funded through a number of streams including Science Foundation Ireland, the Health Research Board and several industry supporters. The groups research focuses around four principal themes;

- **Models of HIV detection.** The Mater-Bronx Rapid HIV Testing Project **M-BRiHT**, involves collaborations between UCD, MMUH and the Jacobi Medical Centre in the Bronx, New York, and aims to increase early detection of HIV, a core strategy to reduce onward HIV transmission. **M-BRiHT** combines rapid HIV testing with novel, computer-based video counseling and offers unselected HIV screening to attendees to the MMUH Emergency Department. Sponsored by UCD and funded by Gilead Sciences, **M-BRiHT** launched in September 2012 and has already recruited over 4,000 subjects, with plans for international expansion to sites in the UK and Italy in 2013.

- **Bone disease in HIV.** Low bone mineral density and osteoporosis is common in those with HIV. The HMRG coordinates a number of international collaborative projects to define the natural history and pathogenesis of bone disease in HIV, including the establishment of the **HIV UPBEAT** cohort, the largest international prospective cohort of HIV positive and negative subjects (N=484). With funding from the Health Research Board and GlaxoSmithKline, **HIV UPBEAT** has started to yield very exciting results that will be published in 2013.

- **Cardiovascular disease (CVD)** is also increased in HIV. The Reverse Cholesterol Transport Study (**RCTS**), co-funded by the EU through the European AIDS Treatment Network (**NEAT**) and Science Foundation Ireland is exploring mechanisms of dyslipidaemia in HIV. **RCTS** expands on early work by HMRG published in the *Journal of Infectious Diseases* in 2012 on mechanisms of increased CVD in HIV, and is recruiting 100 subjects with HIV at MMUH and the Chelsea and Westminster Hospital in London.

- **HIV Immunology.** Through the **MMUH ID Cohort Project**, the **HIV Immunology Study**, supported by a number of industry partners aims to explore additional tests that better reflect and predict immune responses to antiretroviral therapy. This study, in collaboration with Rush University Medical Centre in Chicago, has recruited over 200 subjects.

In addition to a number of publications and conference presentations, HMRG's achievements were recognized in 2012 with the award, by the British HIV Association, of the *'Brian Gazzard Lectureship in HIV Medicine'* to Dr Mallon.

Dr Patrick Mallon
Associate Dean for Research & Innovation /
Consultant in Infectious Diseases

Location: Mater Misericordiae Hospital
Contact: 01 716 4495
Email: paddy.mallon@ucd.ie

I head the HIV Molecular Research Group, which focuses on translational research into toxicities of antiretroviral therapy, strategies to increase population HIV testing and studies aimed at better understanding immune responses to antiretroviral treatment.

Major ongoing studies include the HIV UpBEAT Study, the largest, prospective controlled study into bone disease in HIV internationally, the M-BRiHT Study, an international collaborative study of the first ED-based HIV screening programme in Ireland, and the Mater Immunology Study, part of the Mater HIV-ID Cohort Project. In 2012 I was awarded the Brian Gazzard Lectureship in HIV Medicine by the British HIV Association.

Dr John (Jack) Lambert
Senior Lecturer in Medicine /
Consultant in Infectious Diseases

Location: Mater Misericordiae Hospital
Contact: 01 716 4530
Email: jlambert@mater.ie

Current research focused on infections in pregnancy and treatment of HIV and hepatitis C. Has successfully developed a data base at the Rotunda and Mater to monitor pregnant women with various infectious diseases, and also monitoring HIV drug levels in HIV positive pregnant women in receipt of HIV therapy. Active in hepatitis C treatment and also developing national policies and strategies.

Dr Lambert is the recipient of a €228K two year grant from VIIV Access and Government Affairs department, to develop a pediatric AIDS database in two clinics in Eastern Cape South Africa. This data base will capture information on 2500 children, approximately 2000 of whom are on HIV treatment and capture important safety and clinical data on these children.

Dr Lambert and his team at the Mater CRC and Rotunda Hospitals were the recipeient of a €1,000 prize for the 'best poster award' for the HIV 11 conference held in Glasgow Nov 2012. This conference was attended by over 3000 delegates from Europe and Worldwide. And such an award is recognition of the hard work of all involved. The study involved collecting TDM therapeutic drug monitoring samples on HIV infected pregnant women from during pregnancy, and labour and delivery and post partum, and comparing HIV drug levels in these women at different stages of pregnancy and in the cord blood samples.

Researchers Supported:

Dr Gerard O'Connor, Research Fellow
Dr Aoife Cotter, Research Fellow
Dr Jane O'Halloran, Research Fellow
Mr Willard Tinago, PhD Student
Mr Robert Maughan, PhD Student
Ms Sibon Simelaine, Clinical Research Nurse
Ms Elizabeth Coghlan, Clinical Research Nurse
Mr Alan Macken, Data Manager
Mr Brendan Rogers, Laboratory Scientist
Ms Ailbhe Ni Flaitheartaigh, Clinical Research Assistant
Ms Kathleen Coyle, Clinical Research Assistant
Ms Aoife Lacey, Research Student

Active national and international collaborators & projects:

Prof Caroline Sabin, University College London. HIV UPBEAT and HRB Bone
Prof Juliet Compston, University of Cambridge. HIV UPBEAT
Prof Yvette Calderon, Jacobi medical Centre, Albert Einstein College of Medicine, The Bronx, New York. M-BRiHT
Prof Peter Reiss, University of Amsterdam. RCTS Study
Prof Alan Landay, Rush University Medical Centre, Chicago HIV Immunology Study
Prof Dermot Kenny, Royal College of Surgeons in Ireland, Platelet Dysfunction in HIV
Dr Anton Pozniak, St Stephens AIDS Trust the Chelsea and Westminster Hospital, London RCTS Study

Grants:

Title: Exploring Low Bone Mineral Density in HIV'. Knowledge Exchange and Dissemination Scheme
Funder: Health Research Board
Start/End Dates: 2012-13
Amount: €24,455

Title: In vitro examination of toxicity of investigational antiretroviral agents
Funder: AiCuris GmbH & Co
Start/End Dates: September 2012 – June 2013
Amount: €50,000

Title: The Mater Bronx Rapid HIV Testing Project (M-BRiHT Project)
Funder: Gilead Sciences
Start/End Dates: 2012-2014
Amount: €564,119

Title: The Mater Misericordiae University Hospital ID-HIV Cohort Project.
Funders: Janssen-Cilag, Merck Sharpe and Dohme, Bristol Myers Squibb .
Start/End Dates: 2011-2014
Amount: €142,543

Title: The HIV Reverse Cholesterol Transport Study.'HIV RCTS". Integration Grant
Funder: EU FP7 European AIDS Treatment Network (NEAT)
Start/End Dates: 2011-2013
Amount: €50,000 (€15,000 to UCD)

Title: Exploring Low Bone Mineral Density in HIV
Funder: Health Research Board
Start/End Dates: October 2010 - 2013
Amount: €245,806

Title: Understanding the Pathology of Bone Disease in HIV-infected Patients
Funder: GlaxoSmithKline
Start/End Dates: May 2010. 3 years
Amount: UK£396,000 (€491,326)

Title: The St. Marys and The Mater Maraviroc Switch Study.' A prospective, randomised study to assess safety, changes in platelet reactivity, plasma cardiac biomarkers, immunological and metabolic parameters in HIV-1 infected subjects undergoing a switching in antiretroviral therapy
Funder: Pfizer
Start/End Dates: 2009-2012
Amount: UK£108,188 (€134,231)

Title: Exploring antiretroviral-induced adipose tissue toxicity through translational research
Funder: Science Foundation Ireland
Start/End Dates: May 2009 - 2013
Amount: €199,761

Title: Therapeutic Drug Monitoring in Pregnancy
Funder: Janssen
Start/End Dates: 22/01/2013 to 31/06/2014
Amount: - €24,000

Title: Paediatric ARV Software Development Project- South Africa
Funder: ViiV
Start/End Dates: 9/2/2012 to 31/12/ 2014
Amount: £228,000

Title: TDM in pregnancy study
Funder: BMS
Start/End Dates: 1/6/2011 to 01/07/2013
Amount: €52,700

Publications:

1. Babiker A, Castro nee Green H, Compagnucci A, Fiscus S, Giaquinto C, Gibb DM, *et al.* First-line antiretroviral therapy with a protease inhibitor versus non-nucleoside reverse transcriptase inhibitor and switch at higher versus low viral load in HIV-infected children: an open-label, randomised phase 2/3 trial. *Lancet Infect* Dis 2011,**11**:273-283.

2. Caswell RJ, Phillips D, Chaponda M, Khoo SH, Taylor GP, Ghanem M, *et al.* Utility of therapeutic drug monitoring in the management of HIV-infected pregnant women in receipt of lopinavir. *Int J STD AIDS* 2011,**22**:11-14.

3. Chróinín DN, Doyle J, Mallon P, Sheehan G, Lambert J. An unusual cause of acute delirium in a septogenarian with Alzheimer's dementia. *European Geriatric Medicine*. 2012; **3**:S74

4. Cotter AG, Mallon PW. HIV infection and bone disease: implications for an aging population. *Sex Health* 2011,**8**:493-501.

5. Cotter AG, Mallon PW. Therapeutic options for low bone mineral density in HIV-infected subjects. *Curr HIV/AIDS Rep* 2012, **9**:148-159.

6. Cotter AG, Satchell CS, O'halloran JA, Feeney ER, Sabin CA, Mallon PW. High-density lipoprotein levels and 10-year cardiovascular risk in HIV-1-infected patients. *AIDS* 2011, **25**:867-869.

7. Cotter AG, Mallon PWG. The crosstalk between bone and fat in HIV-infected patients, with a focus on lipodistrophy. *Clin Rev Bone Miner Metab.* 2012:**10**;266-276.

8. Else L, Jackson V, Brennan M, Breiden J, Lawless M, Coulter Smith S, *et al.* Therapeutic drug monitoring (TDM) of atazanavir in pregnancy. *Journal of the International AIDS Society* 2012 **2012**,15.

9. Feeney ER, Chazallon C, O'Brien N, Meiffrédy V, Goodall RL, Aboulker JP, *et al.* Hyperlactataemia in HIV-infected subjects initiating antiretroviral therapy in a large randomized study (a substudy of the INITIO trial). *HIV Med* 2011,**12**:602-609.

10. Feeney ER, Mallon PW. HIV and HAART-Associated Dyslipidemia. *Open Cardiovasc Med J* 2011,**5**:49-63.

11. Feeney ER, Mallon PW. Insulin resistance in treated HIV infection. *Best Pract Res Clin Endocrinol Metab* 2011, **25**:443-458.

12. Feeney ER, van Vonderen MG, Wit F, Danner SA, van Agtmael MA, Villarroya F, *et al.* Zidovudine/lamivudine but not nevirapine in combination with lopinavir/ritonavir decreases subcutaneous adipose tissue mitochondrial DNA. *AIDS* 2012, **26**:2165-2174.

13. Fox D, O'Connor R, Mallon P, McMahon G. Simultaneous determination of efavirenz, rifampicin and its metabolite desacetyl rifampicin levels in human plasma. *J Pharm Biomed Anal* 2011,**56**:785-791.

14. Lambert JS, Else LJ, Jackson V, Breiden J, Gibbons S, Dickinson L, *et al.* Therapeutic drug monitoring of lopinavir/ritonavir in pregnancy. *HIV Med* 2011,**12**:166-173.

15. McGinty T, Mallon PWG. Pharmacology of Antiretroviral Drugs. In: Somesh Gupta, Bhushan Kumar, eds. *Sexually Transmitted Infections* 2nd ed. New Delhi, India: Elsevier, 2012: 805-825. ISBN: 978-81-312-2809-8

16. Moughty AM, O'Connor G. Images in clinical medicine. Bilateral anterior shoulder dislocation. *N Engl J Med* 2012,**367**:e12.

17. O'Connor G, Ramiah V, Breslin T, McInerney JJ, Brazil E. Looking beyond Morison's pouch in focused assessment with sonography for trauma: penetrating hepatobiliary trauma and a new sign for emergency physicians. *Emerg Med J* 2012.

18. O'Connor G, Ramiah V, McInerney J, Moughty A. Splenic rupture visualised with focused assessment with sonography for trauma (FAST): heterogeneous echogenicity of acute haemorrhage following blunt trauma. *BMJ Case Rep* 2012, **2012**.

19. O'Halloran JA, De Gascun CF, Dunford L, Carr MJ, Connell J, Howard R, *et al.* Hepatitis B virus vaccine failure resulting in chronic hepatitis B infection. *J Clin Virol* 2011, **52**:151-154.

20. Satchell CS, O'Halloran JA, Cotter AG, Peace AJ, O'Connor EF, Tedesco AF, *et al.* Increased platelet reactivity in HIV-1-infected patients receiving abacavir-containing antiretroviral therapy. *J Infect Dis* 2011,**204**:1202-1210.

21. Post FA, McCloskey EV, Compston JE, Bowman CA, Hay PE, Johnson MA, Mallon PWG, Peters BS, Samarawickrama A, Tudor-Williams G. Prevention of bone loss and management of fracture risk in HIV-infected individuals: case studies and recommendations for different patient subgroups. *Future Virology.* 2011; **6**(6):769-782.

Maternal & Fetal Health Research Group

Since 2005, the Maternal and Fetal Health Research Group (MFHRG), led by Professor Fionnuala McAuliffe has been internationally recognised for its research in prenatal diagnosis and prenatal ultrasound, diabetes and nutrition in pregnancy.

Group Head

Prof Fionnuala McAuliffe

01 716 3216 / fionnuala.mcauliffe@ucd.ie

UCD School of Medicine & Medical Science /

National Maternity Hospital, Holles St

The MFHRG, based at the National Maternity Hospital, Holles St. coordinates national and international collaborative research into maternal nutrition and diabetes and its effects on adverse pregnancy and neonatal outcomes. The group comprises researchers with backgrounds ranging from clinical obstetrics, paediatrics, and dietetics to economics. All of this research has been funded by grants from the Health Research Board (HRB), National Maternity Hospital, Holles St. and European Union.

In September 2012, results from the 'Low glycaemic index diet in pregnancy to prevent macrosomia' (ROLO) study were published in the British Medical Journal. This was a large RCT of 800 women which assessed whether the implementation of a low GI diet in pregnancy reduced the incidence of macrosomia. Whilst this diet had no effect on brthweight, it had a positive effect on maternal gestational weight gain and glucose intolerance. Achievements of the ROLO study were recognized in February 2012 with first prize at the 33rd annual meeting of the society of maternal and fetal medicine held in San Francisco.

The ROLO kids study is a longitudinal follow-up study to the original ROLO randomised control trial. Mothers and children from the ROLO study are being followed up at 6months, 2years and 5years of age in order to determine whether maternal nutrition/low GI diet in pregnancy had an effect on child-hood weight or adiposity but also to study the growth and development of a cohort of Irish children and the effect of environment on growth and adiposity. Anthropometry, lifestyle and eating habits are being examined.

Women with a BMI of greater than 25 kg/m2 have a higher risk of developing Gestational Diabetes. A low glycemic index diet in pregnancy has shown to lower glucose intolerance. As a natural progression from the ROLO study, the Pregnancy Exercise and Nutrition research study (PEARS) was designed to assess the impact of a low glycemic index (GI) dietary and exercise intervention compared to regular lifestyle on the incidence of gestational diabetes at 29 weeks in an overweight and obese pregnant population. This is a randomized controlled trial of 500 women of which recruitment is ongoing.

The Probiotics in Pregnancy (ProP) study is a double-blind, placebo-controlled randomised trial which is investigating the effects of a probiotic capsule intervention on maternal fasting glucose and other indices of maternal metabolism including insulin, c-peptide, lipids and CRP. There are two separate cohorts of pregnant women; 1. obese women who receive the intervention prior to screening for gestational diabetes (GDM) 2. women diagnosed with GDM. Recruitment and follow-up of the obese cohort is now complete (N=138) and publication of results are pending. Recruitment of the GDM cohort is ongoing, with a target of 100 women.

Prof Fionnuala McAuliffe
Associate Professor of Obstetrics & Gynaecology,
Head of Women's and Children's Health,
Head of Obstetrics and Gynaecology, Conway
Fellow, Consultant Obstetrician & Gynaecologist,
Maternal and Fetal Medicine Specialist

Location: National Maternity Hospital, Holles St. / UCD School of Medicine & Medical Science
Contact: 01 716 3216
Email: fionnuala.mcauliffe@ucd.ie

My major research interests are in perinatal nutrition, diabetes and obesity in pregnancy. We have developed an internationally competitive research programme in this area and recently completed a large randomised controlled trial of a low glycaemic index diet in pregnancy. A number of other clinical intervention trials are on-going at present including birth cohort follow up studies. I am a member of a large research consortium in European funded through PF7 on early nutrition.

I am one of the key academics instrumental in application for a multidisciplinary research centre Children and Human Development Research Centre (CHD-RC) in University College Dublin which brings together the College of Health Sciences and College of Life Sciences.

National and international collaborators:

Prof Fiona Alderdice, Queen's University Belfast
Prof Zarko Alfirevic, University of Liverpool
Dr Ted Barker, University of London
Dr Lorraine Brennan, UCD Institute of Food and Health
Prof Steve Carrington, UCD School of Veterinary Medicine
Dr Adrienne Foran, the Rotunda Hospital, Dublin
Prof Guiseppe DeVito, UCD School of Public Health, Physiotherapy & Population Science
Dr Orla Doyle, UCD Geary Institute
Dr Eileen Gibney, UCD Institute of Food and Health
Prof Cecily Kelleher, UCD School of Public Health, Physiotherapy & Population Science
Prof Berthold Koletzko, University of Munich
Dr Mary McCarthy, University College Cork
Prof Eleanor Molloy, Royal College of Surgeons in Ireland
Prof Jane Norman, University of Edinburgh
Prof Ivan Perry, University College Cork
Prof Lucilla Poston, Imperial College London
Dr John Ryan, UCD School of Medicine & Medical Science
Prof Fergus Shanahan, University College Cork
Prof Alice Staunton, Royal College of Surgeons in Ireland
Prof Richard Tremblay, UCD School of Public Health, Physiotherapy & Population Science
Prof Patrick Wall, UCD School of Public Health, Physiotherapy & Population Science

Associated researchers:

Dr Jean Donnelly, PhD
Dr Maria Kennelly, PhD
Terri Levine, PhD
Karen Lindsay, PhD
Dr Fiona Martyn, MD
Mary Moran, PhD
Orna O'Brien, MSc
Dr Jennifer Walsh, PhD

Grants:

Title: ROLO kids
Funder: European Union FP7-KBBE-2011-5 CP-IP
Start/End Dates: Feb 2012-Feb 2017
Amount: €13,613,501 across 30 Consortium members, FMcAuliffe portion €459,500

Title: Heart function in offspring of Diabetic mothers
Funder: UCD College of Life Sciences
Start/End Dates: 01-JUL-05 / 30-JUN-15
Amount: €15,000

Title: Randomised control trial of low glycaemic index diet to prevent macrosomia'.
Funder: HRB
Start/End Dates: 2008-2014
Amount: HRB Health Research Centre for diet, nutrition and diabetes. Total €4,900,000, FMcAuliffe portion €487,500

Title: Early environmental determinants of physical and mental health at school entry
Funder: HRB
Start/End Dates: 2011-2014
Amount: €300,000

Title: Metabolic profiles in women at risk of macrosomia
Funder: National Maternity Hospital Medical Fund
Start/End Dates: 2011-2012
Amount: €40,000

Title: Pregnancy exercise and nutrition research study – smart phone app development
Funder: Atlantic Philanthropies
Start/End Dates: 2012
Amount: €12,000

Title: Economics of childbirth
Funder: National Maternity Hospital Medical Fund
Start/End Dates: 2012 - 2013
Amount: €25,000

Title: Probiotics in pregnancy, a randomised control trial PROPs
Funder: National Maternity Hospital Medical Fund
Start/End Dates: 2012 - 2013
Amount: €70,000

Title: Does promoting increased awareness of decreased fetal movements prevent stillbirths?
Funder: Chief Scientist Office, Scottish Government Health Directorates, Scotland
Start/End Dates: 2012 - 2015
Amount: £220,000, FmcAuliffe co-applicant

Publications:

1. Walsh JM, McGowan CA, Mahony R, Foley ME, McAuliffe FM. Low glycaemic index diet in pregnancy to prevent macrosomia (ROLO study): randomised control trial. *BMJ* 2012,**345**:e5605.

2. Breathnach FM, McAuliffe FM, Geary M, Daly S, Higgins JR, Dornan J, *et al.* Optimum timing for planned delivery of uncomplicated monochorionic and dichorionic twin pregnancies. *Obstet Gynecol* 2012, **Lists 119**:50-59.

3. Breathnach FM, McAuliffe FM, Geary M, Daly S, Higgins JR, Dornan J, *et al.* Definition of intertwin birth weight discordance. *Obstet Gynecol* 2011,**118**:94-103.

4. Cooley SM, Reidy FR, Mooney EE, McAuliffe FM. Antenatal suspicion of ischemic placental disease and coexistence of maternal and fetal placental disease: analysis of over 500 cases. *Am J Obstet Gynecol* 2011,**205**:576.e571-576.

5. Corrigan N, Treacy A, Brazil DP, McAuliffe FM. Cardiomyopathy and Diastolic Dysfunction in the Embryo and Neonate of a Type 1 Diabetic Mouse Model. *Reprod Sci* 2012.

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7. Fahy M, Doyle O, Denny K, McAuliffe FM, Robson M. Economics of childbirth. *Acta Obstet Gynecol Scand* 2013.

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24. McGowan CA, McAuliffe FM. Maternal dietary patterns and associated nutrient intakes during each trimester of pregnancy. *Public Health Nutr* 2013,**16**:97-107.

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26. Moran M, McAuliffe FM. Imaging and assessment of placental function. *J Clin Ultrasound* 2011,**39**:390-398.

27. Moran M, Ryan J, Higgins M, Brennan PC, McAuliffe FM. Poor agreement between operators on grading of the placenta. *J Obstet Gynaecol* 2011,**31**:24-28.

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et al. The customized fetal growth potential: a standard for Ireland. *Eur J Obstet Gynecol Reprod Biol* 2013,**166**:14-17.

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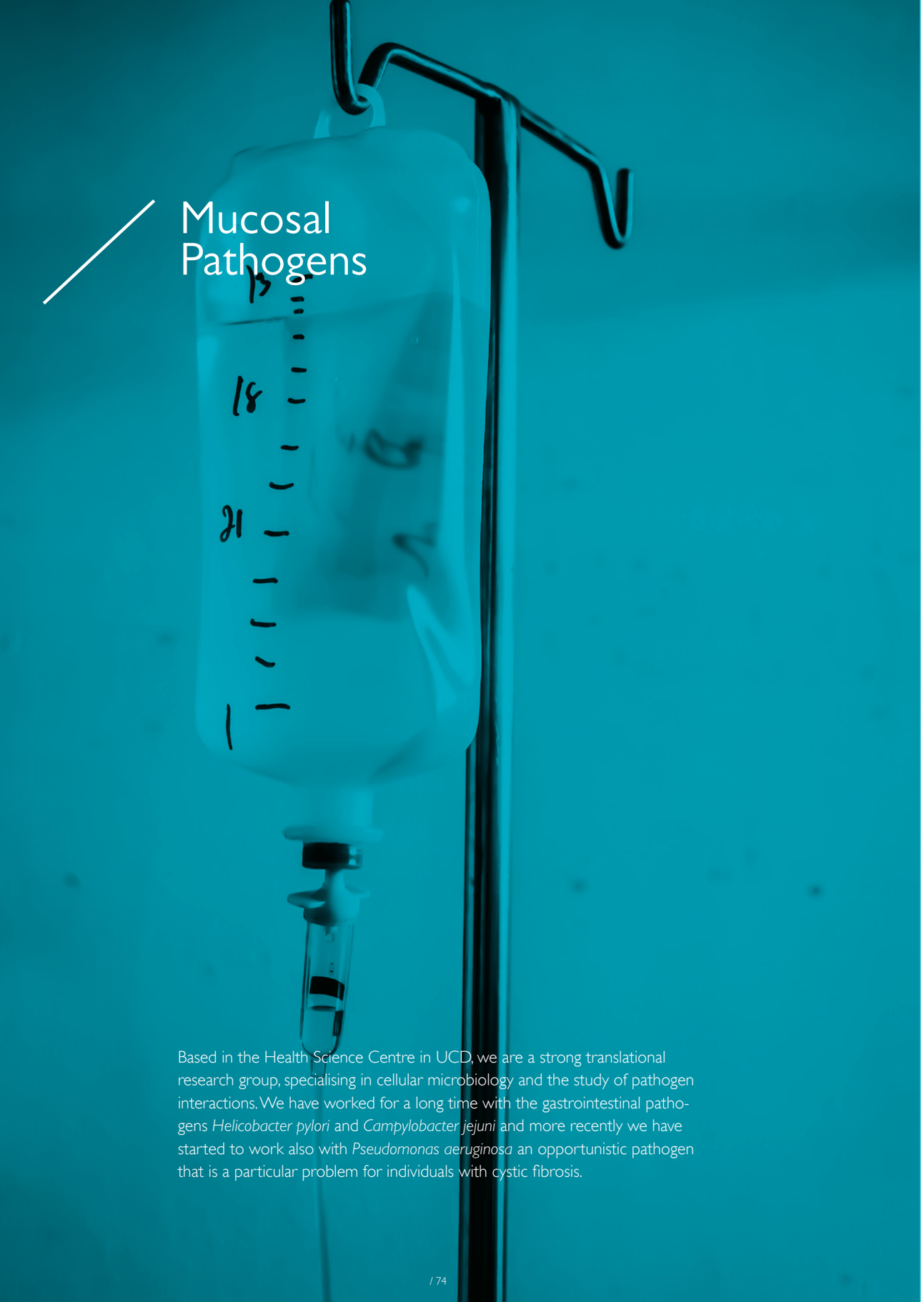
Mucosal Pathogens



Based in the Health Science Centre in UCD, we are a strong translational research group, specialising in cellular microbiology and the study of pathogen interactions. We have worked for a long time with the gastrointestinal pathogens *Helicobacter pylori* and *Campylobacter jejuni* and more recently we have started to work also with *Pseudomonas aeruginosa* an opportunistic pathogen that is a particular problem for individuals with cystic fibrosis.

Group Head
Dr Marguerite Clyne
01 716 6619 / marguerite.clyne@ucd.ie
UCD Health Sciences Centre

Our area of interest is how bacteria interact with human and animal tissue and cause disease. An area of particular interest is how bacteria colonise and live in mucus. We have developed a number of novel systems to learn how bacteria colonise mucus and interact with different components of mucus. Such knowledge can lead to the development of new therapeutics that can prevent infection as alternatives to antibiotics.

Three projects that we are currently involved in are:

(1) Biomodulation of the gastrointestinal epithelial glycome by bacteria.
We are part of the Alimentary Glycoscience Research Cluster an SFI funded strategic research cluster lead by NUI Galway. In this project we aim to investigate the effect of bacterial colonization by both commensals and pathogens on glycosylation in the gut and how these changes can be either beneficial or harmful to the host. As part of this project we are also looking at the direct interaction of bacteria with oligosaccharides found on mucins and epithelial cell membranes and the role these interactions play in mediating infection.

(2) Elucidation of the mechanisms that Helicobacter pylori uses to modulate TFF1 expression in the gastric mucosa.
We have identified TFF1, a member of the trefoil peptide family of proteins found in gastric mucus, as a protein that interacts with H. pylori. This interaction which is mediated by the LPS of the bacteria plays an important role in mediating colonization of mucus and gastric cells by the bacteria. We are currently investigating how TFF1 promotes infection by H. pylori and also how the bacteria modulates expression of both TFF1 and the gastric mucin MUC5Ac. This work is sponsored by IRCSET.

(3) The role of mucus and mucins in mediating Pseudomonas aeruginosa colonization of the cystic fibrosis (CF) lung.
Pseudomonas aeruginosa is commonly associated with chronic airway infection in CF patients. The reasons for the particular predilection of P. aeruginosa for the CF airway are incompletely understood. In this study we aim to test the hypothesis that the environment of the CF lung, which contains thick stagnant mucus and mucins with altered glycans compared to non-diseased individuals plays an important role in initiation of colonisation and maintenance of chronic bacterial infection. This work is being done in collaboration with Scientists and Clinicans from Our Lady's Children's Hospital in Crumlin and is funded by the Cystic Fibrosis Association of Ireland and the Health Research Board.

Dr Marguerite Clyne
Lecturer UCD School of Medicine
& Medical Science

Location: UCD Health Sciences Centre
Contact: 01 716 6619
Email: marguerite.clyne@ucd.ie

My research investigates how pathogens such as *Helicobacter pylori*, *Campylobacter jejuni* and *Pseudomonas aeruginosa* colonise the gut and the lung. I am involved in an inter-institutional, multi-disciplinary consortium of academic and industrial researchers funded by Science Foundation Ireland aimed at understanding the glycobiology of human intestinal infections. I am also funded by the Cystic Fibrosis Association of Ireland and the Health Research Board to investigate how *P. aeruginosa* colonises and maintains infection in the lung.

Grants:

Title: Glycoscience Research Cluster: Characterising and Mining the Epithelial Glycosylation in Host/Microbial Interactions. Strategic Research Cluster Co Principal Applicant
Funder: Science Foundation Ireland
Start End/Dates: Jan 2009-Dec 2013
Amount: €576,069

Title: The role of mucus and mucins in mediating Pseudomonas aeruginosa colonization of the cystic fibrosis lung.Project grant
Funder: MRCG (Cystic Fibrosis Association of Ireland)/HRB
Start End/Dates: Dec 2011-Dec 2014
Amount: €123,850

Title: Elucidation of the mechanisms that *Helicobacter pylori* uses to modulate TFF1 expression in the gastric mucosa. Postgraduate Scholarship
Funder: IRCSET
Start End/Dates: Sept 2011- Sept 2014
Amount: €72,000

Publications:

1. Backert S, Clyne M. Pathogenesis of *Helicobacter pylori* infection. *Helicobacter* 2011,**16 Suppl 1**:19-25.

2. Backert S, Clyne M, Tegtmeyer N. Molecular mechanisms of gastric epithelial cell adhesion and injection of CagA by *Helicobacter pylori*. *Cell Commun Signal* 2011,**9**:28.

3. Dolan B, Naughton J, Tegtmeyer N, May FE, Clyne M. The interaction of *Helicobacter pylori* with the adherent mucus gel layer secreted by polarized HT29-MTX-E12 cells. *PLoS One* 2012,**7**:e47300.

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5. Yan D, Naughton J, Clyne M, Murphy PV. Synthesis of bivalent glycoclusters containing GlcNAc as hexasaccharide mimetics. Bactericidal activity against *Helicobacter pylori*. *Carbohydr Res* 2012,**360**:1-7.

Active national and international collaborators & projects:

Dr Colm Reid, UCD School of Veterinary Medicine
Prof Stephen Carrington,UCD School of Veterinary Medicine.
Prof Billy Bourke, UCD School of Medicine and Medical Science
Prof Ronan O'Connell, School of Medicine and Medical Science
Dr Felicity May, University of Newcastle upon Tyne
Prof Liberato Marzullo, University of Salerno
Dr Valerie Urbach, National Children's Research Centre
Prof Lokesh Joshi, NUI Galway
Dr Rita Hickey, Teagasc

Obesity & Immunology

Established in 2005, the Obesity Immunology Research group's work focuses on the effects of obesity, smoking, sex hormones, gut peptide hormones and colorectal cancer on the immune system, specifically innate immune cells; the invariant Natural Killer T cell, Natural Killer cells and Dendritic cells amongst others. The research findings have established that these outlined conditions/ factors impair the immune responses, potentially increasing susceptibility to infection, cancer and autoimmunity.

Group Head

Prof Donal O'Shea
01 221 2425 / info@dosheaendo.ie
St Vincent's University Hospital

Research Team

Prof Donal O'Shea
Associate Clincal Professor

Dr Andrew Hogan
PhD-Immunologist, Senior Scientist

Dr Lydia Lynch
PhD – Immunologist and Marie Curie Fellow

Dr Michelle Corrigan
PhD - Molecular Biologist, Scientist

Dr Tomas Ahern
PhD student – HRB Clinical Training Fellow in Endocrinology

Dr Eirin Carolan
PhD– Research Fellow in Paediatric Endocrinology

Ms Cathy Breen
PhD – Dietician

Dr Gadintshware Gaoatswe
M.D – Clinical Research Fellow in Endocrinology

Dr Conor Woods
PhD- Clinical Research Fellow in Endocrinology

Dr Aftab Khattak
MD - Clinical Research Fellow in Endocrinology

Dr Matt Armin
MD – Research Registrar in Endocrinology

The group, based on the St Vincent's University campus, coordinates international, collaborative, translational research in Obesity and its complications. The group comprises researchers with laboratory, statistical and clinical research expertise and is funded through the Health Research Board, the National Children's Research Centre and a number of industry supporters.

Current studies include;

1. Investigating the effects of GLP-1 and other Type 2 Diabetes medications on innate immune cells and inflammation: Obesity and obesity related co-morbidities have been to found to negatively impact innate immune cells. A novel clinical finding uncovered the positive effect that a GLP-1 analogue elicited on the psoriatic inflammatory condition. This gave rise to a number of in vitro studies attempting to uncover the mechanism by which GLP-1 reduces inflammation.

2. Investigating the effects of chronic inflammation and innate immune cell dysregulation in obese children and adolescents: The innate immune system in a paediatric cohort (mean age 12 years) displays the same pattern of dysregulation seen in adults patients (mean age 46). This paediatric cohort exhibit worrying patterns of gene expression involved in tumour suppression and metabolic control.

3. Enumerating invariant Natural Killer Cells (iNKT) in Obese patients with obstructive sleep apnoea: The iNKT cell plays an important role in tumour defence, prognosis and may play a role in weight management. A cohort of obese patients attending the Sleep Apnoea. It was found that patients suffering with severe sleep apnoea had reduced numbers of iNKT cells with reduced functionality.

4. Adipose Tissue iNKT cells Protect against Diet Induced Obesity and Metabolic Disorder through Regulatory Cytokine Production: This study was performed using a mouse model and the main finding of this work highlights the potential of iNKT cell-targeted therapies, previously proven to be safe in humans, in the management of obesity and its consequences.

A number of pilot clinical studies are underway also;

5. A pilot study to determine the effects of Vitamin D Supplementation on physical function and inflammatory markers in the severely Obese.

6. Assessing the role of 11 ß-Hydroxysteroid Dehydrogenase Type 1 (11ß-HSD1) in obesity: Tissue cortisol metabolism is controlled by 11ß-HSD1 and is postulated to be involved in the pathogenesis of obesity and its complications.

7. Effects of Normalising Testosterone and Oestradiol Levels on Cardiovascular and Bone Health in Men with Severe Obesity: A Randomized Clinical Trial.

The group have had a successful year with a number of publications and conference presentations.

Prof Donal O'Shea
Associate Clinical Professor

Location: St Vincent's University Hospital
Contact: (01) 221 2425
Email: info@dosheaendo.ie

The Obesity Immunology group's research is focused on dysregulation of the immune system in obesity and the effect of gut hormones and diabetes medication on innate cell function. The innate immune cells, invariant natural killer T cells (iNKT cells), are implicated in the pathogenesis of psoriasis, an inflammatory condition associated with obesity and other metabolic diseases, such as diabetes and dyslipidemia. We have also found that Dendritic cell function is hindered by the obese state.

We have published the below papers in these areas;
- Adipose Tissue Invariant NKT Cells Protect against Diet-Induced Obesity and Metabolic Disorder through Regulatory Cytokine Production.
- Glucagon-like peptide-1 analogue therapy for psoriasis patients with obesity and type 2 diabetes: a prospective cohort study
- Changes in human dendritic cell number and function in severe obesity may contribute to increased susceptibility to viral infection.

I am also affiliated with UCD Conway Institute of Biomolecular and Biomedical Research, where I have forged close ties with Prof Carel Le Roux and am in active collaboration with Prof Helen Roche and Dr Fiona McGillicuddy.

Active national and international collaborators & projects:

Dr Andrew Hogan, PhD
Dr Lydia Lynch, PhD
Dr Michelle Corrigan, PhD
Dr Tomas Ahern, PhD
Dr Eirin Carolan, PhD
Dr Gadintshware Gaoatswe, MD
Dr Conor Woods, PhD
Ms Cathy Breen, PhD
Dr Aftab Khattak, MD
Dr Matt Armin, MD

Grants:

Title: Expression and clinical relevance of the somatostatin sst receptors in GastroEnteroPancreatic NeuroEndocrine Tumours (GEP NETs): an Irish-Italian population-based study
Funder: Ipsen
Start/End Dates: June 2011-May 2013
Amount: €90,000

Title: The interaction between steroid hormones and immune cells in metabolically healthy obese (MHO) & metabolically unhealthy obese (MUO) patients and the response to weight loss following bariatric surgery (BARI-CORT).
Funder: Sanofi
Start/End Dates: June 2011-May 2013
Amount: €90,000

Title: The Effect of Sex Hormones on Lymphocyte, Adipose Tissue and Vascular Tissue Inflammation in men with Obesity or cardiovascular disease.
Funder: Irish Heart Foundation
Start/End Dates: March 2010 – February 2013
Amount: €156,000

Title: Chronic inflammation and innate immune cell dysregulation in obese children and adolescents.
Funder: National Children's Research Centre Obesity Consortium Project Grant
Start/End Dates: 2011-2014
Amount: €354,876

Publications:

1. Ahern T, Tobin AM, Corrigan M, Hogan A, Sweeney C, Kirby B, *et al.* Glucagon-like peptide-1 analogue therapy for psoriasis patients with obesity and type 2 diabetes: a prospective cohort study. *J Eur Acad Dermatol Venereol* 2012.

2. Lynch L, Nowak M, Varghese B, Clark J, Hogan AE, Toxavidis V, *et al.* Adipose tissue invariant NKT cells protect against diet-induced obesity and metabolic disorder through regulatory cytokine production. *Immunity* 2012,**37**:574-587.

3. Farah N, Hogan AE, O'Connor N, Kennelly MM, O'Shea D, Turner MJ. Correlation between maternal inflammatory markers and fetomaternal adiposity. *Cytokine* 2012 Jun 20. PMID 22726456.

SVUH Neurology Research Group

The Neurology Department at St Vincent's University Hospital is currently led by three full time consultant neurologists; Professor Niall Tubridy, Dr Christopher McGuigan and Dr Sean O' Riordan. Professor Hutchinson continues to work in four clinics every week as well as being one of the driving forces behind our Multiple Sclerosis and Dystonia research.

Group Head

Prof Niall Tubridy
01 221 3830 / n.tubridy@svuh.ie
St Vincent's University Hospital

Research Team

Prof Niall Tubridy
Associate Clinical Professor

Prof Michael Hutchinson
Newman Clinical Research Professor

Prof James Jones
Professor of Anatomy

Dr Sean O'Riordan
Consultant Neurologist

Dr Chris McGuigan
Consultant Neurologist

Dr Karen O'Connell
Biogen Idec Newman Research Fellow in Neurology

Newman Fellows

Dr Anna Molloy

Dr Okka Kimmich

Dr Laura Williams

Ms Sinead Jordan
Research Nurse

MS Nurses

Marguerite Duggan

Lisa Buckley

Ms Heather Kevelighan
Parkinson's Nurse

The Neurology Research Group continues its work in a wide range of areas but especially in those of multiple sclerosis and movement disorders.

The research team includes; Dr Okka Kimmich, Dr Anna Molloy, Dr Laura Williams, Newman Fellow in Movement Disorders; Dr Karen O'Connell, Newman Fellow in MS Research; Post-Doctoral MS Research Fellow, Dr Jean Fletcher (based at TCD); MS Nurse Specialists Marguerite Duggan and Lisa Buckley, Parkinson's Nurse Specialist Heather Kevilighan and Clinical Trials Research Nurse Sinead Jordan.

In November 2012 we began recruiting for our first investigator-led interventional clinical trial entitled: 'Dose-related effects of vitamin D on immune responses in patients with Clinically Isolated Syndrome or early MS and healthy control participants. An exploratory double blinded placebo controlled study' (2012CIS/VD/SVUH). The principal investigator of this study is Professor Michael Hutchinson. To date 26 participants have been screened. A second interventional trial involving MS participants, led by Dr Christopher McGuigan is due to commence in spring 2013.

Neuropsychological assessments of participants with MS, conducted over three years, are ongoing as part of a larger study on evoked potentials in MS. Neuropsychological assessments are being completed in collaboration with Sean O Donnchadha, Marie Claire O Brien, Dr Jessica Bramham and Dr Teresa Burke from the School of Psychology, UCD.

Research in dystonia in conjunction with Prof Richard Reilly and Dr Robert Whelan of the Department of Neural Engineering has been funded jointly by the HRB and Dystonia Ireland with a two-year grant. We have shown that the temporal discrimination threshold is a useful endophenotype in adult onset primary torsion dystonia (AOPTD) and this may have important implications for understanding the pathophysiological mechanisms underlying this disorder and ultimately its genetic basis.

Our research registrars and collaborators represented our department at several international and national neurology conferences throughout the year presenting our current data.

Prof Niall Tubridy
Associate Clinical Professor

Location: St Vincent's University Hospital
Contact: 01 221 3830
Email: niall.tubridy@ucd.ie

The Department of Neurology at St Vincent's University Hospital has significantly expanded in recent years and we are now running an extensive research program in multiple sclerosis and dystonia. We have published extensively in the last 5-10 years and are currently involved in more than 10 clinical trials in Ms We have set up a clinical trial for vitamin D in MS and are collaborating with others in Trinity College Dublin, London and beyond.

In addition we encourage student involvement and run teaching weeks twice a year for all UCD medical students. We have produced a series of neurology teaching videos which went live via YouTube in 2013 and to date have been visited over 75,000 times and accessed from 160 countries throughout the world.

Affiliations:
- Education & Research Centre, St Vincent's University Hospital, Elm Park, Dublin 4

Prof Michael Hutchinson
Newman Clinical Research Professor

Location: St Vincent's University Hospital
Contact: 086 817 6049
Email: mhutchin2@mac.com

Prof James FX Jones
Professor of Anatomy

Location: UCD Health Sciences Centre
Contact: 01 716 6622
Email: james.jones@ucd.ie

I am a neuroanatomist interested in autonomic control of the gastrointestinal tract. At present I am working on the neural control systems of defaecation and the anal canal. In 2012 I received funding from Medtronic Inc. to refine medical devices that are used in cases of faecal incontinence.

Affiliations:
- Vascular Biology Group
- Centre for colorectal Diseases

Dr Okka Kimmich
Research Registrar, Newman Fellow

Location: Dept. of Neurology, St Vincent's University Hospital
Contact: 01 277 4033
Email: o.kimmich@st-vincents.ie

Primary adult-onset focal dystonia, the third commonest movement disorder, has been the focus of the research team under the leadership of Prof Hutchinson. Being a specialist treatment centre, we have established a comprehensive clinical and DNA database. We have been examining potential endophenotypes, i.e. biomarkers associated with assumed gene carriage, in the view to improve the search for the underlying genetic and understanding of the physiological abnormalities in this disabling condition within a collaborative national and international network.

Affiliations:
- Neurogenetics Group with Dr Sean Ennis, Dr Sally Ann Lynch and colleagues.
- UCD CCHR (Centre for Child Health Research)

Dr Christopher McGuigan
Clinical Lecturer

Location: St Vincent's University Hospital
Contact: 01 221 4209
Email: c.mcguigan@st-vincents.ie

In 2012 I received funding from Biogen Idec for a Newman Fellow to study clinical and epidemiological aspects of Multiple Sclerosis in Ireland. In addition a Neuroscience BSc student completed an undergraduate thesis on Neurosarcoidosis under my supervision. I have commenced an investigator led trial on the use of prolonged release Fampridine for upper limb function in patients with progressive multiple sclerosis and was appointed national lead on clinical trials for new treatments for spasticity, relapsing remitting and secondary progressive MS.

Dr Anna Molloy
Research Registrar, Newman Fellow

Location: St Vincent's University Hospital
Contact: 01 277 4033
Email: a.molloy@st-vincents.ie

Adult onset primary torsion dystonia (AOPTD), has been the focus of our research with Prof Michael Hutchinson and Dr Sean O' Riordan leading the team here in St Vincent's. Our research is focused on determining the underlying aetiology of dystonia examining the use of endophenotypes in this poorly penetrant disorder to assist us in genetic studies. We are collaborating with neurogenetics teams in Mount Sinai, New York and University College London in this regard. Over the last ten years we have established a large and comprehensive clinical and DNA database which we have been utilising in collaboration with these centres over the past year.

Dr Karen O'Connell
Biogen Idec Newman Research Fellow in Neurology

Location: St Vincent's University Hospital
Contact: (01) 221 4030
Email:k.oconnell@svuh.ie

My main interest is Multiple Sclerosis and my principal project is to establish the incidence of MS across Ireland and examining the role of potential aetiolgoical factors in MS development. I am also actively involved in two investigator led randomised controlled trials looking at vitamin D in healthy controls and those with Clinically Isolated Syndrome and fampridine and upper limb function in Progressive Multiple Sclerosis. Both these studies are sponsored by University College Dublin.

Dr Sean O'Riordan
Clinical Lecturer

Location: St Vincent's University Hospital
Contact: -
Email:sean.oriordan@st-vincents.ie

I am a Consultant Neurologist in St Vincent's University Hospital with a specialist interest in Movement Disorders. Our group, led by Professor Michael Hutchinson, has an established interest in the study of clinical, genetic, imaging, and neurophysiological aspects of dystonia.

Active national and international collaborators & projects:

Dr Karen O'Connell, Newman Fellow
Dr Okka Kimmich, Newman Fellow
Dr Laura Williams, Newman Fellow
Dr Anna Molloy, Newman Fellow
Ms Sinead Jordan, Clinical Trials Nurse
Ms Malgorzata Dytko, MSc
Dr Babatunde Soetan, MCh
Mr Eric Lucking, PhD
Ms Fiona McDonald, PhD
Ms Deirdre Edge, PhD
Ms Judith Evers, PhD
Ms Catherine Redmond, PhD
Dr Liam Devane, MD
Dr Giovanni Stevanin, Hopital de Salpetriere
Prof Laurie Ozelius, Associate Prof, Bachmann Strauss Prof, Mount Sinai School of Medicine
Dr Mark Edwards, Institute of Neurology London

Grants:

Title: Biogen Newman Fellowship in Neurology Research
Funder:
Start/End Dates: 2012-2014
Amount: Unrestricted grant for two year fellowship for research in Dept of Neurology

Title: Novartis Newman Fellowship in Neurology Research
Funder:
Start/End Dates: 2011-2013
Amount: Unrestricted grant for two year fellowship for research in Dept of Neurology

Title: Dysregulation of pathogenic T cells in multiple sclerosis.
Held by Jean Fletcher Academic
Funder: Kingston Mills in collaboration with Niall Tubridy
Start/End Dates: 2009-2013
Amount: €440,000

Title: Reflex and behavioural studies of faecal continence and incontinence in an animal model and optimisation of frequency parameters of sacral neuromodulation
Funder: Medtronic Inc.
Start/End Dates: 22-JUN-12 / 01-JAN-15
Amount: €105,000

Title: A new model for studying eye development
Funder: University College Dublin Foundation Ltd.
Start/End Dates: 01-JAN-13 / 31-DEC-13
Amount: €24,000

Title: The effect of sacral neuromodulation on inputs to the somatosensory cortex
Funder: Science Foundation Ireland (SFI)
Start/End Dates: 01-SEP-11 / 31-AUG-15
Amount: €175,000

Title: Reflex and behavioural studies of faecal continence and incontinence in an animal model and optimisation of frequency parameters of sacral neuromodulation
Funder: Medtronic Inc.
Start/End Dates: 22-JUN-12 / 01-JAN-15
Amount: €105,000

Title: IICN- Novartis Fellowship research grant
Funder: Irish Institute of Clinical Neuroscience & Novartis
Start/End Dates: july 2012- June 2013
Amount: €50,000

Title: Clinical Scientist Award: The temporal discrimination threshold as a mediational endophenotype in adult onset primary torsion dystonia. CSA/2012/5
Funder: Health Research Board
Start/End Dates: July 2013- June 2018
Amount: €800,000

Publications:

1. O'Connell K, Marnane M, McGuigan C. Bilateral ocular perineuritis as thepresenting feature of acute syphilis infection. *J Neurol.* 2012 Jan;**259**(1):191-2.

2. Williams L, O'Riordan S, McGuigan C, Hutchinson M, Tubridy N. A webbased electronic neurology referral system: a solution for an overburdenedhealthcare system? *Ir Med J.* 2012 Oct;**105**(9):301-3

3. Kelly S, Kinsella K, Duggan M, Tubridy N, McGuigan C, Hutchinson M. A proposed modification to the McDonald 2010 criteria for the diagnosis of primary progressive multiple sclerosis. *Mult Scler.* 2012 Nov 6

4. Hutchinson M. Industrial pharmaceutical drug research has done more for the health of people with MS than academic neurologists: commentary. *Mult Scler.* 2012 Sep;**18**(9):1213-4.

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6. Hutchinson M. There is no such thing as a mild MS relapse. The mild relapseis an Anglo-Saxon delusion - commentary. *Mult Scler.* 2012 Jul;**18**(7):930-1.

7. Hutchinson M. We are about to cure MS in the next 10 years, even thoughwe do not know its cause: commentary. *Mult Scler.* 2012 Jun;**18**(6):786-7.

8. Hutchinson M. The neurologist's dilemma: MS is a grey matter disease thatstandard clinical and MRI measures cannot assess adequately--commentary. *Mult Scler.* 2012 May;**18**(5):561-2

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10. Hutchinson M. In assessing multiple sclerosis disease activity patient report measures are a waste of time: cut to the MRI scan!--Commentary. *Mult Scler.* 2012 Mar;**18**(3):269-70.

11. Hutchinson M. Epidemiology of multiple sclerosis has had its day: there areno more unanswered questions--commentary. *Mult Scler.* 2012 Feb;**18**(2):142.

12. Hutchinson M. Truly benign multiple sclerosis is rare: let's stop fooling ourselves--commentary. *Mult Scler.* 2012 Jan;**18**(1):15.

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Tissue Engineering

The Tissue Engineering Research Group (TERG) is focussed on the development of next-generation implants by combining nanotechnology and tissue engineering methods, with a particular focus on living, cardiovascular devices for the treatment of both paediatric and adult populations.

Group Head
Dr Tom Flanagan
01 716 6631 / thomas.flanagan@ucd.ie
UCD Health Sciences Centre

The TERG is currently based in the UCD Health Sciences Centre and focusses on the application of tissue engineering and regenerative medicine principles to the improved treatment of disease. The two major group research themes are summarised below.

1. Vascular graft / heart valve prostheses. The major research focus of the group specifically targets the treatment of congenital cardiac defects, and namely the development of vascular and heart valve prostheses to reconstruct such defects. The principal project within the group, funded by the National Children's Research Centre, is a highly multidisciplinary study that aims to synthesise a novel, autologous elastogenic vascular graft that can be constructed entirely from materials isolated from the infant patient. The premise of this study is that autologous, or 'self-made', materials will remove the potential for graft rejection, and provide the infant patient with a living, elastic graft that can grow together with their surrounding body tissues, thereby eliminating the need for successive re-operations. The group has been working closely with Prof Stefan Jockenhoevel (RWTH Aachen, Germany) over the last number of years developing techniques to generate both living vascular grafts and heart valve prostheses based on a fibrin scaffold material. Fibrin can be isolated from a sample of patients' blood, and used as a material on which to grow cells, which then transform the fibrin into a tissue-like structure. The current 4-year translational study will employ novel techniques to generate more stable, long-lasting vascular graft materials using specialised equipment, defined chemical supplementation, together with the patient's own cells.

2. In vitro models of disease. The second major research interest of the TERG is the application of tissue-engineered constructs as in vitro models of disease, primarily myxomatous mitral valve disease. While much work has been performed to look at diagnosis and treatment of this disease, efforts to better understand the cellular and molecular basis of this disease have been hampered by the lack of a suitable in vitro system. In a collaborative study with the Roslin Institute, University of Edinburgh and NUI, Galway, the TERG is developing an in vitro bioreactor system to determine the factors that may influence the onset and progression of canine and human myxomatous mitral valve disease.

In addition to a number of publications and presentations, the highlight of the group in 2012 was to secure substantial funding from the National Children's Research Centre for paediatric vascular graft development.

Dr Tom Flanagan
Lecturer

Location: UCD Health Sciences Centre
Contact: 01 716 6631
Email: thomas.flanagan@ucd.ie

Dr Flanagan's heads the Tissue Engineering research group at the School of Medicine & Medical Science, with a primary research focus in the fields of cardiovascular disease and cardiovascular tissue engineering, and in particular the development of novel heart valve prostheses and vascular grafts. Additionally, the group are involved in developing in vitro models of disease (e.g. myxomatous mitral valve disease, cancer), and have a number of active national and international collaborations in these areas.

Researchers Supported:

Ian Woods, PhD candidate
Sean Strauther, MSc candidate

Grants:

Title: Autologous, elastogenic tissue-engineered vascular conduits for repair of congenital heart defects
Funder: National Children's Research Centre, Our Lady's Children's Hospital, Crumlin (CRC)
Start/End Dates: 01-OCT-12 / 01-OCT-16
Amount: €260,000

Publications:

1. Koch S, Stappenbeck N, Cornelissen CG, Flanagan TC, Mela P, Sachweh J, *et al.* Tissue engineering: selecting the optimal fixative for immunohistochemistry. *Tissue Eng Part C Methods* 2012,**18**:976-983.

2. Weinandy S, Rongen L, Schreiber F, Cornelissen C, Flanagan TC, Mahnken A, *et al.* The BioStent: novel concept for a viable stent structure. *Tissue Eng Part A* 2012,**18**:1818-1826.

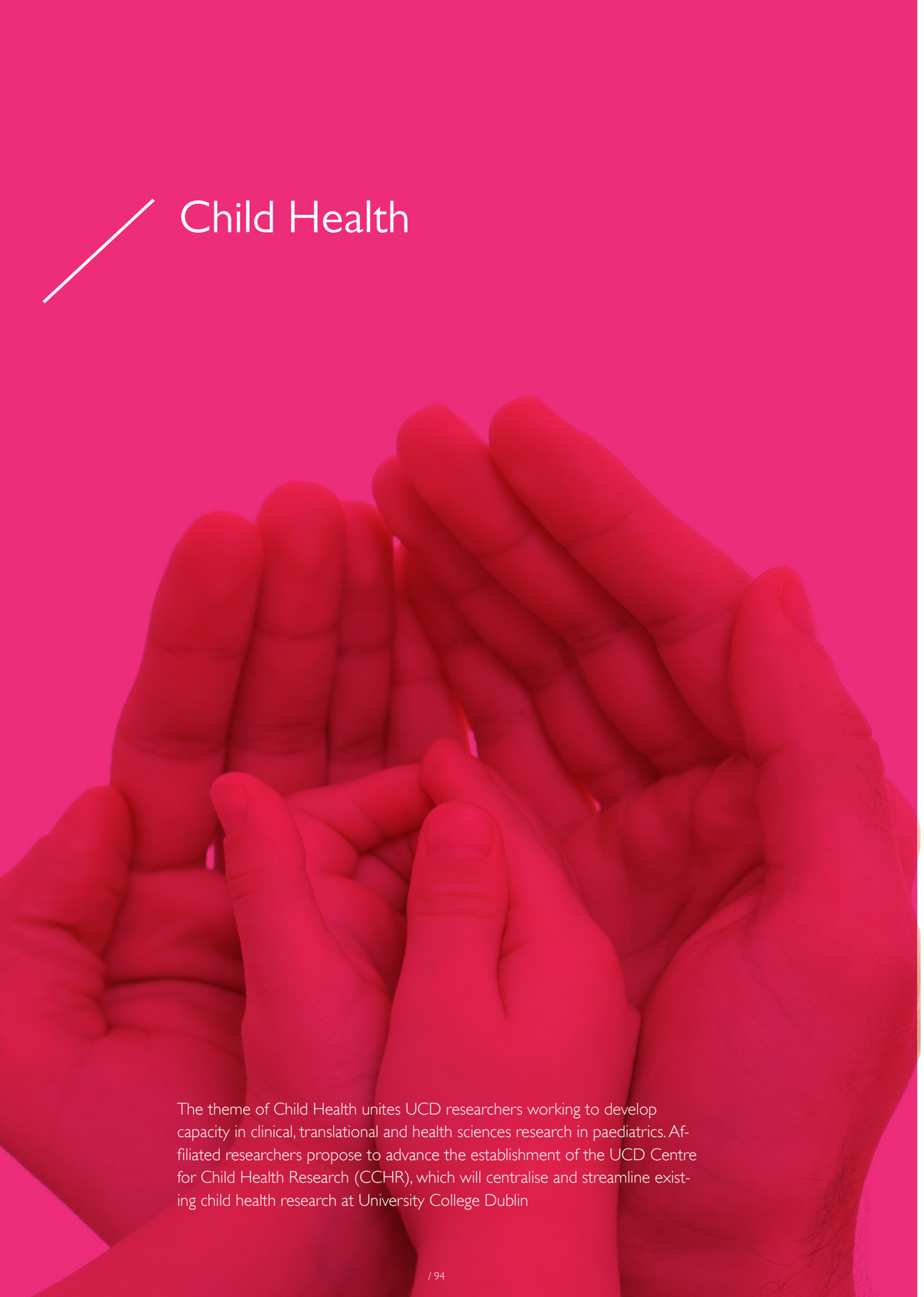
3. Wirz S, Dietrich M, Flanagan TC, Bokermann G, Wagner W, Schmitz-Rode T, *et al.* Influence of platelet-derived growth factor-AB on tissue development in autologous platelet-rich plasma gels. *Tissue Eng Part A* 2011,**17**:1891-1899.

Active national and international collaborators & projects:

Prof Stefan Jockenhoevel, Helmholtz Institute for Biomedical Engineering & Institute for Textile Technology, Aachen University, Germany
Alex Black, Department of Anatomy, National University of Ireland, Galway
Prof Brendan Corcoran, Royal (Dick) School of Veterinary Studies & Roslin Institute, University of Edinburgh, Scotland

Research Themes

Child Health



The theme of Child Health unites UCD researchers working to develop capacity in clinical, translational and health sciences research in paediatrics. Affiliated researchers propose to advance the establishment of the UCD Centre for Child Health Research (CCHR), which will centralise and streamline existing child health research at University College Dublin

Academic Lead

Prof Billy Bourke
01 716 6272 / billy.bourke@ucd.ie
University College Dublin/Our Lady's Children's Hospital

Research Team

Prof Billy Bourke
Associate Professor & Consultant in Paediatrics

Dr Michael Barrett
Special Lecturer in Paediatrics

Prof Carlos Blanco
Adjunct Professor

Dr Annemarie Broderick
Senior Clinical Lecturer in Paediatrics

Dr Cormac Breatnach
Clinical Lecturer in Paediatrics

Prof Karina Butler
Clinical Professor in Paediatrics

Dr Marguerite Clyne
Lecturer

Dr Declan Cody
Consultant Endocrinologist

Dr Des Cox
Consultant Respirologist

Dr John Cronin
Clinical Research Fellow

Dr Ellen Crushell
Consultant for Inherited Metabolic Disorders

Dr Adrianne Foran
Consultant Neonatologist

Dr Seamus Giles
Senior Lecturer

Dr Joanne Hughes
Consultant for Inherited Metabolic Disorders

Dr Seamus Hussey
Clinical Lecturer in Paediatrics

Prof Mary King
Professor of Paediatrics & Head of Subject

Dr Ina Knerr
Consultant Paediatrician

Prof Ulla Knaus
Professor of Immunology

Dr Eleanor Molloy
Senior Clinical Lecturer in Paediatrics

Dr Sinead Murphy
College Lecturer

Dr Colm O'Donnell
Senior Clinical Lecturer in Paediatrics

Dr Niamh O'Sullivan
Consultant Microbiologist

Prof Prem Puri
Newman Clinical Research Professor

Dr Marian Rowland
Lecturer in Clinical Research

Dr Jennifer Thompson
Senior Lecturer

The CCHR comprises a cluster of clinical and translational researchers at University College Dublin and its affiliated paediatric hospitals. It includes investigators with expertise across the spectrum of translational research, including laboratory-based scientists, clinician scientists and clinician researchers. Research outputs cover a wide range of paediatric diseases, however strong focus has been brought to bear on certain research areas/themes with existing established research capacity.

Infectious diseases are the main causes of childhood mortality worldwide. Diarrhoeal disease research has benefited from the establishment of the DOCHAS initiative funded by the National Children's Research Centre which aims to understand the recent rapid increase in inflammatory bowel disease in Irish children and already has recruited over 150 patients. Furthermore, research by UCD affiliated investigators in the areas of childhood HIV infection and immune deficiency states relevant to TB has been published in the Lancet and New England Journal of Medicine.

Laboratory-based investigation of the inflammatory and host defence mechanisms underlying important childhood diarrhoeal disease pathogens has been strengthened by an award from the National Children's Research Centre of over one million Euro to a group of Science Foundation Ireland/Health Research Board- funded investigators interested in the role of reactive oxygen species during intestinal infection in children.

Prevention of morbidity and mortality in premature infants is a major challenge of child health. UCD affiliated investigators have been awarded a number of investigator grants to study inflammatory and hypoxic injury in infants. Exciting results of studies aimed at analysing and predicting morbidity and mortality using clinical and laboratory indicators, and more effective methods for treating sick neonates, have been published.

Congenital birth defects have been the focus of research by UCD affiliated investigators based at the National Children's Research Centre for many years. Investigator research grants have been awarded for the study of gastrointestinal and pulmonary congenital defects with multiple publications on the pathogenesis of, and outcomes in, a variety of congenital defects.

Prof Billy Bourke
Associate Professor & Consultant in Paediatrics

Location: Our Lady's Children's Hospital
Contact: 01 716 6272
Email: billy.bourke@ucd.ie

My principal laboratory research interest is in the pathogenesis of intestinal infection – in particular Campylobacter infection. Previously, we had shown that C. jejuni transiently loses capsule production when co-cultured with epithelial cells in vitro. We now have shown that ROS are produced from epithelial NADPH oxidase (Nox/Duox) enzymes following infection with Campylobacter jejuni and that ROS in the extracellular environment down-regulate a novel bacterial kinase to switch off tyrosine phosphorylation controlled bacterial capsule production. These data now have been published in the prestigious journal Cell – Host and Microbe.

Collaborators:
Prof Ulla Knaus, UCD Conway Institute of Biomolecular & Biomedical Research
Dr Marguerite Clyne, UCD Conway Institute of Biomolecular & Biomedical Research
Dr Tadhg O'Croinin, UCD School of Biological Sciences

For more information about the work of UCD researchers working in the area of paediatrics and child health, please visit the School's award-winning website, available at www.ucd.ie/medicine

Dr Michael Barrett
Special Lecturer in Paediatrics

Location: Our Lady's Children's Hospital Crumlin
Contact: 01 409 6335
Email: michael.barrett@ucd.ie

My research interests include acute pain in childhood and our group focuses on prehospital and the emergency department care setting. Pain is the number one presenting symptom in a pediatric emergency setting. Together with a group of close collaborators at Paediatric Emergency Research Unit (PERU), National Children's Research Centre and UCD we are developing an international collaborative research programme. The PERU has established a track record in clinical studies and trials in the acute care setting.

Prof Karina Butler
Clinical Professor in Paediatrics

Location: UCD Conway Institute
Contact: 087 233 4653
Email: karina.butler@olchc.ie

My clinical research has focussed on the roll out and recruitment to the PENTA 16: the BREATHER study, of which I am protocol chairperson. It compares continuous versus five day per week antiretroviral therapy in young people. This HTA/ESPID funded study, co-sponsored by the MRC and PENTA foundation is now recruiting in Europe, Asia, Africa, North and South America. The study is on target to meet it enrolment target of 160 – 220 children, with over 140 children enrolled to date. My team continues its involvement in clinical studies of HIV and other infectious diseases in children.

Dr John Cronin
Clinical Research Fellow

Location: National Children's Research Centre
Contact: 086 022 0643
Email: croninjj@gmail.com

In June 2012 I completed the recruitment of 250 patients for a randomised controlled trial (RCT) of dexamethasone and prednisolone in the treatment of acute exacerbations of asthma in children in the Emergency Department. This is the first RCT to be performed in an Irish ED. This work has been presented nationally and internationally and has won several awards.

I developed a novel Asthma Encounter Form that was introduced into practice in the ED at Our Lady's Children's Hospital, Crumlinin April 2012. I then completed recruitment for another prospective study in the ED examining it's impact.

Dr Seamus Giles
Senior Lecturer

Location: UCD Health Sciences Centre
Contact: 01 716 6630
Email: seamus.giles@ucd.ie

My main laboratory research interest is in teratology, the invesrigation of agents that cause birth defects. My main focus at present is on the effects of ethanol on development, a leading yet preventable cause of neurological and physical defects. In a separate collaboration we are investigating the underlying mechanisms and efficacy of treating subglottic stenosis with anti-scarring agents such as Mitomycin C.

Collaborators:
Dr Madeline Murphy, UCD Conway Institute of Biomolecular & Biomedical Research
Mr J Russell, Our Lady's Hospital for Sick Children, Crumlin

Dr Séamus Hussey
Clinical Lecturer in Paediatrics

Location: Our Lady's Children's Hospital, Crumlin / National Children's Research Centre
Contact: 01 428 2634
Email: seamus.hussey@ucd.ie

My main research interests are studying the aetiopathogenesis and outcomes of paediatric gastrointestinal diseases, especially inflammatory bowel disease (IBD) and coeliac disease. In 2012 we launched DOCHAS (Determinants and Outcomes in CHildren and AdolescentS with IBD) – the first prospective study of paediatric IBD in Ireland. We are also a major participating centre in international paediatric IBD studies, including GROWTH and iNEOPICS.

Collaborators:
Prof Billy Bourke, Our Lady's Children's Hospital, Crumlin
Prof Ulla Knaus, UCD Conway Institute of Biomolecular & Biomedical Research
Dr Annemarie Broderick, Our Lady's Children's Hospital, Crumlin
Dr Marion Rowland, UCD Conway Institute of Biomolecular & Biomedical Research
Prof Arie Levine, Wolfson Medical Centre, Israel
Dr Dan Turner, Hebrew University School of Medicine, Israel
Dr Jacinta Kelly, Trinity College Dublin
Dr Aleixo Muise, Hospital for Sick Children, Toronto, Canada

Prof Ulla Knaus
Professor of Immunobiology

Location: UCD Conway Institute
Contact: 01 716 6719
Email: ulla.knaus@ucd.ie

Research in my laboratory focuses on advancing our understanding of the body's first line of defence, the innate immune system. We focus on molecular mechanisms that determine the outcome of a pathogen's interaction with the host organism, and how early intervention may ameliorate infection and tissue destruction. Together with collaborators we are using state-of-the-art techniques ranging from structure-function studies to animals models and from neutrophil biology to mucosal defence in airways and GI tract.

Researchers Supported:
Luis Alvarez, PhD
Patti Hayes, PhD
Malgorzata Kubica, PhD
Suisheng Zhang, PhD
Dr Nicolae Corcionivoschi
Dr Jeremy Simpson
Dr Jonathan Chernoff, *Fox Chase Cancer Center, Philadelphia, USA*
Dr Mary Dinauer, *Washington University School of Medicine*
Dr Klaus Hahn, *University of North Carolina, Chapel Hill, USA*
Dr Marta Perego, *The Scripps Research Institute, La Jolla, CA, USA*
Dr Bruce Torbett, *The Scripps Research Institute, La Jolla, CA, USA*

Dr Eleanor Molloy
Senior Clinical Lecturer in Paediatrics

Location: National Maternity Hospital, Holles St
Email: eleanor.molloy@ucd.ie

am a Principal Investigator and Consultant Neonatologist at the National Maternity Hospital Holles St. I also work as a Senior Clinical Lecturer in Paediatrics at UCD, and hold the position of Associate Professor of Paediatrics at RCSI.

Major awards include the 2012 European Alliance against Neonatal Brain Injury Award, the 2012 National Children's Research Centre award, the Overall Presentation Award at the Irish Paediatric Association (IPA) and the 2012 poster prize at the IPA.

Researchers Supported:
Dr Katie Armstrong, MD
Dr Hassan Eliwan, MD
John Quigley, MSc
Dr Chike Onwuneme, PhD
Dr Aoife Twohig, PhD
Dr Deirdre Sweetman, MD
Dr Jean Donnelly, MD
Dr Sam Doyle, MD

Dr Niamh O'Sullivan
Consultant Microbiologist

Location: Our Lady's Children's Hospital
Contact: 01 409 6861
Email: niamh.osullivan@olhsc.ie

My main interest areas are Paediatric infections diseases, particularly:
- Infections in cystic fibrosis patients, particularly endemic Pseudomonas strains.
- Bordetella Pertussis – epidemiology & diagnostics.

Prof Prem Puri
Newman Clinical Research Professor

Location: National Children's Research Centre, Our Lady's Children's Hospital
Contact: 01 409 6420
Email: prem.puri@ucd.ie

During the past three decades we have been interested in understanding the underlying mechanisms causing some of the common congenital birth defects, e.g. vesicoureteral reflux, Hirschsprung's disease and related disorders, congenital diaphragmatic hernia, VACTERAL Association and Omphalocele. The National Children's Research Centre is now recognised internationally as a leading centre for research in the field of Vesicoureteral reflux and Hirschsprung's Disease.

Researchers Supported:
Dr Alex Hofmann (Hannover)
Dr Anne Marie O'Donnell (Ireland)
Dr Balazs Kutasy (Pécs)
Dr Danielle McLoughlin (Ireland)
Dr Florian Friedmacher (Graz)
Dr Hiromizu Takahashi (Tokyo)
Dr Jan Gosemann (Hannover)
Dr Johannes Dues (Graz)
Dr Manuela Hunziker (Lucerne)
Dr Naho Fujiwara (Tokyo)

Dr Jennifer Thompson
Senior Lecturer

Location: UCD Health Sciences Centre
Contact: 01-716 6628
Email: jennifer.thompson@ucd.ie

My main research interest is in mechanisms of abnormal development in the embryo, in terms of response to teratogenic insults and pathways that may be involved in spontaneous malformation.

Our research group, with collaborators at UCD and National Childrens Research Center, promotes advancement in this field and facilitates 4th level education of prospective researchers and clinicians in this area.

We have an established track record in presentation at international conferences and publication in world-class scientific journals.

Researchers Supported:
Johannes Duess, PhD
Anna Kaskova, MD
Naho Fujiwara, post-doctoral researcher

Dr Marion Rowland
Lecturer in Clinical Research

Location: Catherine McAuley Research Centre
Contact: 01 716 4497
Email: marion.rowland@ucd.ie

Epidemiological studies, which provide large cohorts of well-characterized participants, are a key platform to enable the translation of new technologies and laboratory techniques into real advances in patient care. As an island nation I believe we have a unique opportunity to contribute to future advances in translational research in a number of areas. My research has focused on long-term epidemiological studies, which seek to increase our understanding of the disease process/phenotype in the areas of Cystic Fibrosis, Helicobacter pylori, and Functional Disorders in Children.

Researchers Supported:
Ms Jennifer Drummond, Research Nurse
Ms Sherly George, Research Nurse

Grants:

Title: Transcriptional profiling of the human pathogen Campylobacter jejuni during infection of the intestinal mucosa
Start/End Dates: 2010-2013
Funder: The Children's Medical and Research Foundation
Amount: €90,000

Title: Characterising and mining the epithelial glycosylation in host/microbial interactions" -
Start/End Dates: 2009-2014
Funder: Science Foundation Ireland Alimentary Glycoscience Research Cluster
Amount: €221,362

Title: Reactive oxygen species targeting the bacterial phosphotyrosine network as defense strategy against mucosal pathogens
Start/End Dates: 2012-2016
Funder: The Children's Medical and Research Foundation
Amount: €1,024,000

Title: Vitamin D and Immunodulation in Pediatric sepsis (DIaPERS).
Collaborator: Grant proposal with Conway Institute, UCD.Prof RW Watson.
Start/End Dates: Jul 2011-Jul 2014
Funder: Children's University Hospital, Temple St. Research Fund. Project grant
Amount: €274,181

Title: Cytokines and neonatal brain injury and sepsis: sTREM-1.
Start/End Dates: 2010-2013
Funder: National Maternity Hospital Fund
Amount: €10,000

Title: Neonatal brain injury and systemic antioxidants.
Start/End Dates: 2011-2013
Funder: Children's University Hospital, Temple Street fund
Amount: €17,000

Title: The role of Protein C in Neonatal inflammation
Start/End Dates: 2010-2
Funder: National Children's Research Centre
Amount: €42,000

Title: Neonatal brain injury on MRI and early EEG: association with disruption of the blood brain barrier and systemic antioxidants.
Start/End Dates: 2009-2012
Funder: Children's Research Fund, Crumlin
Amount: €110,000

Title: Neonatal Cardiac function: novel echocardiographic and biochemical markers to predict neonatal outcome
Start/End Dates: 2010-2012
Funder: Children's Research Fund, Crumlin
Amount: €110,000

Title: Persistent inflammation and neonatal brain injury: association of systemic and cerebrospinal fluid biomarkers with MRI.
Start/End Dates: 2009-2012
Funder: Children's Research Fund, Crumlin
Amount: €187,000

Title: Sickle Cell Acute Pain in the Paediatric Emergency Department
Start/End Dates: Jul 2011-Jun 2014
Funder: National Children's Research Centre
Amount: €50,000

Title: Bordetella pertussis infection in Ireland: - detection, differential diagnosis and source of infection
Start/End Dates: 1st Nov 2012/31st Oct 2014
Funder: GlaxoSmithKline
Amount: €152,694.00

Title: Endemic Pseudomonas aeruginosa in Cystic Fibrosis Patients
Start/End Dates: 1st April 2012-
Funder: Merck Sharp & Dome
Amount: €20,188.00

Title: Investigating the Structural and Molecular Basis of Peristalsis in the Human Pelvi-Ureteric Junction in Health and Disease
Start/End Dates: 1st Apr – 31 Mar 2014
Funder: NCRC
Amount: €195,900

Title: Wnt Signalling as a Cue to Embryonic Folding – A Possible Mechanism for Ventral Body Wall Defect
Start/End Dates: Jan 2012 – 31 Dec 2014
Funder: NCRC
Amount: €190,175

Title: DEVELOPMENT OF PDGFR-□-POSITIVE CELLS: AN EXCITING NEW CELL TYPE IN THE HUMAN COLON
Start/End Dates: 1st Sep 2012 – 31st Aug 2015
Funder: NCRC
Amount: €237,243

Title: The origin of congenital foregut abnormalities in Oesophageal Atresia/Tracheo-Oesophageal Fistula
Start/End Dates: 1st Jan 12 – 31st Dec 2014
Funder: NCRC
Amount: €180,000

Title: Pathogenesis of Congenital Diaphragmatic Hernia
Start/End Dates: 1st Nov 2011 – 31st Oct 2012
Funder: NCRC
Amount: €80,000

Title: Study of the pathogenesis of pulmonary hypoplasia in an experimental rat model of congenital diaphragmatic hernia
Start/End Dates: 1st Feb 2011 – 31st Jan 2014
Funder: NCRC
Amount: €120,000

Title: Pathogenesis of Congenital Diaphragmatic Hernia
Start/End Dates: 1st Jan 2011 – 31st Dec 2012
Funder: NCRC
Amount: €80,000

Title: Investigation of The Pathogenesis of Ventral Body Wall Defect using the Cadmium Chick Model
Start/End Dates: 1st Apr. 2011-30th Jun 2013

Funder: NCRC
Amount: €80,000

Title: Pathogenesis of Congenital Diaphragmatic Hernia
Start/End Dates: 1st Jun 2012 – 31st Jul 2013
Funder: Juntendo Medical University, Tokyo
Amount: €40,000

Title: The Genetics of Primary Vesicoureteric Reflux
Start/End Dates: 2010-2012
Funder: NCRC
Amount: €888,300

Title: Development of PDGFR-a-Positive Cells: An Exciting New Cell Type in The Human Colon
Start/End Dates: 1st Sep 2012 – 31st Aug 2015
Funder: NCRC
Amount: €237,243

Title: Optimising the use of Mitomycin C in subglottic stenosis
Start/End Dates: 2009-Jan 2013
Funder: Nation Childrens Research Centre
Amount: €137,000

Title: Development of a novel in vitro embryonic stem cell model for the evaluation of ocular developmental toxicity.
Start/End Dates: Mar 2012-Oct 3013
Funder: UCD, seed-funding scheme
Amount: €15,000

Title: Stokes Profship 2007
Funder: Science Foundation Ireland (SFI)
Start/End Dates: 1st Oct 2008 - 30th Sep 2013

Title: ROS Signalling in the Lung - Control Mechanisms and Functional Consequences
Funderr: Science Foundation Ireland (SFI)

Start/End Dates: 1st Mar 2011 - 1st Mar 2016

Title: Trafficking to the Lung: Neutrophil Migration in Inflammatory Disease
Funder: Health Research Board (HRB)
Start/End Dates: 1st Oct 2011 - 1st Oct 2014

Title: PRTLI 5: ITN
Funder: Higher Education Authority (HEA)
Start/End Dates: 1st Jan 2011 - 31st Dec 2015

Title: Regulation of Infection and Inflammation
Funder: University College Dublin (UCD)
Start/End Dates: 1st Oct 2008 - 31st Mar 2016

Title: ROS targeting the bacterial phosphotyrosine network
Start/End Dates: 1st Jan 2013 - 31st Dec 2016
Funder: Childrens Foundation

Co-applicant
Title: PENTA 16 Trial: (BREATHER): Short cycle therapy (SCT) 5 dayson/2days off) in young people with chronic HIV infection
Start/End Dates: 1st Apr 2011 -
Funder: National Institute for Health Research/ Health Technology Assessment Programme
Amount: £360,000 (managed by MRC)

Publications:

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Fibrosis Research Theme

The UCD School of Medicine and Medical Sciences (SMMS) strategy for research support is to facilitate the coming together of individual investigators to create a coherent research group with a critical mass that can be efficiently supported and which can collaborate with industry and other academic institutions. The fibrosis group has obtained commitments from colleagues in UCD and affiliated hospitals to move this collaborative research agenda forward. The group represents a cross-section of UCD Fibrosis research interests.

Academic Lead

Prof Michael Keane
01 221 4474 / michael.p.keane@ucd.ie
St Vincent's University Hospital &
UCD Conway Institute

Prof Colm O'Brien
01 885 8617 / cobrien@mater.ie
Mater Misericordiae University Hospital

Research Team

Prof Michael Keane
Professor of Medicine and Therapeutics

Prof Colm O' Brien
Consultant and Professor of Ophthalmology

Dr John Baugh
Lecturer in Medicine

Dr Marcus Butler
Consultant and Lecturer in Respiratory Medicine

Dr Seamus Donnelly
Consultant and Lecturer in Respiratory Medicine'

Dr Suzanne Donnelly
Consultant Rheumatologist and Director of Clinical Education

Dr Margaret Hannan
Senior Clinical Lecturer

Dr Katherine Howell
Lecturer in Medicine

Prof Geraldine McCarthy
Clinical Professor

Prof Paul McLoughlin
Professor of Physiology

Dr Deborah Wallace
Postdoctoral Research Fellow

The Fibrosis group includes active PIs concentrated on developing our understanding of molecular, cellular, tissue and whole organism aspects of fibrosis. Specific current research clusters exist in the areas of cancer biology, hypoxia in disease, molecular vascular biology and proteomics/bioinformatics. The vascular system including blood vessels, blood cells, coagulation pathways, bone marrow and stems cells plays a central role in the development and progression of many major diseases including atherosclerosis, stroke, inflammatory lung disease, arthritis, cancer and complications of diabetes. Our focus is to enhance our understanding of the pathophysiology fibrosis and particularly the role of vascular involvement in fibrosis in order to identify and develop novel treatments and prevention strategies.

Particular areas of strength include:

- Hypoxia responses in adaptation and disease
- Angiogenesis in inflammatory diseases
- Microvascular complications of diabetes
- Coagulation pathways in cardiovascular disease
- Pulmonary hypertension
- Biology of fibrocytes

Key Achievements in 2012:

The Fibrosis group have published over 50 peer reviewed publications, while securing Euro 7 million in funding.

Prof Colm O'Brien
Consultant and Professor of Ophthalmology

Location: Mater Misericordiae Hospital
Contact: 01 885 8617
Email: cobrien@mater.ie

I am Professor of Ophthalmology at UCD and Consultant Ophthalmic Surgeon at the Mater Misericordiae University Hospital. I graduated from UCC in 1982 and did my clinical training at a number of centres in the UK followed by glaucoma fellowships at the New England Medical Center, Boston and Moorfields Eye Hospital, London. I was appointed Consultant Ophthalmologist at the Royal Infirmary of Edinburgh in 1992 and returned to Dublin in 1998.

My clinical and research interests are in the field of glaucoma, with a special interest in disease mechanisms underlying pseudo-exfoliation glaucoma and the molecular and signalling pathways that underlie fibrotic pathways of the optic nerve, trabecular meshwork and conjunctiva.

I also have a strong interest in Health Services Research and worked for many years as a board member at the National Council for the Blind.

I am Chairman of the Glaucoma Program Committee (AVRO), and Chairman of the Steering Committee, GATE Trial (NIHR). In addition, I am a member if the Steering Committee, EAGLE Trial (MRC). I also hold membership of the research committees of the Special Trustees of Moorfields, London and the Glaucoma Foundation, New York.

Dr John Baugh
Lecturer in Medicine

Location: UCD Conway Institute
Contact: 01 716 6729
Email: john.baugh@ucd.ie

My group is involved in several areas of translational medicine research with significant efforts to identify and commercialise novel serum biomarkers of heart failure and new therapeutics for fibro-inflammatory diseases such as diastolic heart failure and idiopathic pulmonary fibrosis. We focus on understanding the nature of chronic fibrotic disease and are investigating the roles of inflammation, epigenetic modifications, and hypoxia in aberrant wound healing and the development of tissue fibrosis.

Researchers Supported:
Dr Stephen Horgan, PhD
Dr Chris Watson, Post-doc
Dr Nadezhda Glezeva, Post-Doc
Ms Roisin Neary, MSc
Mr Isaac Tea, MSc
Ms Claire Tonry, MSc

Dr Marcus Butler
Consultant and Lecturer in Respiratory Medicine

Location: St Vincent's University Hospital
Contact: 01 221 3462
Email: marcus.butler@ucd.ie

My main laboratory research interest is in chronic obstructive pulmonary disease (COPD) and fibrogenic lung reactions and our group focuses on the role of circulating fibrocytes in smoking-related lung disease states including COPD and idiopathic pulmonary fibrosis (IPF). We are also active in clinical research of COPD and smoking-related interstitial fibrosis.

Researchers Supported:
Mr Daniel White, MSc
Ms Mary Poland, RN

Dr Seamas Donnelly
Consultant and Lecturer in Respiratory Medicine

Location: St Vincent's University Hospital & Conway Institute
Contact: 01 221 4930
Email: seamas.donnelly@ucd.ie

Our research work epitomises Translational Medicine where original bench based observations are translated to clinical disease. In particular we define key regulatory mechanisms which drive aberrant remodelling and repair and predispose towards chronic inflammatory diseases.

We are particularly interested in:
- Development of novel anti-inflammatory small molecular weight therapies
- Host environmental influences on the regulation of the inflammatory response.
- Genetic profiling guiding disease diagnosis, prognosis and response to therapy
- Host/Pathogen interactions which predispose towards more aggressive infection.

We utilise advanced cell and molecular biology techniques, in vitro cell and in vivo animal models to address these questions. It is our vision that our work will pave the way for specific tailored therapies which would attenuate key regulatory pathways which drive chronic inflammatory disease.

Researchers Supported:
Dr Michelle Armstrong, Senior PostDoctoral Scientist
Dr Helen Conroy, Senior PostDoctoral Scientist
Dr Gordon Cooke, PostDoctoral Scientist
Dr Ciaran O'Reilly, PostDovtoral Scientist
Ms Marie Claire Kennedy, Research Assistant
Ms Mary Walters, Clinical Research Nurse
Ms Leona Mawhinney, PhD
Dr David O'Dwyer, PhD
Dr Huzaifa Adamali, MD
Ms Aisling Tynan, PhD

Dr Margaret Hannan
Senior Clinical Lecturer

Location: Mater Misericordiae Hospital
Contact: 087 917 4000
Email: mhannan@mater.ie

Surgical site surveillance in cardiothoracic surgery, research in progress.

Epidemiology of Infective Endocarditis contribute to international database 2004-2012 and ongoing.

Editor of Book published by Elsevier in 2011. Diagnosis and Management of Infectious Diseases in Cardiothoracic Transplantation and Mechanical Circulatory Support

Editors: Martha L. Mooney, MD, MS, FACP, Margaret M. Hannan, MD, FRCP, FRCPath, Shahid Husain, MD, MS, and James K. Kirklin, MD

Invited to chair the update of the 2006 International Heart Guidelines Infectious Disease Task force to be re-published 2014.

Invited to be a member of the IMACS (ISHLT Mechanical Assisted Circulatory Support Registry) committee as the ID representative.

Dr Katherine Howell
Lecturer in Medicine

Location: UCD Conway Institute
Contact: 01 716 6730
Email: katherine.howell@ucd.ie

Research is directed towards expanding our knowledge of the pathogenesis of chronic lung diseases in the setting of hypoxia, particularly the role of the pulmonary vasculature. Specifically we are interested in the potential therapeutic role of Erythropoietin in the treatment of emphysema and the role of Placental Growth factor in hypoxic lung disease.

Researchers Supported:
Ms Elaine Colfer, PhD
Mr Barry O'Donohoe, BSc
Mr Mark Savage, SSRA

Prof Michael Keane
Professor of Medicine and Therapeutics

Location: St Vincent's University Hospital & UCD Conway Institute
Contact: 01 221 4474
Email: michael.p.keane@ucd.ie

Research interests include the biology of idiopathic pulmonary fibrosis including the mechanisms and mediators involved in the pathogenesis of the disease. Current research studies include the function and regulation of the IL-13 receptors, regulation of fibrocytes differentiation and the potential of mesenchymal cells to attenuate fibrosis. Our group has a particular interest in animal models of fibrosis.

Researchers Supported:
Dr Sarah O'Beirne, PhD
Dr Ian Counihan, PhD
Ms Sinead Walsh, PhD
Ms Julie Worrel, PhD
Dr Jennifer Crampton, PhD
Mr Rob Lumsden, PhD

Prof Geraldine McCarthy
Clinical Professor

Location: Mater Misericordiae Hospital
Contact: 01 830 1122
Email: gmccarthy@mater.ie

Invited Participant and Speaker: Research Priority Workshop for Gout & Crystal Disorders, Manchester, UK. Podium presentation American College of Rheumatology Annual Scientific meeting, Washington DC, USA. Initiation of collaboration with DCU Biomedical Diagnostics Institute project MobiMate (mobile-phone enabled remote chronic disease management) funded by Enterprise Ireland.

PI Dr Stephen O'Driscoll. Continuation of collaboration with RCSI on platelet hyperreactivity in inflammatory arthritis. Continuation of collaboration with Dr Aisling Dunne/Prof Kingston Mills at TCD in relation to the pathologic effects of BCP crystals in osteoarthritis.

Prof Paul McLoughlin
Professor of Physiology

Location: UCD Conway Institute
Contact: 01 716 6776
Email: paul.mcloughlin@ucd.ie

Our research is focused on the understanding of key mechanisms in the development and progression of lung diseases, including chronic obstructive pulmonary disease (COPD), emphysema, cystic fibrosis, adult respiratory distress syndrome and occupational lung diseases.

These diseases all cause reduced oxygen in the lung which then activates mechanisms that are pro-inflammatory, pro-thrombotic and promote maladaptive vascular remodelling. We are exploring the specific mechanisms through which hypoxia promotes these disease responses in the lung.

Researchers Supported:
Mr Simon Coyle Rowan, PhD
Dr Noelle Murphy, MD
Dr Caroline O Connell, MD
Dr Stephen Frohlich, PhD
Ms Joanna Cornwell, PhD

Dr Deborah Wallace
Postdoctoral Research Fellow

Location: Mater Misericordiae Hospital
Contact: 01 716 4586
Email: deborah.wallace@ucd.ie

Our laboratory is interested in the role of fibrosis in glaucoma. Glaucoma affects over 60 million people worldwide however current treatments are still limited & anti-fibrotic approaches remain largely unexplored. We have an active research group based at the CRC MMUH investigating glaucoma associated fibrosis through areas such as pathological cell biology and control mechanisms such as epigenetics. By way of active collaborations both within UCD and internationally we endeavour to develop anti-fibrotic therapies.

Researchers Supported:
Dr Sara McNally, Post-Doc
Ms Fiona McDonnell, PhD
Dr Emily Hughes, MD
Dr Elizabeth McElnea, MD

Grants:

Title: Novel Anti-Connective Tissue Growth Factor Antibody Therapy in Pseudoexfoliation Glaucoma
Funder: Health Research Board (HRB)
Start/End Dates: 01-DEC-10 / 01-DEC-13

Title: Glaucoma: An Insight into Epigenomic Reprogramming
Start/End Dates: : 01-Jan-13 / 31 Dec.2014
Funder: HRB
Amount: €165,480

Title: An analysis of normal and glaucomatous human lamina cribrosa and trabecular meshwork cell behaviours as determined by rigidity of the surrounding extracellular matrix.
Start/End Dates: 01-Jan-13 / 31 Dec.2013
Funder: International Glaucoma Association /United Kingdom and Eire Glaucoma Society
Amount: £25,000

Title: 'Novel Anti-Connective Tissue Growth Factor Antibody Therapy in Pseudoexfoliation Glaucoma'
Start/End Dates: Jan-13 / Dec.2014
Funder: Health Research Board
Amount: €245,533

Title: 'Anti-Connective Tissue Growth Factor Antibody Therapy in Pseudoexfoliation Glaucoma'
Start/End Dates: May 2011/May 2012
Funder: UK and Eire Glaucoma Society
Amount: £22,000

Title: "Platelet hyper-reactivity in active inflammatory arthritis: implications for cardiovascular risk'
Start/End Dates: 2010/2012
Funder: Abbott Clinical Trial Contract For Chief Investigator Initiated Research
Amount: €167,000

Title: The role of Serum Amyloid P-Component in the prevention and treatment of diastolic dysfunction and diastolic heart failure
Funder: Irish Heart Foundation
Start/End Dates: 01-JUL-10 / 30-JUN-12
Amount: €15,000

Title: Boston Scientific Research Bursary
Funder: Irish Cardiac Society (ICS)
Start/End Dates: 01-SEP-10 / 01-SEP-12
Amount: €10,000

Title: The role of Serum Amyloid P-Component in the prevention and treatment of diastolic dysfunction and diastolic heart failure.
Funder: Health Research Board (HRB)
Start/End Dates: 01-JUL-11 / 30-JUN-13
Amount: €142,625

Title: Biomarkers for the prevention of heart failure
Funder: Health Research Board (HRB)
Start/End Dates: 01-OCT-11 / 30-SEP-14
Amount: €283,000

Title: 5'-azacytidine as a novel treatment for Idiopathic Pulmonary Fibrosis
Funder: University College Dublin (UCD)
Start/End Dates: 01-MAY-12 / 31-OCT-13
Amount: €4911

Title: Biomarkers of heart Failure and Cardiovascular Disease
Funder: Enterprise Ireland (EI)
Start/End Dates: 01-APR-12 / 31-JUL-13
Amount: €110,000

Title: DNA Methylation Inhibitors as a novel treatment for Cardiac and Lung fibosis
Funder: Enterprise Ireland (EI) Feasibility Study
Start/End Dates: 01-SEP-12 / 31-DEC-12
Amount: €12000

Title: 5'-azacytidine as a novel treatment for Idiopathic Pulmonary Fibrosis
Funder: University College Dublin (UCD)
Start/End Dates: 01-MAY-12 / 31-OCT-13
Amount: €4,911

Title: Biomarkers of heart Failure and Cardiovascular Disease
Funder: Enterprise Ireland (EI)
Start/End Dates: 01-APR-12 / 31-JUL-13
Amount: €110,000

Title: DNA Methylation Inhibitors as a novel treatment for Cardiac and Lung fibrosis
Funder: Enterprise Ireland (EI) Feasibility Study
Start/End Dates: 01-SEP-12 / 31-DEC-12
Amount: €12,000

Title: Clinical Scientist Award to Prof Ken McDonald: Natural History of Diabetic Cardiomyopathy
Funder: Health Research Board (HRB)
Start/End Dates: 01-Jan-13 / 31-DEC-18
Amount: €1,475,168

Title: Health Research Award to Dr Mark Ledwidge: Immunomodulatory-matrix-metalloproteinase inhibition with tetracyclines in obesity, diabetes and asymptomatic left ventricular diastolic dysfunction: impact on MMP-9 levels and cardiovascular function
Funder: Health Research Board (HRB)
Start/End Dates: 01-OCT-12 / 30-SEP-15
Amount: €330,000

Title: Elucidating the role of placental growth factor in mediating hypoxia-induced pulmonary angiogenesis and co-ordinated epithelial growth in the adult hypoxic lung
Funder: Health Research Board (HRB)
Start/End Dates: 01-OCT-08 / 30-SEP-12

Title: Elucidating the potential therapeutic role of Erythropoietin in the treatment of emphysema
Start/End Dates: May 2013 / April 2017
Funder: SFI
Amount: €268,695
UCD Seed funding: approximately €7000 + matched funding from USA Pharmaceutical company Araim.

Title: Part time UCD Clinical Research nurse to facilitate COPD Research
Funder: Nycomed Products Ltd.
Start/End Dates: 21-MAR-11 / 21-MAR-13
Amount: €50,000

Title: Unrestricted Support for UCD Clinical Research Nurse Manager
Start/End Dates: 6-DEC-12 / 5-DEC-14
Funder: Novartis Ireland Limited
Amount: €20,000

Title: Unrestricted Support for COPD Outreach Programme Research
Start/End Dates: 1-OCT-12 / 30-SEP-13
Funder: AstraZeneca Pharmaceuticals (Irl) Ltd.
Amount: €10,000

Title: Surveillance of Infection in Mechanical Circulatory Support
Start/End Dates: 2011 - 2012
Funder: MSD
Amount: €20,000

Title: The Effect of Mesenchymal Stem Cells on Pulmonary Fibrosis
Funder: Health Research Board (HRB)
Start/End Dates: 01-JUL-10 / 30-JUN-12

Title: IL-13 receptor in lung injury and remodelling
Funder: Science Foundation Ireland (SFI)
Start/End Dates: 01-SEP-08 / 31-AUG-12

Title: Start -Up Funds
Funder: UCD School of Medicine and Medical Science
Start/End Dates: 01-OCT-07 / 30-SEP-14

Title: Wellcome Trust HRB Dublin Centre for Clinical Research
Start/End Dates: 01 MAR-09 / 31-DEC-14

Title: The pathophysiological basis of hypoxic pulmonary hypertension in the mouse: rho kinase dependent vasoconstrictor and structural mechanisms
Funder: University College Dublin Seed Funding (UCD)
Start/End Dates: 01-MAY-12 / 31-OCT-13
Amount: €1,774

Title: Pulmonary aterial hypertension: role of the bone morphogenetic antagonists
Funder: Health Research Board (HRB)
Start/End Dates: 01-OCT-12 / 30-SEP-15
Amount: €320,000

Title: Targeting gremlin in the diagnosis and treatment of fibrotic lung disease
Funder: Health Research Board (HRB)
Start/End Dates: 03-SEP-12 / 02-SEP-16
Amount: €412,000

Title: Gremlin in Acute Lung Injury SVAF
Funder: University College Dublin Foundation Ltd.
Start/End Dates: 01-DEC-11 / 01-DEC-14
Amount: €50,000

Title: Gremlin in ALI (ICSI)
Funder: University College Dublin Foundation Ltd.
Start/End Dates: 01-OCT-11 / 30-SEP-13
Amount: €50,000

Title: PRTLI 5: MolCellBiol - Split Accounts School of MMS
Funder: Higher Education Authority (HEA)
Start/End Dates: 01-MAR-11 / 29-FEB-16
Amount: €135,000

Title: Basic mechanisms in human lung disease
Funder: University College Dublin Foundation Ltd.
Start/End Dates: 01-AUG-11 / 31-MAR-14
Amount: €95,000

Title: PVRF: ALI and CREB
Funder: University College Dublin Foundation Ltd.
Start/End Dates: 01-NOV-10 / 30-JUN-14
Amount: €23,000

Title: Intensive-care Medicine
Funder: University College Dublin Foundation Ltd.
Start/End Dates: 31-DEC-10 / 30-DEC-13
Amount: €20,000

Title: SVAF CREB responsive genes in acute lung injury
Funder: University College Dublin Foundation Ltd.
Start/End Dates: 01-APR-11 / 31-MAR-13
Amount: €40,000

Title: Signalling pathways that protect against lung damage in the acute respiratory distress syndrome: CREB responsive genes in the lung
Funder: Health Research Board (HRB)
Start/End Dates: 01-JUL-10 / 30-JUN-15

Title: Clinical Research in Pulmonary Medicine
Start/End Dates: 01-AUG-07 / 31-DEC-13
Funder: Glaxo Smith Kline, UK
Amount: €100,000

Title: Macrophage Migration Inhibitory Factor (MIF), enzymatic activity and pulmonary disease
Start/End Dates: 01-SEP-09 / 01-SEP-14
Funder: Science Foundation Ireland (SFI)
Amount: €1,600,000

Title: Characterisation of the role of defective toll-like receptor 3 (TLR3) in pulmonary fibrosis
Start/End Dates: 01-OCT-11 / 30-SEP-14
Funder: HRB
Amount: €375,000

Title: Advancement in Respiratory Disease
Start/End Dates: 01-SEP-11 / 01-SEP-14
Funder: Philanthropic
Amount: €50,000
Title: Sarcoidosis research
Start/End Dates: 01-JAN-10 / 31-DEC-13
Funder: West Offaly Enterprise Fund Ltd
Amount: €40,000

Title: The role of defective TLR3 in Idiopathic Pulmonary Fibrosis
Start/End Dates: 16072012-2014
Funder: HRB
Amount: €245,000

Title: Novel Sensor Technology in Pulmonary Medicine
Start/End Dates: 01/06/2012-2013
Funder: ResMed
Amount: €75,000

Title: MIF, Pseudomonas & Biofilm Formation
Start/End Dates: 01-SEP-12 / 01-SEP-13
Funder: Irish Lung Foundation
Amount: €27,000

Publications:

1. Abulhul E, McDonald K, Martos R, Phelan D, Spiers JP, Hennessy M, *et al.* Long-term statin therapy in patients with systolic heart failure and normal cholesterol: effects on elevated serum markers of collagen turnover, inflammation, and B-type natriuretic peptide. *Clin Ther* 2012,**34**:91-100.

2. Adamali H, Armstrong ME, McLaughlin AM, Cooke G, McKone E, Costello CM, et al. Macrophage migration inhibitory factor enzymatic activity, lung inflammation, and cystic fibrosis. *Am J Respir Crit Care Med* 2012,**186**:162-169.

3. Athan E, Chu VH, Tattevin P, Selton-Suty C, Jones P, Naber C, *et al.* Clinical characteristics and outcome of infective endocarditis involving implantable cardiac devices. *JAMA* 2012,**307**:1727-1735.

4. Browne JG, Ho SL, Kane R, Oliver N, Clark AF, O'Brien CJ, *et al.* Connective Tissue Growth Factor is increased in Pseudoexfoliation Glaucoma.*Invest Ophthalmol Vis Sci* 2011.

5. Butler MW, Fabre A, Dodd JD. Smokers with interstitial lung abnormalities. *N Engl J Med* 2011,**364**:2465; author reply 2466.

6. Butler MW, Fukui T, Salit J, Shaykhiev R, Mezey JG, Hackett NR, *et al.* Modulation of cystatin A expression in human airway epithelium related to genotype, smoking, COPD, and lung cancer. *Cancer Res* 2011,**71**:2572-2581.

7. Butler MW, Hackett NR, Salit J, Strulovici-Barel Y, Omberg L, Mezey J, *et al.* Glutathione S-transferase copy number variation alters lung gene expression. *Eur Respir J* 2011,**38**:15-28.

8. Cahalane AM, Kelly RM, O'Neill A, Moran D, Butler MW, Keane MP, *et al.* Bronchopleural cutaneous fistula after pulmonary radiofrequency ablation: treatment with low-adherent paraffin gauze dressing. *J Vasc Interv Radiol* 2012,**23**:283-285.

9. Cahill E, Costello CM, Rowan SC, Harkin S, Howell K, Leonard MO, *et al.* Gremlin plays a key role in the pathogenesis of pulmonary hypertension. *Circulation* 2012,**125**:920-930.

10. Cahill E, Rowan SC, Sands M, Banahan M, Ryan D, Howell K, *et al.* The pathophysiological basis of chronic hypoxic pulmonary hypertension in the mouse: vasoconstrictor and structural mechanisms contribute equally. *Exp Physiol* 2012,**97**:796-806.

11. Chappell SL, Daly L, Lotya J, Alsaegh A, Guetta-Baranes T, Roca J, *et al.* The role of IREB2 and transforming growth factor beta-1 genetic variants in COPD: a replication case-control study. *BMC Med Genet* 2011,**12**:24.

12. Collier P, Watson CJ, van Es MH, Phelan D, McGorrian C, Tolan M, *et al.* Getting to the heart of cardiac remodeling; how collagen subtypes may contribute to phenotype. *J Mol Cell Cardiol* 2012,**52**:148-153.

13. Collier P, Watson CJ, Voon V, Phelan D, Jan A, Mak G, *et al.* Can emerging biomarkers of myocardial remodelling identify asymptomatic hypertensive patients at risk for diastolic dysfunction and diastolic heart failure? *Eur J Heart Fail* 2011,**13**:1087-1095.

14. Collier P, Watson CJ, Waterhouse DF, Dawkins IR, Patle AK, Horgan S, *et al.* Progression of left atrial volume index in a population at risk for heart failure: a substudy of the STOP-HF (St Vincent's Screening TO Prevent Heart Failure) trial. *Eur J Heart Fail* 2012,**14**:957-964.

15. Collins CJ, Fraher MH, O'Connell K, Fennell J, FitzGerald SF, O'Sullivan N, *et al.* Reporting of meticillin-resistant and -susceptible Staphylococcus aureus on death certificates in Irish hospitals. **J Hosp Infect** 2011,**77**:143-147.

16. Conrick-Martin I, O'Gorman J, Lenehan D, Oshodi D, Scanlon N, O'Brien S, *et al.* Nosocomial infections in a cohort of extracorporeal life support patients. *Crit Care Resusc* 2012,**14**:198-201.

17. Costello CM, McCullagh B, Howell K, Sands M, Belperio JA, Keane MP, *et al.* A role for the CXCL12 receptor, CXCR7, in the pathogenesis of human pulmonary vascular disease. *Eur Respir J* 2012,**39**:1415-1424.

18. Donnelly SC. Review Series--Inflammation & Fibrosis. Introduction. *QJM* 2012,**105**:503.

19. Drummond GB, Paterson DJ, McLoughlin P, McGrath JC. Statistics: all together now, one step at a time. *J Physiol* 2011,**589**:1859.

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21. Guerin MB, Donovan M, McKernan DP, O'Brien CJ, Cotter TG. Age-dependent rat retinal ganglion cell susceptibility to apoptotic stimuli: implications for glaucoma. *Clin Experiment Ophthalmol* 2011,**39**:243-251.

22. Hackett NR, Butler MW, Shaykhiev R, Salit J, Omberg L, Rodriguez-Flores JL, *et al.* RNA-Seq quantification of the human small airway epithelium transcriptome. *BMC Genomics* 2012,**13**:82.

23. Hannan MM. Percutaneous drive-line infections into the future with the International Mechanically Assisted Circulatory Support (IMACS) registry. *J Heart Lung Transplant* 2012,**31**:1149-1150.

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26. Judge EP, Hannan MM, McCarthy JF, Egan JJ. Delayed diagnosis of novel H1N1 influenza pneumonitis in a vaccinated heart transplant recipient. *J Heart Lung Transplant* 2011,**30**:357-358.

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Translational Oncology

The primary vision of the UCD Academic Centre in Translational Oncology (ACTO) is to (a) acknowledge and foster the exceptional cancer initiatives already in place, with a particular focus on gaining international recognition within academic and industrial sectors, and (b) to unify the basic, translational and clinical cancer research communities across all UCD affiliated hospitals, Dublin East Hospitals, Institutes and Schools. The ACTO translational research agenda envisages collaboration with other centres of cancer research activity (physical and virtual) to improve patient outcomes.

Academic Lead

Dr Amanda McCann

01 716 6742 / amanda.mccann@ucd.ie

UCD Conway Institute

Research Team

Dr Amanda McCann
Senior Lecturer
Dr Maria Bengoechea Alonso
Research Fellow
Prof Donal Buggy
Consultant and Professor of Anaesthesia
Dr Ger Cagney
Lecturer and Principal Investigator
Prof Dolores Cahill
Professor of Translational Science
Prof Sean Callanan
Professor of Pathobiology
Prof Leslie Daly
Professor of Epidemiology and Biomedical Statistics
Prof Kenneth Dawson
Professor of Bionanoscience
Prof Michael J. Duffy
Professor of Medicine
Dr Aurelie Fabre
Consultant Histopathologist & Clinical Lecturer
Prof Patricia Fitzpatrick
Senior Lecturer
Dr Fidelma Flanagan
Consultant and Senior Clinical Lecturer
Dr Helen Gallagher
College Lecturer
Prof William Gallagher
Associate Professor of Cancer Biology
Dr Eric Heffernan
Consultant Radiologist
Dr Carmel Hensey
Senior Lecturer
Dr Nobue Itasaki
Senior Lecturer
Mr Malcolm Kell
Surgical Oncologist
Dr Cathy Kelly
Consultant Medical Oncologist
Prof Walter Kolch
Professor and Head of Systems Biology Ireland
Dr Leo Lawler
Consultant Radiologist
Dr Dermot Leahy
Research Scientist
Prof Padraic Mac Mathuna
Consultant and Associate Professor of Medicine
Prof Ray McDermot
Consultant Medical Oncologist
Dr Margaret Magee
Lecturer & Conway Fellow
Dr John McCaffrey
Consultant Medical Oncologist
Ms Patricia McGowan
Irish Cancer Society Fellow
Prof Ronan O'Connell
Professor of Surgery
Prof John Crown
Consultant Oncologist
Dr Darran O'Connor
Research Fellow & Lecturer
Dr Peadar O'Geara
Bioinformatician/Senior Lecturer
Prof Peter O'Gorman
Consultant Haematologist, Director MIRT
Prof Stephen Pennington
Professor of Proteomics
Dr Cecily Quinn
Consultant Histopathologist & Senior Clinical Lecturer
Prof Louise Rocks
Centre for Bionano Interactions
Dr Liz Ryan
Senior Scientist
Dr Anna Salvati
Centre for Bionano Interactions
Prof Kieran Sheahan
Consultant and Professor of Histopathology
Dr Matthias Tacke
Senior Lecturer
Prof William Watson
Associate Professor of Cancer Biology
Prof Des Winter
Professor and Consultant Surgeon

Translational Oncology is the crucial bridge that enables application of scientific discoveries into clinical practice with the intention of improving clinical outcomes of cancer treatment. This can only be achieved by establishing a critical mass of clinicians and researchers, driven by a similar agenda. The recent creation of the Dublin East network of hospitals, provides a catchment population in excess of one million and includes two of the eight designated centres in Ireland (Mater Misericodiae University Hospital and St Vincent's University Hospital) that together currently treat the largest numbers of patients affected by all the major cancers (Breast, Prostate, Colorectal, Lung, Pancreas) within the country. This critical mass provides opportunities for enhanced basic research collaboration but also crucially will greatly enhance interactions with the pharmaceutical and medical device industries.

ACTO has obtained commitments from over 50 colleagues in UCD to move this collaborative research agenda forward. The group represents a cross-section of UCD cancer research interests. Formal recognition as an Academic Centre in Translational Oncology will greatly enhance applications for significant national and international funding including the Irish Cancer Society Collaborative Cancer Research Centres programme, the SFI Centres call and the Horizon 2020 Funding Programme.

The ACTO group includes active PIs in computational biology, innovative model systems including canine, rodent, zebra fish and xenopus model systems, high-throughput proteomic and biomarker discovery platforms, substantial cancer tissue cohorts (through the Prostate Cancer Research Consortium, Molecular Therapeutics for Cancer Ireland, the TNBC Mater/SVUH alliance, CRC), synthetic chemistry, chemical biology and imaging. Moreover, Systems Biology Ireland (SBI) led by Professor Walter Kolch (Director, UCD Conway Institute) gives an exceptional pathway analysis approach integral to deciphering the complexity that cancer displays. As the ACTO develops, it will be in a very strong position to strategically recruit expertise as required.

The ACTO group published over 90 peer reviewed publications, while securing Euro 7 million in funding. Recognition of the proposed Academic Centre will consolidate efforts in continuing to secure additional significant funding to support the unified agenda of *translational oncology research*.

Dr Amanda McCann
Senior Lecturer

Location: UCD Conway Institute
Contact: 01 716 6742
Email: amanda.mccann@ucd.ie

My research focuses on the mechanisms underlying Paclitaxel (Taxol®) chemoresistance for women presenting with epithelial ovarian cancer (EOC) and Triple Negative Breast Cancer (TNBC); specifically the spindle assembly checkpoint protein MAD2 through which Paclitaxel exerts its apoptotic affect. Epigenetically, the group are also interested in profiling DNA methylation and histone modification signatures in hypoxia and how this relates to ultimate chemoresistance and the retention of cellular viability (senescence/autophagy) in the face of chemotherapeutic engagement.

I am also Group coordinator of the UCD/Mater Hospital/St Vincent's University Hospital Triple Negative Breast Cancer (TNBC) Group. In addition, I am leading the submission of a proposal to the UCD authority for an Academic Centre in Translational Oncology.

Researchers Supported:
Mr Aloysius McGoldrick, Senior Technician
Ms Barbara Flynn, PhD
Ms Karolina Weiner Gorzel, PhD
Mr Mark Bates, PhD
Dr Elma O Reilly, Surgical MD
Dr Shiva Sharma, Surgical MD
Mr Luke Gubbins, MSc
Ms Valerie Toh, Intercalated MSc

Dr Maria Bengoechea Alonso
Research Fellow

Location: UCD Conway Institute
Contact: 01 716 7653
Email: maria.bengoechea-alonso@ucd.ie

We work on the SREBP family of transcription factors. These proteins control cholesterol and lipid metabolism and play critical roles during adipocyte differentiation and insulin-dependent gene expression. Disturbances in lipid metabolism are at the very core of several major health issues facing modern society, including cardiovascular disease, obesity and diabetes. Thus, the factors and signals that regulate the function of the SREBP family of proteins are very relevant to metabolic disease.

Prof Donal Buggy
Consultant and Professor of Anaesthesia

Location: Mater Misericordiae University Hospital
Contact: 01803 2281
Email: donal.buggy@ucd.ie

I took up the part-time post of Professor of Anaesthesia in November 2013, having been a member of the adjunct faculty since 2008. Since 2001, I have worked as a Consultant in Anaesthesia in the Mater Misericordiae University Hospital. In 2012, I was invited keynote lecturer by Swiss, University College London and New York societies of anaesthesia. I was senior author on a further six publications, and mentored seven trainees in doing so. Our unit remains at the forefront of worldwide research on perioperative influences on cancer recurrence and metastasis, particularly breast cancer.

Researchers Supported:
Dr Ismat El-Saigh, MD
Dr Micheal Looney, Tutor/Research Fellow
Dr Georgi Valchev, Tutor/Research Fellow
Dr Georgina Flood, Consultant in Anaesthesia, Research Fellow Conway Institute
Dr Amer Jaura, Consultant in Anaesthesia, Research Fellow Conway Institute
Dr Aisling Buckley, SpR Anaesthesia, liaison with DCU Dept Immunology
Dr Fiona Desmond, SpR Anaesthesia

Prof Dolores Cahill
Professor of Translational Science

Location: UCD Conway Institute
Contact: 01 716 6967 / 086 172 5572
Email: dolores.cahill@ucd.ie

My group is involved in translating biomarkers to benefit patients, from their use in improved diagnosis, including in applications in Ovarian Cancer (Murphy et al, 2012a; Murphy et al., 2012b) and in understand the mechanisms underlying cancer causation and progression with our collaborators in Ireland, M.D. Anderson Cancer Centre, Texas, USA (Staquicini, et al., 2012) and Lund Cancer Centre, Lund (Olsson et al., 2011).

Researchers Supported:
Ms Mairead Murphy, PhD
Dr David O'Connell, Post Doctoral Researcher
Ms Sara O'Kane, Research Assistant
(collaboration with Prof Crowe, Mater Hospital)
Dr Amin Laskami, MD
Dr Alejandro Merino, Post-doctoral Researcher
Ms Fiona O'Hannigan, SMMS student
Ms Joanna Cornwell, PhD
Mr Azadeh Beizaee, PhD
Ms Maeve Daly, SMMS student

Prof Michael J. Duffy
Professor *(Adjunct)*

Location: Clinical Research Centre,
St Vincent's University Hospital
Contact: 01 716 5814
Email: michael.j.duffy@ucd.ie

Our research focuses on the identification and validation of new biomarkers and therapeutic targets for breast cancer. This work is being carried out in collaboration with other Molecular Therapeutics Cancer Ireland (MTCI) members, based in University College Dublin, Dublin City University and Trinity College, Dublin. In addition, we have ongoing collaboration with investigators at the University of Los Angeles, California (UCLA), University of Oxford and Cambridge University.

Collaborators:
Mr Enda McDermott, St Vincent's University Hospital
Prof John Crown, St Vincent's University Hospital
Prof William Gallagher, UCD Conway Institute of Biomolecular & Biomedical Research
Dr Darran O'Connor, UCD Conway Institute of Biomolecular & Biomedical Research
Dr Amanda McCann, UCD Conway Institute of Biomolecular & Biomedical Research
Dr Norma O'Donovan, Dublin City University
Dr Robert O'Connor, Dublin City University
Dr Neil O'Brien, University of California, LA
Prof Denis Slamon, University of California, LA
Prof G. Murphy, University of Cambridge
Dr A. Kong, University of Oxford

Dr Fidelma Flanagan
Consultant and Senior Clinical Lecturer

Location: Mater Misericordiae University Hospital
Contact: 01 882 6244
Email: fidelma.flanagan@cancerscreening.ie

I am a Consultant Radiologist at the Mater Misericordiae University Hospital, Dublin. I am also Clinical Director of BreastCheck, Eccles Screening Unit. The Breast Screening Programme is responsible for the detection and diagnosis of patients with breast cancer to the end of primary surgery. Over 40,000 screening mammograms are performed each year in the Eccles Unit. As a radiologist in the general radiology department in the Mater Misericordiae University Hospital I am actively involved in the delivery of the breast symptomatic service.

My fellowship training began in the Division of Breast Imaging and the Division of Nuclear Medicine and PET Imaging Mallinckrodt Institute of Radiology, Barnes Hospital, Washington University, St. Louis, Missouri, USA. Following both Fellowships at Mallinckrodt Institute of Radiology, I joined the division of Breast Imaging, Mallinckrodt Institute of Radiology. Following on from this I returned home to Ireland as a Special Lecturer in Radiology. This post-fellowship lecturer post combined significant clinical duties in the radiology department at the Mater Misericordiae University Hospital with dedicated research time based at the Institute of Radiological Sciences (IORS). I received my Medical Doctorate (MD) in Breast Cancer Imaging while in the post. I continue clinical research and teaching in breast care management.

Major research interests for 2012 include Atypical ductal hyperplasia follow-up and breast cancer following triple assessment.

Dr Helen Gallagher
Lecturer

Location: UCD Conway Institute
Contact: 01 716 6726
Email: helen.gallagher@ucd.ie

I hold degrees in pharmacology and pharmacy from UCD, TCD & RCSI. My main research interests are in the areas of neuropharmacology & pharmaceutical care. I currently the recipient of a Cochrane Fellowship from the Health Research Board of Ireland and a member of the Cochrane Pain, Palliative & Supportive Care Review Group. I have strong interdisciplinary collaborations, including joint non-exchequer funding, with the clinical anaesthetists at the Mater Misericordiae University Hospital (Prof Donal Buggy).

Major research interests for 2012 include Atypical ductal hyperplasia follow-up and breast cancer following triple assessment.

Researchers Supported:
Dr Georgina Flood, MD Student
(co-supervised with Donal Buggy)
Dr Georgi Valchev, Researcher
Tutor in Anaesthesia
Dr Micheal Looney, Researcher
Consultant in Anaesthesia
Dr Amer Jaura, Researcher
Locum Consultant in Anaesthesia
Prof Donal Buggy
University Department of Anaesthesia, Mater Misericordiae University Hospital, Dublin
Dr Michelle Butler
School of Nursing and Midwifery, UCD

Dr Nobue Itasaki
Senior Lecturer

Location: UCD Health Sciences Centre
Contact: 01 716 6657
Email: nobue.itasaki@ucd.ie

Our research interest is in the molecular mechanism of embryonic development, especially in the epithelial-mesenchymal transition and the Wnt signaling pathway. We also study the metastatic behaviour of cancer cells in vitro, as cancer progression shows striking similarities with developmental processes of embryos, sharing common signaling pathways for cell proliferation, migration and tissue dynamics. We employ both in vitro and in vivo approaches and benefit from Conway's core facilities for imaging.

Researchers Supported:
Ms Laura Ivers, MSc
Mr Eamonn Keane, MSc

Dr Leo Lawler
Senior Clinical Lecturer

Location: Mater Misericordiae University Hospital
Contact: 087 996 3800
Email: leo.lawler@ucd.ie

- Consultant Cross Section and Interventional Radiologist MMUH
- Priviledges SVUH/Temple St/Crumlin
- Special interests Cardiovascular and Oncology Disease

Dr Dermot Leahy
Senior Biochemist

Location: UCD Conway Institute
Contact: 01 716 6551
Email: dermot.leahy@ucd.ie

My research is focussed on the molecular pathology of colorectal cancer. Much of this translational work is in collaboration with the Centre for Colorectal Disease at St Vincent's University Hospital. Using array technology we are assessing methylation levels at multiple sites across the genome to determine how patterns of methylation relate to the traditional classifications of colorectal cancer. Results are validated using pyrosequencing and immunohistochemistry to facilitate integration of our findings into patient care.

Researchers Supported:
Dr Maciej Milewski, PhD

External Collaborators:
Centre for Colorectal Diseases,
St Vincents' University Hospital, Dublin

Prof Padraic MacMathuna
Associate Clinical Professor

Location: Mater Misericordiae University Hospital
Contact: 01 803 4226 / 087 262 2742
Email: pmacmathuna@mater.ie

I am a 1981 UCD graduate with training in Ireland, London and Boston in Gastroenterology. Appointed Consultant Gastroenterologist to Mater Misericordiae University Hospital in 1995. Track record in clinical and laboratory research in areas from Colon Cancer biology, CT Colon Imaging, High Risk colorectal Cancer screening and endoscopic intervention. Research grant funding from Irish Cancer Society, HRB and SFI. Member of Advisory Board of European GI Endoscopy Society. Appointed Associate Prof of Medicine in recognition of contribution to the postgraduate (Former Postgraduate Dean) and undergraduate academic activity of the Mater and UCD. Currently a member of the NCSS Advisory group on Colorectal Cancer Screening and a participant in the NCSS Expert Group on Hereditary Cancer Risk. Research interests include bio-informatics and gene regulation in GI Cancer, High Risk Colorectal Cancer, CT Colonography and Interventional Endoscopy.

Established working research collaboration with 1.Prof John Reynolds and Prof Jacinta O'Sullivan, TCD on Barretts Registry and Biomolecular investigation *(multi centre study)*
2.Dr David Gallagher, Mater on HNPCC Malignancy profile in Irish Pedigree

Researchers Supported:
Dr Margaret Walshe, IBD Research Fellow
Dr Eoin Slattery, Biliary Research Fellow
Dr Anna Smyth, IBD Research Fellow

Prof Ronan O'Connell
Professor of Surgery

Location: St Vincent's University Hospital
Contact: 01 221 5124
Email: ronan.oconnell@ucd.ie

My clinical and research interests focus on inflammatory bowel disease, pelvic floor physiology and continence disorders. I have published widely and has an active research programme funded by Science Foundation Ireland. I have served as editor of the British Journal of Surgery (1999-2006) and is currently Secretary of the BJS Society. I am co-editor of Bailey and Love's Short Practice of Surgery. I am President elect of the European Society of Coloproctology.

Researchers Supported:
Prof Colm O'Herlihy, University College Dublin
Prof James Jones, University College Dublin
Dr Marguerite Clyne, University College Dublin
Prof Desmond Winter, St Vincent's University Hospital
Prof John Hyland, St Vincent's University Hospital
Prof Fergus Shanahan, University College Cork
Dr Paul Cotter, Teagasc
Dr Paul Ross, Teagasc
Dr Neil Doherty, Trinity College Dublin
Prof J Calvin Docherty, University of Limerick
Prof Soren Laurberg, University of Aarhus, Denmark
Prof Charles H Knowles, Barts and the London School of Medicine

Dr Peter O'Gorman
Director of Pathology and Consultant Haematologist, Mater Misericordiae University Hospital Senior

Location: Mater Misericordiae University Hospital
Contact: -
Email: pogorman@mater.ie

I am Director of Pathology and consultant haematologist at the Mater University Hospital, an academic teaching hospital allied to University College Dublin, Dublin, Ireland. As Director of Pathology he leads and manages a staff of 130. The haematology department has four specialist colleagues who treat a range of hematologic malignancies. In 2008 he established the MIRT-Ireland translational research group with Prof Ken Anderson of the Dana Farber Cancer Institute in Boston and Prof Martin Clynes, National Institute for Cellular Biotechnology, Dublin City University. Dr O'Gorman's primary role is director of the clinical program, management of biobank samples, co-supervisor of medical doctors who undertake a PhD as part of the MIRT-Ireland-Dana Farber Cancer Institute MD-PhD Myeloma Academy. MIRT-Ireland is taking a lead in Ireland in the development of a companion diagnostics program for Multiple Myeloma. This recently resulted in the first patented predictive thera-nostic test (reference 4). Dr O'Gorman is the current chair of the national clinical trials program with the Irish Clinical Oncology Research Group (www.icorg.ie). He is a founder member of and clinical trials lead for the Myeloma Ireland Consortium.

Researchers Supported:
Ms Catriona Hayes, PhD
Dr Abdul Hameed, PhD

Prof Stephen Pennington
Professor of Proteomics

Location: UCD Conway Institute
Contact: 01 716 6783
Email: stephen.pennington@ucd.ie

Current research interests and well-funded projects (Health Research Board, EU, Movember, Enterprise Ireland, Irish Cancer Society) are focussed on the mass spectrometry based discovery, measurement and validation of protein biomarkers – predominantly in oncology and inflammatory disease. Projects are undertaken in collaboration with scientists and clinical colleagues – within UCD and between institutions in Dublin/Ireland and interationally as a part of significant consortia. 2012 saw the development of a new biomarker validation lab in partnership with Agilent Technologies.

Collaborators:
Prof Oliver Fitzgerald, UCD Conway Institute of Biomolecular & Biomedical Research
Prof William Watson, UCD Conway Institute of Biomolecular & Biomedical Research
Prof Stephen Gordon, UCD Conway Institute of Biomolecular & Biomedical Research
Prof David McHugh, University College Dublin
Dr John Baugh, UCD Conway Institute of Biomolecular & Biomedical Research
Dr Chris Watson, University College Dublin
Prof John O'Leary, Trinity College Dublin
Prof Steve Finn, Trinity College Dublin
Dr Aviva Tolkovsky, Brain Repair Centre
Dr Angela Mally, University of Wurzburg
Dr David Gibson, Queen's University Belfast

Prof William Watson
Associate Professor of Cancer Biology

Location: UCD Conway Institute
Contact: 01 176 6733
Email: william.watson@ucd.ie

As a translational biologist based at the Conway Institute I utilise latest technologies to study the cellular and molecular pathways of prostate cancer. I use this knowledge to address clinically relevant questions via my clinical collaborators as part of the Prostate Cancer Research Consortium and Molecular Therapeutics for Cancer in Ireland. These studies have identified novel biomarkers for patient stratification into appropriate treatment groups and targets for therapeutic manipulation which we are validating with our International collaborators as part of the Movember Global Action Plan and ToPCaP.

Collaborators:
Prof Stephen Pennington, UCD Conway Institute of Biomolecular & Biomedical Research
Prof Pauline Rudd, UCD Conway Institute of Biomolecular & Biomedical Research
Prof Brendan Murphy, UCD School of Mathematical Science
Prof Padraig Cunningham, UCD School of Computer Science & Data Engineering
Prof Elaine Kay, Department of Pathology, Royal College of Surgeons in Ireland
Prof Richard O'Kennedy, Biomedical Diagnostic Institute, Dublin City University
Prof John O'Leary, Department of Pathology, Trinity College Dublin, St James Hospital
Dr Antoinette Perry, Clinical Medicine, Trinity College Dublin, St James Hospital
Prof Stephen Finn, Histopathology, Trinity College Dublin, St James Hospital
Mr Kiaran O'Malley, Division of Urology, Mater Misericordiae University Hospital
Mr David Galvin, Division of Urology, Mater Misericordiae University Hospital and St Vincent's University Hospital
Mr Nicholas Hegarty, Division of Urology, Mater Private Hospital
Dr David Gallagher, Division of Urology, Mater Private Hospital
Mr Richard Power, Division of Urology, Beaumont Hospital

Prof Tom Lynch, Department of Urology, Trinity College Dublin, St James Hospital.

Dr Cecily Quinn
Senior Clinical Lecturer

Location: St Vincent's University Hospital
Contact: -
Email: c.quinn@st-vincents.ie
Triple negative breast carcinoma (TNBC) is an aggressive form of invasive breast carcinoma with an adverse prognosis for many patients. The ongoing challenge is to identify target antigens that may lead to the development of specific treatment regimes for this type of breast carcinoma that is currently poorly responsive to chemotherapy.
I am an active member of the collaborative TNBC research group, between St Vincent's University Hospital and Dublin City University, established in 2009 by Prof John Crown. Our group has recently published on the expression of two proteins, mTOR and Src, in TNBC.

I am also working collaboratively with Dr Amanda McCann and her research team at UCD, investigating the expression and significance of Mad2 in TNBC.

Grants:

Title: The Fate of Chemoresistance in Triple Negative Breast Cancer (TNBC)
Funder: The Mater Surgical Oncology Research Appeal/ University College Dublin Foundation Ltd.
Start/End Dates: 11-JUL-11 / 11-JUL-13
Amount: €50,000

Title: A therapeutic roadmap for ovarian cancer using MvD88-MAD2 as prognostic indicators
Funder: Royal City of Dublin Hospital Trust
Start/End Dates: 01-SEP-12 / 01 SEP-15
Amount: €67,101

Title: The anti-IL6 antibody siltuximab, enhances the efficacy of Paclitaxel (Taxol) in triple negative breast cancer cells (TNBCs) by inhibiting the induction of viable chemoresistant senescent cells.
Funder: Eccles Breast Health Research Fund (EBHR)
Start/End Dates: 01-SEP-12 / 01 SEP-13
Amount: €10,000

Title: Tumour Derived Exosomes (TEXs) from Paclitaxel Cultured Triple Negative Breast Cancer (TNBC) Cells Affects Resultant Chemo-resistance in Naïve Parent Cell Lines
Funder: The Mater Surgical Oncology Research Appeal/ University College Dublin Foundation Ltd.
Start/End Dates: 11-JUL-12 / 11-JUL-14
Amount: €40,000

Title: Tumour Derived Exosomes (TEXs) from Paclitaxel Cultured Triple Negative Breast Cancer (TNBC) Cells Affects Resultant Chemo-resistance in Naïve Parent Cell Lines
Funder: Health Research Board (HRB)/MRCG Project /KEDS Application supporting MRCG/2011/17
Start/End Dates: 11-JUL-12 / 11-JUL-13
Amount: €9,999

Title: Translational studies on anaesthesia and cancer progression
Funder: Sisk Foundation
Start/End Dates: 2010-2012
Amount: €240,000

Title: Pharmaceuticals policies: Policies that determine which drugs are reimbursed
Funder: Health Research Board (HRB)
Start/End Dates: 01-DEC-10 / 31-DEC-13 (extended)
Amount: €99,979

Title: Neuroimaging Skills in Dementia (NeuroSKILL)
Funder: EU - European Regional Development Fund (ERDF)
Start/End Dates: 01-MAR-12 / 31-DEC-14
Amount: €1,106,607

Title: Exploring Assessment in First Year
Start/End Dates: July 2011- July 2013
Funder: UCD Fellowship in Teaching & Academic Development (HEA Strategic Innovation Fund II)
Amount: €12,000

Title: ADAM10: A NEW PLAYER IN BREAST CANCER PROGRESSION?
Funder: University College Dublin (UCD)
Start/End Dates: 01-MAY-12 / 31-OCT-13
Amount:

Title: Molecular therapeutics for cancer: translational research to individualise therapy with targeted agents
Funder: Science Foundation Ireland (SFI)
Start/End Dates: 01-OCT-09 / 01-OCT-14
Amount:

Title: IBD Fellowship
Start/End Dates: 2011-12 and 2012-3
Funder: MSD
Amount: €40,000 x 2 (€80,000)

Title: UCD-Harvard Biliary Fellowship (Mater-Beth Israel)
Start/End Dates: 2012-3
Funder: Boston Scientific
Amount: €40,000

Title: GI Clinical Research Programme
Start: Oct 2011 – Oct 2012
Funder: Mater Foundation
Amount: €75,000

Title: MIRT-Ireland fund-raising/pharmaceutical industry
Start/End Dates: 2007-2012
Funder:
Amount: €400,000

Title: Enterprise Ireland CF Grant
Funder: Enterprise Ireland
Start/End Dates: 1/2/13 - 31/1/14
Amount: €109,978

Title: ETS SFI Travelling Fellowship
Funder:
Start/End Dates: 2012
Amount: €50,000

Title: Colonisation by sulphate reducing bacteria (SRB) subspecies in normal and inflamed colon and colonocyte responses to the SRB metabolite hydrogen sulphide
Funder: Science Foundation Ireland (SFI)
Start/End Dates: 10-JUL-10 / 10-JUL-15
Amount: €647,750

Title: The effect of CTGF polymorphisms on surgical recurrence following terminal ileal resection for Crohn's disease.
Funder: Health Research Board (HRB)
Start/End Dates: 30-JUL-12 / 21-SEP-12
Amount: €2000

Title: The effect of sacral neuromodulation on inputs to the somatosensory cortex"
Funder: Science Foundation Ireland (SFI)
Start/End Dates: 01-JUL-11/ 30-JUN-15
Amount: €156,000

Title: Neuromodulation in an animal model of fecal incontinence
Funder: Medtronic Corporation
Start/End Dates: 01-JUL-12 / 31-Jun-14
Amount: €200,000

Title: Integrating biomarkers for the stratification of patients into insignificant and significant prostate cancer
Funder: Irish Cancer Society
Start/End Dates:01-Oct-11 to 30-Sep-14
Amount: €750,000

Title: Protein expression profiles of morphologically discrete foci in prostate cancer
Funder: Health Research Board
Start/End Dates: 01-Oct-11 to 30-Sep-14/30-Apr-15
Amount: €291,380

Title: Proteomic Analysis of Psoriatic Arthritis
Funder: University College Dublin Foundation Ltd.
Start/End Dates: 05-Apr-11 to 30-Sep-14
Amount: €30,000

Title: PRTLI 5: MolCellBiol - Split Accounts School of MMS
Funder: Higher Education Authority
Start/End Dates: 01-Mar-11 to 29-Feb-16
Amount: €135,400

Title: Proteomic analysis of combined hormonal therapy and radiation therapy for localised prostate cancer
Funder: St Luke's Institute of Cancer Research
Start/End Date: €135,250
Amount: 01-Nov-09 to 30-Apr-13

Title: Development of advanced methods and workflows to support discovery, validation and quantitative protein measurements
Funder: Agilent Technologies Ireland Ltd.
Start/End Dates: 27-Oct-09 to 26-Oct-10 and continued in 2012 to 2014
Amount: Open

Title: MIAMI - Monitoring innate immunity in arthritis and mucosal inflammation
Funder: EC Framework
Start/End Dates: 01-Feb-13 to 01-Jan-16
Amount: €774,039

Title: Integrated Global Serum Biomarker Project
Funder: Movember Group Pty Ltd
Start/End Date: €86,000
Amount: 01-Jan-13 to 31-Dec-13

Title: Discovery and Validation of Biomarkers to Predict response in Inflammatory Arthritis
Funder: University College Dublin
Start/End Date: 01-May-12 to 31-Oct-13
Amount: €1,895

Title: Biomarkers of Heart Failure and Cardiovascular Disease
Start/End Dates: September 2012-August 2013
Funder: Enterprise Ireland
Amount: €140,000

Title: Natural History of Diabetic Cardiomyopathy
Start/End Dates: October 2012-September 2015
Funder: Health Research Board; Clincian Scientist Award
Amount:

Title: To investigate the mechanisms of treatment resistance in advanced Prostate Cancer
Funder: The Mater Foundation
Start/End Dates: 01-JAN-12 / 30-JUN-13
Amount: €11,193

Title: Validating a panel of serum biomarkers to inform surgical intervention for prostate cancer
Funder: Health Research Board (HRB) /Science Foundation Ireland (SFI) Translational Research Award
Start/End Dates: 01-JUN-11 / 30-NOV-12
Amount: €336,582

Title: Molecular therapeutics for cancer: translational research to individualise therapy with targeted agents
Funder: Science Foundation Ireland (SFI)
Start/End Dates: 01-SEP-09 / 31-AUG-14
Amount: €389,407

Title: Shedding light on stromal-epithelial interactions in prostate carcinogenesis and mortality: A programme of ToPCaP
Funder: Prostate Cancer Foundation - US
Start/End Dates: 01-OCT-12 / 31-SEP-14
Amount: €56,345

Title: Integrated Global Serum Biomarker Project
Funder: Movember Global Action Plan
Start/End Dates: 01-Dec-12 / 30-Nov-14
Amount: €192,000

Title: Mechanisms of Docetaxel resistance in castrate resistant prostate cancer
Funder: Urology Foundation
Start/End Dates: 01-JUL-12 / 30-JUN-13
Amount: €40,500

Title: Influence of xenon gas on breast cancer cell viability and metastasis.
Funder: L'Air Liquide
Start/End Dates:12-DEC-11 / 11-DEC-13
Amount: €100,000

Publications:

1. Abstracts of the UCD School of Medicine & Medical Science, Summer Student Research Awards 2012. October 4, 2012. Dublin, Ireland. *Ir J Med Sci* 2012,**181 Suppl 11**:S439-456.

2. Baldelli P, McCullagh J, Phelan N, Flanagan F. Comprehensive dose survey of breast screening in Ireland. *Radiat Prot Dosimetry* 2011,**145**:52-60.

3. Barber J, McNulty JP. Investigation into scatter radiation dose levels received by a restrainer in small animal radiography. *J Small Anim Pract* 2012,**53**:578-585.

4. Bauer MC, O'Connell DJ, Maj M, Wagner L, Cahill DJ, Linse S. Identification of a high-affinity network of secretagogin-binding proteins involved in vesicle secretion. *Mol Biosyst* 2011,**7**:2196-2204.

5. Bauer M, Maj M, Wagner L, Cahill DJ, Linse S, O'Connell DJ. Protein networks involved in vesicle fusion, transport, and storage revealed by array-based proteomics. *Methods Mol Biol* 2011,**781**:47-58.

6. Bellmunt J, Attard G, Bahl A, Huland H, Klotz L, Kuban D, *et al.* Advances in the management of high-risk localised and metastatic prostate cancer. *BJU Int* 2012,**109 Suppl 2**:8-13.

7. Bennett G, Sadlier D, Doran PP, Macmathuna P, Murray DW. A functional and transcriptomic analysis of NET1 bioactivity in gastric cancer. *BMC Cancer* 2011,**11**:50.

8. Boyle E, Healy D, Hill AD, O'Connell PR, Kerin M, McHugh S, *et al.* Career choices of today's medical students: where does surgery rank? *Ir J Med Sci* 2012.

9. Brennan DJ, O'Connor DP, Laursen H, McGee SF, McCarthy S, Zagozdzon R, et al. The cocaine- and amphetamine-regulated transcript mediates ligand-independent activation of ER□, and is an independent prognostic factor in node-negative breast cancer. *Oncogene* 2012,**31**:3483-3494.

10. Browne BC, Eustace AJ, Kennedy S, O'Brien NA, Pedersen K, McDermott MS, et al. Evaluation of IGF1R and phosphorylated IGF1R as targets in HER2-positive breast cancer cell lines and tumours. *Breast Cancer Res Treat* 2012,**136**:717-727.

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13. Burke NG, Walsh J, McEvoy S, Heffernan E, Dudeney S. Scoliosis secondary to a rib haemangioma. *Joint Bone Spine* 2011,**78**:527.

14. Collins BC, Lau TY, Pennington SR, Gallagher WM. Differential proteomics incorporating iTRAQ labeling and multi-dimensional separations.*Methods Mol Biol* 2011,**691**:369-383.

15. Collins BC, Miller CA, Sposny A, Hewitt P, Wells M, Gallagher WM, *et al.* Development of a pharmaceutical hepatotoxicity biomarker panel using a discovery to targeted proteomics approach. *Mol Cell Proteomics* 2012,**11**:394-410.

16. Collins DM, O'Donovan N, McGowan PM, O'Sullivan F, Duffy MJ, Crown J. Trastuzumab induces antibody-dependent cell-mediated cytotoxicity (ADCC) in HER-2-non-amplified breast cancer cell lines. *Ann Oncol* 2012,**23**:1788-1795.

17. Colvin LA, Fallon MT, Buggy DJ. Cancer biology, analgesics, and anaesthetics: is there a link? *Br J Anaesth* 2012,**109**:140-143.

18. Conrick-Martin I, Kell MR, Buggy DJ. Meta-analysis of the effect of central neuraxial regional anesthesia compared with general anesthesia on postoperative natural killer T lymphocyte function. *J Clin Anesth* 2012,**24**:3-7.

19. Corcoran C, Friel AM, Duffy MJ, Crown J, O'Driscoll L. Intracellular and extracellular microRNAs in breast cancer. *Clin Chem* 2011,**57**:18-32.

20. Cuffe S, Dowling CM, Claffey J, Pampillón C, Hogan M, Fitzpatrick JM, *et al.* Effects of titanocene dichloride derivatives on prostate cancer cells, specifically DNA damage-induced apoptosis. *Prostate* 2011,**71**:111-124.

21. Dempsey E, McNulty J. The Responsibilities of the Prescriber in the Justification Process when Requesting a Medical Exposure. *Radiography Ireland* 2011,**15**:26-30.

22. DiFranco MD, O'Hurley G, Kay EW, Watson RW, Cunningham P. Ensemble based system for whole-slide prostate cancer probability mapping using color texture features. *Comput Med Imaging Graph* 2011,**35**:629-645.

23. Doherty M, Buggy DJ. Intraoperative fluids: how much is too much? *Br J Anaesth* 2012,**109**:69-79.

24. Doi T, Puri P, McCann A, Bannigan J, Thompson J. Epigenetic effect of cadmium on global de novo DNA hypomethylation in the cadmium-induced ventral body wall defect (VBWD) in the chick model. *Toxicol Sci* 2011,**120**:475-480.

25. Donlon B, Veale D, Brennan P, Gibney R, Carr H, Rainford L, *et al.* MRI-Based *Visualisation and quantification of Rheumatoid and Psoriatic Arthritis of the Knee. In: Visualisation in Medicine and Life Sciences II.* Edited by Linsen L, Hagen H, Hamann B. Berlin Heidelberg New York: Springer; 2012.

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by Yu CHCaJ. New Jersey, London, Singapore: *World Scientific;* 2012.

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33. Elsaigh I, Montgomery T, Moriarty D, Buggy D, Gallagher H. Cell cycle protein expression as a marker of anaesthetic-induced developmental toxicity. *Eur J Anaes 28*, **S48** 2011.

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35. Fan Y, Murphy TB, Byrne JC, Brennan L, Fitzpatrick JM, Watson RW. Applying random forests to identify biomarker panels in serum 2D-DIGE data for the detection and staging of prostate cancer. *J Proteome Res* 2011,**10**:1361-1373.

36. Feeley L, Kiernan D, Mooney T, Flanagan F, Hargaden G, Kell M, *et al.* Digital mammography in a screening programme and its implications for pathology: a comparative study. *J Clin Pathol* 2011,**64**:215-219.

37. Furlong F, Fitzpatrick P, O'Toole S, Phelan S, McGrogan B, Maguire A, *et al.* Low MAD2 expression levels associate with reduced progression-free survival in patients with high-grade serous epithelial ovarian cancer. *J Pathol* 2012,**226**:746-755.

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44. Healy CF, Murray JG, Eustace SJ, Madewell J, O'Gorman PJ, O'Sullivan P. Multiple myeloma: a review of imaging features and radiological techniques. *Bone Marrow Res* 2011,**2011**:583439.

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51. Kavanagh T, Buggy DJ. Can anaesthetic technique effect postoperative outcome? *Curr Opin Anaesthesiol* 2012,**25**:185-198.

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53. Kennedy SA, McEllistrem B, Kinsella A, Fan Y, Boyce S, Murphy K, *et al.* EuroSCORE and neutrophil adhesion molecules predict outcome post-cardiac surgery. *Eur J Clin Invest* 2012,**42**:881-890.

54. Kennedy SA, Scaife C, Dunn MJ, Wood AE, Watson RW. Benefits of heat treatment to the protease packed neutrophil for proteome analysis: halting protein degradation. *Proteomics* 2011,**11**:2560-2564.

55. Kennelly RP, Heeney A, White A, Fennelly D, Sheahan K, Hyland JM, *et al.* A prospective analysis of patient outcome following treatment of T3 rectal cancer with neo-adjuvant chemoradiotherapy and transanal excision. *Int J Colorectal Dis* 2012,**27**:759-764.

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63. McNulty J. Legal and Forensic Issues in Radiography. *Radiography Ireland* 2011,**15**:25.

64. McNulty JP, Ryan JT, Evanoff MG, Rainford LA. Flexible image evaluation: iPad versus secondary-class monitors for review of MR spinal emergency cases, a comparative study. *Acad Radiol* 2012,**19**:1023-1028.

65. Medani M, Collins D, Docherty NG, Baird AW, O'Connell PR, Winter DC. Emerging role of hydrogen sulfide in colonic physiology and pathophysiology. *Inflamm Bowel Dis* 2011,**17**:1620-1625.

66. Mohan HM, McDermott S, Fenelon L, Fearon NM, O'Connell PR, Oon SF, *et al.* Plastic wound retractors as bacteriological barriers in gastrointestinal surgery: a prospective multi-institutional trial. *J Hosp Infect* 2012,**81**:109-113.

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69. Mu Y, Sundar R, Thakur N, Ekman M, Gudey SK, Yakymovych M, *et al.* TRAF6 ubiquitinates TGF□ type I receptor to promote its cleavage and nuclear translocation in cancer. Nat Commun 2011,**2**:330.

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72. Murphy MA, O'Leary JJ, Cahill DJ. Assessment of the humoral immune response to cancer. *J Proteomics* 2012,**75**:4573-4579.

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81. Oon SF, Pennington SR, Fitzpatrick JM, Watson RW. Biomarker research in prostate cancer--towards utility, not futility. *Nat Rev Urol* 2011,**8**:131-138.

82. Oon SF, Watson RW, O'Leary JJ, Fitzpatrick JM. Epstein criteria for insignificant prostate cancer. *BJU Int* 2011,**108**:518-525.

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84. Rajpal R, Dowling P, Meiller J, Clarke C, Murphy WG, O'Connor R, *et al.* A novel panel of protein biomarkers for predicting response to thalidomide-based therapy in newly diagnosed multiple myeloma patients. *Proteomics* 2011,11:1391-1402.

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87. Saldova R, Dempsey E, Pérez-Garay M, Mariño K, Watson JA, Blanco-Fernández A, *et al.* 5-AZA-2'-deoxycytidine induced demethylation influences N-glycosylation of secreted glycoproteins in ovarian cancer. *Epigenetics* 2011,6:1362-1372.

88. Saldova R, Fan Y, Fitzpatrick JM, Watson RW, Rudd PM. Core fucosylation and alpha2-3 sialylation in serum N-glycome is significantly increased in prostate cancer comparing to benign prostate hyperplasia. *Glycobiology* 2011,**21**:195-205.

89. Saldova R, McCann A, Rudd PM. Commentary on paper: 5-Aza-2'-deoxycytidine increases sialyl Lewis X on MUC1 by stimulating □-galactoside:□2,3-sialyltransferase 6 gene (Chachadi et al.). *Int J Biochem Cell Biol* 2012,**44**:737.

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91. Smith FM, Chang KH, Sheahan K, Hyland J, O'Connell PR, Winter DC. The surgical significance of residual mucosal abnormalities in rectal cancer following neoadjuvant chemoradiotherapy. *Br J Surg* 2012,**99**:993-1001.

92. Smith JD, Meehan MH, Crean J, McCann A. Alpha T-catenin (CTNNA3): a gene in the hand is worth two in the nest. *Cell Mol Life Sci* 2011,**68**:2493-2498.

93. Staquicini FI, Cardó-Vila M, Kolonin MG, Trepel M, Edwards JK, Nunes DN, *et al.* Vascular ligand-receptor mapping by direct combinatorial selection in cancer patients. *Proc Natl Acad Sci U S A* 2011,**108**:18637-18642.

94. Sturgeon CM, Duffy MJ, Walker G. The National Institute for Health and Clinical Excellence (NICE) guidelines for early detection of ovarian cancer: the pivotal role of the clinical laboratory. *Ann Clin Biochem* 2011,**48**:295-299.

95. Thornton PC, Buggy DJ. Local anaesthetic wound infusion for acute postoperative pain: a viable option? **Br J Anaesth** 2011,**107**:656-658.

96. Tryfonopoulos D, Walsh S, Collins DM, Flanagan L, Quinn C, Corkery B, *et al.* Src: a potential target for the treatment of triple-negative breast cancer. *Ann Oncol* 2011,**22**:2234-2240.

97. Walsh S, Flanagan L, Quinn C, Evoy D, McDermott EW, Pierce A, *et al.* mTOR in breast cancer: differential expression in triple-negative and non-triple-negative tumors. *Breast* 2012,**21**:178-182.

Individual Investigators

Dr Dara Breslin
Dr Stuart Bund
Prof Gerard Bury
Dr Michael Carr
Prof Patricia Casey
Dr Geoffrey Chadwick
Dr Mary Clarke
Dr Paul Crossey
Dr Glen A. Doherty
Dr Peter Doran
Prof Johann Ericsson
Dr Ursula Fearon
Dr Robin Feeney
Prof Oliver Fitzgerald
Prof Sean Gaine
Mr James Geraghy
Prof Stephen Gordon
Dr Ally Guerandel
Prof Desmond Higgins
Dr Eoin Kavanagh
Dr Brendan Kelly
Prof Peter Kelly
Dr Lorraine Kyne
Dr Jason Last
Dr Matthew Lawless
Prof Brendan Loftus
Dr Patricia Mc Carthy
Prof Aiden Mc Cormack
Mr Enda Mc Dermott
Dr Aisling Mulligan
Dr William Murphy
Prof Patrick Murray
Dr Jean O' Connor
Dr Mark Pickering
Dr Terence Prenderville
Dr Karen Ryan
Mr Asim Shiekh
Dr Dubhfeasa Slattery
Dr Albert Smolenski
Prof Michael Stephens
Prof Cormac Taylor
Prof Douglas Veale

Dr Dara Breslin
Senior Lecturer / Consultant Anaesthetist

Location: St Vincent's University Hospital
Contact: 01 221 4262
Email: dara.breslin@ucd.ie

I qualified from medical school (UCD) in 1993. I completed my Fellowship and Certificate of Specialist Training with the College of Anaesthetists in Ireland. I worked as a Research Fellow with Prof R Mirakhur at Queen's University Belfast from 1998-2001. I subsequently worked as Associate Professor in the Department of Anaesthesia at Duke University, North Carolina from 2001-2006, where I worked in the Regional Anaesthesia Division. I am a Senior Lecturer and Consultant Anaesthetist at St Vincent's University Hospital, where my main interests include regional anaesthesia and the use of ultrasound, and neuromuscular blocking agents.

List of Publications:

1. Dunne E, Breslin D, Ryan D. Assessing neuromuscular function in patients who have received Botox injections. *Anaesth Intensive Care* 2012,40:730.

Dr Stuart Bund
Senior Lecturer in Physiology

Location: UCD Health Sciences Centre
Contact: 01 716 6623
Email: stuart.bund@ucd.ie

My research interests are related to the functional properties of smooth muscle, specifically the vascular smooth muscle of resistance arteries whose activity regulates blood pressure and flow and ureteral smooth muscle that regulates urine bolus transport to the urinary bladder. Recent efforts have focussed on the paracrine modulation of smooth muscle contractility by surrounding adipose tissue.

List of Publications:

1. The inhibition of ureteral motility by periureteral adipose tissue. Killian LM, Bund SJ. *ISRN Urology* 2012; **2012**:312487.

Prof Gerard Bury
Prof of General Practice, Director of
Academic Centre for Emergency Medical Science

Location: UCD Health Sciences Centre
Contact: 01 716 6640
Email: gerard.bury@ucd.ie

Researchers Supported:
Dr Crea Carberry, Lecturer
Mr Mark Dixon, Lecturer
Dr Davina Swan, Post-doc,
Ms Helen Tobin, Research Assistant
Ms Mary Headon, Research Nurse

List of Grants active in 2012:
Title: MERIT (R9744)
Start/End Dates: 1/1/2005 -
Funder: PHECC/ DoHC / HRB
Amount: €2.88m

Title: New technology to screen for AF (R11614)
Start/End Dates: 1/11/2009
Funder: HRB
Amount: €192,496

Title: New technology to screen for AF (additional grant)(R13305)
Start/End Dates: 1/10/2012
Funder: HRB
Amount: €23,500

Title: Problematic alcohol use in OST (R11050)
Start/End Dates: 1/4/2009
Funder: HRB
Amount: €150,356

Title: Cardiac arrest in general practice
Start/End Dates: 15/12/2008
Funder: HRB
Amount: €60,641

List of Publications:

1. Connolly D, Leahy D, Bury G, Gavin B, McNicholas F, Meagher D, *et al.* Can general practice help address youth mental health? A retrospective cross-sectional study in Dublin's south inner city. *Early Interv Psychiatry* 2012,6:332-340.
2. Field CA, Klimas J, Barry J, Bury G, Keenan E, Lyons S, *et al.* Alcohol screening and brief intervention among drug users in primary care: a discussion paper. *Ir J Med Sci* 2012,181:165-170.
3. Henry K, Murphy A, Willis D, Cusack S, Bury G, O'Sullivan I, *et al.* Out-of-hospital cardiac arrest in Cork, Ireland. *Emerg Med J* 2012.
4. Klimas J, Field CA, Cullen W, O'Gorman CS, Glynn LG, Keenan E, *et al.* Psychosocial interventions to reduce alcohol consumption in concurrent problem alcohol and illicit drug users. *Cochrane Database Syst Rev* 2012,11:CD009269.
5. Ní Chróinín D, Kyne L, Duggan J, Last J, Molphy A, O'Shea D, *et al.* Medicine in the community: a unique partnership. *Clin Teach* 2012,9:158-163.
6. Niedhammer I, Murrin C, O'Mahony D, Daly S, Morrison JJ, Kelleher CC, *et al.* Explanations for social inequalities in preterm delivery in the prospective Lifeways cohort in the Republic of Ireland. *Eur J Public Health* 2012,22:533-538.

Dr Michael Carr
Clinical Scientist

Location: National Virus Reference Laboratory
Contact: 01 716 1253
Email: michael.carr@ucd.ie

My research interests include the evolution and pathogenesis of respiratory and blood-borne viruses infecting humans and host genetic variation associated with differing clinical outcomes and treatment responses.

Researchers Supported:
Ms Meadhbh Collison, MSc
Ms Naomi Hall, MSc
Ms Ann Marie McCartin, MSc
Mr Conor Boyd, MSc

List of Publications:

1. Aoki K, Benkö M, Davison AJ, Echavarria M, Erdman DD, Harrach B, *et al.* Toward an integrated human adenovirus designation system that utilizes molecular and serological data and serves both clinical and fundamental virology. *J Virol* 2011,**85**:5703-5704.

2. Carr MJ, Kajon AE, Lu X, Dunford L, O'Reilly P, Holder P, *et al.* Deaths associated with human adenovirus-14p1 infections, Europe, 2009-2010. *Emerg Infect Dis* 2011,**17**:1402-1408.

3. Carr M, Hall W. Clinical and Epidemiological Aspects of the Emerging Adenovirus-14p1. *Clinical Microbiology Newsletter* 2011,**33**.

4. Chin JL, Nicholas RM, Russell J, Carr M, Connell J, Stewart S, *et al.* Spontaneous clearance of hepatitis C infection after liver transplantation from IL28B rs12979860 CC donors. *Eur J Gastroenterol Hepatol* 2012, **24**:1110-1112.

5. Dean J, Ta Thi TH, Dunford L, Carr MJ, Nguyen LT, Coughlan S, *et al.* Prevalence of HIV type 1 antiretroviral drug resistance mutations in Vietnam: a multicenter study. *AIDS Res Hum Retroviruses* 2011,**27**:797-801.

6. Dunford L, Carr MJ, Dean J, Nguyen LT, Ta Thi TH, Nguyen BT, *et al.* A multicentre molecular analysis of hepatitis B and blood-borne virus coinfections in Viet Nam. *PLoS One* 2012,**7**:e39027.

7. Dunford L, Carr MJ, Dean J, Waters A, Nguyen LT, Ta Thi TH, *et al.* Hepatitis C virus in Vietnam: high prevalence of infection in dialysis and multi-transfused patients involving diverse and novel virus variants. *PLoS One* 2012,**7**:e41266.

8. Fitzpatrick G, Ward M, Ennis O, Johnson H, Cotter S, Carr MJ, *et al.* Use of a geographic information system to map cases of measles in real-time during an outbreak in Dublin, Ireland, 2011. *Euro Surveill* 2012,**17**.

9. Hassan J, Dean J, Moss E, Carr MJ, Hall WW, Connell J. Seroepidemiology of the recent mumps virus outbreaks in Ireland. *J Clin Virol* 2012, **53**:320-324.

10. Luu QP, Dean J, Do TT, Carr MJ, Dunford L, Coughlan S, et al. HIV type 1 coreceptor tropism, CCR5 genotype, and integrase inhibitor resistance profiles in Vietnam: implications for the introduction of new antiretroviral regimens. *AIDS Res Hum Retroviruses* 2012,**28**:1344-1348.

11. Mankertz A, Mihneva Z, Gold H, Baumgarte S, Baillot A, Helble R, et al. Spread of measles virus D4-Hamburg, Europe, 2008-2011. *Emerg Infect Dis* 2011,**17**:1396-1401.

12. Moran J, Carr M, Waters A, Boyle S, Riordan M, Connell J, *et al.* Epstein-barr virus gene expression, human leukocyte antigen alleles and chronic high viral loads in pediatric renal transplant patients. *Transplantation* 2011,**92**:328-333.

13. O'Flanagan D, O'Donnell J, Domegan L, Fitzpatrick F, Connell J, Coughlan S, *et al.* First reported cases of human adenovirus serotype 14p1 infection, Ireland, October 2009 to July 2010. *Euro Surveill* 2011,**16**.

14. O'Halloran JA, De Gascun CF, Dunford L, Carr MJ, Connell J, Howard R, *et al.* Hepatitis B virus vaccine failure resulting in chronic hepatitis B infection. *J Clin Virol* 2011,**52**:151-154.

15. O'Shaughnessy L, Carr M, Crowley B, Carberry S, Doyle S. Recombinant expression and immunological characterisation of proteins derived from human metapneumovirus. *J Clin Virol* 2011,**52**:236-243.

16. Sayers G, Igoe D, Carr M, Cosgrave M, Duffy M, Crowley B, *et al.* High morbidity and mortality associated with an outbreak of influenza A(H3N2) in a psycho-geriatric facility. *Epidemiol Infect* 2012:1-9.
17. Shi W, Carr MJ, Dunford L, Zhu C, Hall WW, Higgins DG. Identification of novel inter-genotypic recombinants of human hepatitis B viruses by large-scale phylogenetic analysis. *Virology* 2012,**427**:51-59.

18. Shi W, Zhu C, Zheng W, Carr MJ, Higgins DG, Zhang Z. Subgenotype reclassification of genotype B hepatitis B virus. *BMC Gastroenterol* 2012,**12**:116.

19. Shi W, Zhu C, Zheng W, Ling C, Carr MJ, Higgins DG, *et al.* Subgenotyping of genotype C hepatitis B virus: correcting misclassifications and identifying a novel subgenotype. *PLoS One* 2012,**7**:e47271.

Prof Patricia Casey
Academic Consultant in Adult Psychiatry

Location: Mater Misericordiae University Hospital
Contact: 01 803 2176
Email: apsych@mater.ie

Prof Casey is Prof of Psychiatry at the Department of Psychiatry, UCD and the Mater Misericordiae University Hospital. She is the author of 9 books and has contributed to 22 others. She has published approximately 150 editorials/articles/original papers in international peer reviewed journals. Her research interests include suicidal behaviour and adjustment disorders. Prof Casey has experience of treating post-abortive women. She is Editor of Advances in Psychiatric Treatment, published by the Royal College of Psychiatry Publishing, London since July 2012. She is a regular contributor to the media and writes a weekly column for the Irish Independent daily newspaper.

Current Research:

Adjustment Disorder in Liaison Psychiatry
I am the lead researcher in the study of adjustment disorders among outpatients and inpatients. Data collection is ongoing but preliminary analysis has commenced. I am supervising two researchers in writing their MD/PhD dissertations on this topic.

Cochrane Systematic review
I am the lead author of a systematic review/meta-analysis on Pharmacotherapy in the treatment of Adult Adjustment Disorders. Anticipated completion date October 2013.

Single Vehicle Road Deaths and Suicide
This study is exploring the hypothesis that a large proportion of single vehicle road deaths are suicides be examining accident forensic data such as breaking distance, skid marks etc. as well as details from the coroners' inquests. This work is ongoing.

Coverage of Psychiatry in the Print Media
This is part of an ongoing study monitoring the coverage of mental health issues in the main national broadsheets and tabloid newspapers. Data analysis is currently taking place.

Research applications assessor
- Health Research Board of Ireland.
- NIHR-CCF (National Institute For Health Research Central Commissioning, UK.

Research interests:
I have been engaged in research since 1983. My interests are as follows:
- Deliberate self-harm and suicidal ideation.
- Psychological impact of induced abortion.
- Adjustment disorders and their classification.

Achievements:
- I am a member of the Medical Faculty of University College, Dublin.
- I have been the extern examiner for several MD and PhD dissertations both in Ireland and abroad.
- I am currently supervising three candidates preparing MD theses.
- Cochrane Systematic Review: P. Casey, BD. Kelly, A. Rice et al. Pharmacological interventions for adjustment disorder in adults, submitted 2012.
- Editor of the Psychiatric Bulletin, published by RCPsych. Publishing, London (now called The Psychiatrist). Jan. 2008 – July 2012.
- Editor of Advances in Psychiatric Treatment, published by RCPsych. Publishing, London. July 2012-present.

Editorial Board Member:
- British Journal of Psychiatry (1987 - present).
- Advances in Psychiatric Treatment (1995 - present).
- Irish Journal of Psychological Medicine (1985 - present).

- Primary Care Psychiatry (1993 - present).
- CDP-on-line (2004 - present).
- Member of Examinations Subcommittee, Royal College of Psychiatrists, London, 2003 – present.

Researchers Supported:

Special lecturers:

Dr Faraz Jabbar, consultant in Canada at present.
Dr Anne Doherty, consultant in UK at present.
Dr Amir Niazi, consultant in Ireland at present.
Dr Izu Ugwu, SpR in Ireland at present.
Dr Lorna Wilson, SpR in Ireland at present.

List of Publications:

1. Casey P. "I'm spiritual but not religious." Implications for research and practice. In: Spirituality, Theology and Mental Health. Edited by Cook C. Norwich; 2012.

2. Casey P, Doherty A. Adjustment disorder: implications for ICD-11 and DSM-5. Br J Psychiatry 2012,201:90-92.

3. Casey P, Gemmell I, Hiroeh U, Fulwood C. Seasonal and socio-demographic predictors of suicide in Ireland: a 22 year study. J Affect Disord2012,136:862-867.

4. Casey P, Doherty A. Adjustment disorders: diagnostic and treatment issues. Psychiatric Times 2012,1:1-5.

5. Halder N, Ramsay R, Tyrer P, Casey P. Peer reviewing made easy. Advances in Psychiatric Treatment 2011,17:150-157.

Dr Geoffrey Chadwick
Lecturer

Location: UCD Health Sciences Centre
Contact: 01 716 6638
Email: geoff.chadwick@ucd.ie

I am a physician in respiratory and general internal medicine at St Columcille's, one of the teaching centres affiliated to the School of Medicine and Medical Sciences at UCD. I am the director of the Clinical Skills Centre at UCD.

Dr Mary Clarke
Senior Clinical Lecturer

Location: DETECT early interventions services for psychosis
Contact: 01 279 1700
Email: mary.clarke@sjog.ie

My main research interest is psychosis and my group focuses on the epidemiology of psychosis and interventions that can improve outcome. In 2012 we completed a randomised controlled trial of a intervention to treat comorbid cannabis abuse in psychosis. We have recently commenced a programme of health economic research in association with NUIG. Together with collaborators at the RCSI we have developed an internationally competitive first episode psychosis research programme.

Researchers Supported:

Ms Roisin Doyle, Research Assistant
Mr Donal O'Keefe, Research Assistant

List of Grants active in 2012:

- HRB Partnership Award: Suicidality in first episode psychosis
- HRB Project Grant: Course and Outcome of Psychosis at 12 Years
- HRB Strategic award: A randomised controlled trial of an intervention to treat cannabis abuse in recent onset psychosis
- Mental Health Commission: A study of supported employment and workplace fundamentals in first episode psychosis

List of Grants received in 2012:

Title: An evaluation at seven years of health and social outcomes of people who attended Ireland's pilot early intervention in psychosis service, DETECT.
Start/End Dates: March 2012 to August 2013
Funder: Hospitaller Order of St John of God
Amount: €62,000

Title: Evaluation of the Wellness Recovery Action Plan (WRAP) Group Intervention for Inpatients with Psychiatric Illness.
Start/End Dates: March 2012 to June 2013
Funder: Hospitaller Order of St John of God
Amount: €62,500

List of Publications:

1. Hill M, Crumlish N, Clarke M, Whitty P, Owens E, Renwick L, *et al.* Prospective relationship of duration of untreated psychosis to psychopathology and functional outcome over 12 years. *Schizophr Res* 2012,141:215-221.

2. Hill M, Crumlish N, Whitty P, Clarke M, Browne S, Gervin M, et al. The relationship between insight and neurological dysfunction in first-episode psychosis. *Eur Psychiatry* 2012,27:200-205.

3. Lyne JP, Turner N, Clarke M. Treat negative symptoms of schizophrenia early on. *BMJ* 2012,344:e2297.

4. Lyne J, O'Donoghue B, Owens E, Renwick L, Madigan K, Kinsella A, *et al.* Prevalence of item level negative symptoms in first episode psychosis diagnoses. *Schizophr Res* 2012,135:128-133.

5. O'Donoghue B, Lyne J, Renwick L, Madigan K, Kinsella A, Clarke M, *et al.* A descriptive study of 'non-cases' and referral rates to an early intervention for psychosis service. *Early Interv Psychiatry* 2012,6:276-282.

6. Renwick L, Jackson D, Foley S, Owens E, Ramperti N, Behan C, *et al.* Depression and quality of life in first-episode psychosis. *Compr Psychiatry* 2012,53:451-455.

Dr Paul Crossey
Lecturer

Location: UCD Conway Institute
Contact: 01 716 6781
Email: paul.crossey@ucd.ie

Growth hormone and IGF-I comprise an important endocrine axis involved in regulating growth and metabolism. There is growing evidence that reduced IGF-I bioavailability is an important factor in the pathophysiology of diabetes and other disorders.

In collaboration with colleagues in UCD and the UK, we are investigating the effects of altered IGF-I bioavailability in animal models and whether manipulation of the growth hormone/IGF-I axis is a viable therapeutic approach for treatment of these disorders.

Researchers Supported:

Ms Jennifer Allen, PhD
Mr Daniel Jones, PhD

List of Grants active in 2012:

Title: Investigation of the antiatherogenic actions of insulin like growth factor binding protein 1 in vivo
Funder: Science Foundation Ireland (SFI)
Start/End Dates: 01-OCT-09 / 30-SEP-13
Amount: €229000

List of Publications:

1. Higgins MF, Russell NE, Crossey PA, Nyhan KC, Brazil DP, McAuliffe FM. Maternal and fetal placental growth hormone and IGF axis in type 1 diabetic pregnancy. *PLoS One* 2012,7:e29164.

Dr Glen A Doherty
Clinical Lecturer

Location: St Vincent's University Hospital
Contact: 01 221 4711
Email: glen.doherty@ucd.ie
Website: www.colorectal.ie

My research interests are in the role of innate and adaptive immunity in inflammatory bowel disease (ulcerative colitis and Crohn's Disease) and in the importance of the host immune response in gastro-intestinal neoplasia, particularly Colorectal Cancer and Barrett's Oesophagus. With my colleagues at the Centre for Colorectal Disease at SVUH/UCD we have an established track record in clinical research on a range of digestive disorders and are actively involved in clinical trials in IBD and Cancer.

Researchers Supported:

Dr David Gibson, MD
Dr Elizabeth Ryan, Senior Post-doctoral Scientist
Dr Chun Seng Lee, MD
Miriam Tosetto, Research Assistant

List of Grants active in 2012:

Title: Abbott Newman Fellowship in Inflammatory Bowel Disease (Principal Investigator)
Funder: University College Dublin Foundation Ltd.
Start/End Dates: 09-JUL-12 / 08-JUL-14
Amount: €105,000

Title: Helsinn Birex Pharmaceuticals Newman Fellowship in Colorectal Cancer (Co-investigator)
Funder: University College Dublin Foundation Ltd.
Start/End Dates: 09-JUL-12 / 08-JUL-14
Amount: €110,000

List of Publications:

1. Doherty GA, Bai A, Hanidziar D, Longhi MS, Lawlor GO, Putheti P, *et al.* CD73 is a phenotypic marker of effector memory Th17 cells in inflammatory bowel disease. *Eur J Immunol* 2012,42:3062-3072.

2. Doherty GA, Miksad RA, Cheifetz AS, Moss AC. Comparative cost-effectiveness of strategies to prevent postoperative clinical recurrence of Crohn's disease. *Inflamm Bowel Dis* 2012,18:1608-1616.

3. Doherty GA, Moss AC, Cheifetz AS. Capsule endoscopy for small-bowel evaluation in Crohn's disease. *Gastrointest Endosc* 2011,74:167-175.

4. Doherty G, Moss AC. 5-aminosalicylates to prevent relapse of Crohn's disease after surgery. *Am J Gastroenterol* 2012,107:487; author reply 487-488.

5. Doherty G, Cheriyan D, Leyden J, O'Dowd J, Murray F, Pattchett S. Inter-endoscopist agreement in Diagnosis of Barrett's Oesophagus. *Frontline Gastroenterol* 2011.

6. Heetun Z, Doherty GA. Restoring the regulatory regime in IBD: do anti-TNF agents rescue Treg? *Inflamm Bowel Dis* 2012,18:1186-1187.

7. Keegan D, McDermott E, Byrne K, Moloney D, Doherty GA, Mulcahy HE. Development, validation and clinical assessment of a short questionnaire to assess disease-related knowledge in inflammatory bowel disease patients. *Scand J Gastroenterol* 2013,48:183-188.

8. Leyden JE, Doherty GA, Hanley A, McNamara DA, Shields C, Leader M, *et al.* Quality of colonoscopy performance among gastroenterology and surgical trainees: a need for common training standards for all trainees? *Endoscopy 2011*,43:935-940.

9. McDermott E, Keegan D, Byrne K, Doherty GA, Mulcahy HE. The Short Health Scale: A valid and reliable measure of health related quality of life in English speaking inflammatory bowel disease patients. *J Crohns Colitis* 2012.

10. McDermott E, Keegan D, Hall B, Mhuruchu EN, Murphy S, Doherty G, *et al.* Mycophenolate mofetil following intolerance or failure of thiopurine therapy in inflammatory bowel diseases. *Aliment Pharmacol Ther* 2011,34:1040-1042.

11. McDermott E, Murphy S, Keegan D, O'Donoghue D, Mulcahy H, Doherty G. Efficacy of Adalimumab as a long term maintenance therapy in ulcerative colitis. *J Crohns Colitis* 2013,7:150-153.

12. McNicholas S, Andrews C, Boland K, Shields M, Doherty GA, Murray FE, *et al.* Delayed acute hospital discharge and healthcare-associated infection: the forgotten risk factor. *J Hosp Infect* 2011,78:157-158.

13. Nanda K, Courtney W, Keegan D, Byrne K, Nolan B, O'Donoghue D, *et al.* Prolonged avoidance of repeat surgery with endoscopic balloon dilatation of anastomotic strictures in Crohn's disease. *J Crohns Colitis* 2012.

14. O'Toole A, Alakkari A, Keegan D, Doherty G, Mulcahy H, O'Donoghue D. Primary sclerosing cholangitis and disease distribution in inflammatory bowel disease. *Clin Gastroenterol Hepatol* 2012,10:439-441.

15. Vaughn BP, Doherty GA, Gautam S, Moss AC, Cheifetz AS. Screening for tuberculosis and hepatitis B prior to the initiation of anti-tumor necrosis therapy. *Inflamm Bowel Dis* 2012,18:1057-1063.

Dr Peter Doran
Director, UCD Clinical Research Centre

Location: UCD Clinical research Centre, Mater Misericordiae University Hospital & St Vincent's University Hospital
Contact: 01 716 4582
Email: director.crc@ucd.ie

I earned my BSc. from Dublin City University in 1998 and my PhD from University College Dublin in 2001. I am a lecturer at the UCD School of Medicine and Medical Science, and Scientific Director of the UCD Clinical Research Centre (CRC). The UCD CRC with facilities at both the Mater Misericordiae and St Vincent's University Hospitals drives clinical and translational research which is aimed at improving patient care by acting as a catalyst to bring all members of the biomedical research entreprise together to ensure novel health interventions are developed and diffused into Irish healthcare practice.

Additional info:

Chair, National Biobanking Group- Molecular Medical Ireland
Chair-Programme Committee, ESBB Annual scientific Meeting
National Clinical Research Framework Directors group

Researchers Supported:
Data Managers
Ms Beata Sapetto Rebow
Ms Liz Comerford
Lab Technicians
Ms Avril Buckley
Mr Paola Bagaglia
Research Nurses
Ms Mary McGrath
Ms Terri Martin
ms Eimear Close
Ms Marie Burke
Ms Helen Vaughan
Ms Orna Bacon
Ms Edel Meaney
Ms Mairead Murray
Scientist
Mr Eoin Cotter
Graduate Students
Mr Michael Connolly, PhD
Ms Karen Coss, PhD
Ms Alison Kiernan, MSc

List of Grants active in 2012:
Title: Dublin Centre For Clinical Research
Funder: Health Research Board
Start/End Dates: 2009-2014
Amount: €2,066,000

Title: Core Biomarker Laboratory
Funder: Abbott
Start/End Dates: 2011-2016
Amount: €680,000

List of Publications:

1. Bennett G, Sadlier D, Doran PP, Macmathuna P, Murray DW. A functional and transcriptomic analysis of NET1 bioactivity in gastric cancer. *BMC Cancer* 2011,**11**:50.

2. Butler JS, Murray DW, Hurson CJ, O'Brien J, Doran PP, O'Byrne JM. The role of Dkk1 in bone mass regulation: correlating serum Dkk1 expression with bone mineral density. *J Orthop Res* 2011,**29**:414-418.

3. Cotter EJ, Chew N, Powderly WG, Doran PP. HIV type 1 alters mesenchymal stem cell differentiation potential and cell phenotype ex vivo. *AIDS Res Hum Retroviruses* 2011,27:187-199.

4. Daly M, Delaney L, Doran PP, Maclachlan M. The role of awakening cortisol and psychological distress in diurnal variations in affect: a day reconstruction study. *Emotion* 2011,**11**:524-532.

5. Deegan CA, Murray D, Doran P, Moriarty DC, Sessler DI, Mascha E, *et al.* Anesthetic technique and the cytokine and matrix metalloproteinase response to primary breast cancer surgery. *Reg Anesth Pain Med* 2010,**35**:490-495.

6. Ecimovic P, Murray D, Doran P, McDonald J, Lambert DG, Buggy DJ. Direct effect of morphine on breast cancer cell function in vitro: role of the NET1 gene. *Br J Anaesth* 2011,**107**:916-923.

7. Murphy O, O'Connell O, Liston R, Connaughton J, Costello R, Breiden J, *et al.* Venous thromboembolism risk and prophylaxis in the acute hospital care setting: the Irish results of the ENDORSE study. *Ir Med J* 2012,**105**:140-143.

Prof Johan Ericsson
Science Foundation Ireland (Stokes Professor)

Location: UCD Conway Institute
Contact: 01 716 6753
Email: johan.ericsson@ucd.ie

We work on the SREBP family of transcription factors. These proteins control cholesterol and lipid metabolism and play critical roles during adipocyte differentiation and insulin-dependent gene expression. Disturbances in lipid metabolism are at the very core of several major health issues facing modern society, including cardiovascular disease, obesity and diabetes. Thus, the factors and signals that regulate the function of the SREBP family of proteins are very relevant to metabolic disease.

Affiliations:
- UCD MR Oncology

Researchers Supported:
Dr Maria Teresa Bengoechea Alonso, Research Fellow

List of Grants active in 2012:
Title: Factors Regulating Fbw7
Funder: Ludwig Institute for Cancer Research (LICR)
Start/End Dates: 01-JAN-09 / 31-DEC-12
Amount:

Title: Identification of novel mechanisms that regulate the SREBP family of transcription factors, key regulators of lipid metabolism
Funder: SFI
Start/End Dates: 01-Feb-11/ 31-Jan-16

List of Publications:

1. Calvisi DF, Wang C, Ho C, Ladu S, Lee SA, Mattu S, et al. Increased lipogenesis, induced by AKT-mTORC1-RPS6 signaling, promotes development of human hepatocellular carcinoma. *Gastroenterology* 2011,**140**:1071-1083.

2. Mu Y, Sundar R, Thakur N, Ekman M, Gudey SK, Yakymovych M, *et al.* TRAF6 ubiquitinates TGF□ type I receptor to promote its cleavage and nuclear translocation in cancer. *Nat Commun* 2011,**2**:330.

3. Zhao X, Feng D, Wang Q, Abdulla A, Xie XJ, Zhou J, et al. Regulation of lipogenesis by cyclin-dependent kinase 8-mediated control of SREBP-1. *J Clin Invest* 2012,**122**:2417-2427.

Dr Ursula Fearon
Research Fellow

Location: UCD Health Sciences Centre
Contact: 01 221 3464
Email: ursula.fearon@ucd.ie

The main focus of my research is to identify the key mechanisms involved in dysregulation of angiogenesis and subsequent cartilage invasion in the inflammatory joint. We have developed a number of novel models using human tissue from patients with inflammatory arthritis which more closely reflect the joint environment. These models are designed to reproduce the in vivo environment of the inflammatory joint and have attracted industry partnership funding to examine potential new therapeutic targets. Using these 'pre clinical proof of concept models' we are dissecting out the complex signalling pathways involved in regulating blood vessel dysfunction in the arthritic joint which ultimately leads to cartilage invasion. Identification of novel targets for therapeutic manipulation in arthritis would clearly have a major impact on health and quality of life.

Affiliations:
- CORE, Vascular

Researchers Supported:
Dr Len Harty, Clinical Research Fellow
Dr Emese Balogh, Clinical Research Fellow
Dr Michael O'Rourke, Clinical Research Fellow
Dr Monika Biniecka, Post Doctoral Fellow
Dr Mary Connolly, Post Doctoral Fellow
Dr Wei Gao, Post Doctoral Fellow
Mr Owen O'Sullivan, Research Assistant
Ms Jennifer Mc Cormick, MPhil
Mr Peadar Rooney, PhD
Ms Trudy Mc Garry, PhD
Ms Danielle Molloy

List of Grants active in 2012:
Title: Cytoskeletal signalling pathways mediate angiogenesis and cell invasion in Inflammation.
U Fearon (PI)
Funder: HEA PRTLI Cycle 5
Start/End Dates: 2012-2015
Amount: €180,000

Title: Does hypoxia induced vascular dysfunction and Notch signalling alter response to TNFi in IA. (Ursula Fearon –co-investigator; Dougas Veale PI)
Funder: HRB
Start/End Dates: Sept 2012-Sept 2015
Amount: €320,000

Title: Transcriptomics of response to therapy in Rheumatoid Arthritis
Funder: Roche Phamaceuticals
Start/End Dates: April 2011-2013
Amount: €350,000

Title: - Mitochondrial dysnfunction in IA
Funder: MSD Newman Fellow
Start/End Dates: 2011-July 2013
Amount: €80,000

List of Grants received in 2012:
Title: Cytoskeletal signalling pathways mediate angiogenesis and cell invasion in Inflammation.
U Fearon (PI)
Funder: PRTLI cycle5:.
Start/End Dates: 2012-2015
Amount: €180,000

Title: Does hypoxia induced vascular dysfunction and Notch signalling alter response to TNFi in IA. (Ursula Fearon –co-investigator; Dougas Veale PI)
Funder: HRB
Start/End Dates: Sept 2012-Sept 2015
Amount: €320,000

List of Publications:

1. Connolly M, Mullan RH, McCormick J, Matthews C, Sullivan O, Kennedy A, *et al.* Acute-phase serum amyloid A regulates tumor necrosis factor □ and matrix turnover and predicts disease progression in patients with inflammatory arthritis before and after biologic therapy. *Arthritis Rheum* 2012,**64**:1035-1045.

2. Gao W, Sweeney C, Connolly M, Kennedy A, Ng CT, McCormick J, *et al.* Notch-1 mediates hypoxia-induced angiogenesis in rheumatoid arthritis. *Arthritis Rheum* 2012,**64**:2104-2113.

3. Gao W, Sweeney C, Walsh C, Rooney P, McCormick J, Veale DJ, *et al.* Notch signalling pathways mediate synovial angiogenesis in response to vascular endothelial growth factor and angiopoietin 2. *Ann Rheum Dis* 2012.

4. Harty LC, Biniecka M, O'Sullivan J, Fox E, Mulhall K, Veale DJ, *et al.* Mitochondrial mutagenesis correlates with the local inflammatory environment in arthritis. *Ann Rheum Dis* 2012,**71**:582-588.

5. Marzaioli V, McMorrow JP, Angerer H, Gilmore A, Crean D, Zocco D, *et al.* Histamine contributes to increased RANKL to osteoprotegerin ratio through altered nuclear receptor 4A activity in human chondrocytes. *Arthritis Rheum* 2012,**64**:3290-3301.

6. Mix KS, McMahon K, McMorrow JP, Walkenhorst DE, Smyth AM, Petrella BL, *et al.* Orphan nuclear receptor NR4A2 induces synoviocyte proliferation, invasion, and matrix metalloproteinase 13 transcription. *Arthritis Rheum* 2012,**64**:2126-2136.

7. Nanda KS, Brady JJ, Murray BF, Sullivan O, Fearon U, McKenna MJ, *et al.* Elevated circulating osteoprotegerin and reduced matrix-metalloprotease-9 in post-menopausal women with chronic Hepatitis C virus infection. *Cytokine* 2012,**60**:328-333.

8. Yokota K, Miyazaki T, Hemmatazad H, Gay RE, Kolling C, Fearon U, *et al.* The pattern-recognition receptor nucleotide-binding oligomerization domain--containing protein 1 promotes production of inflammatory mediators in rheumatoid arthritis synovial fibroblasts. *Arthritis Rheum* 2012,**64**:1329-1337.

Dr Robin Feeney
Lecturer

Location: UCD Health Sciences Centre
Contact: 01 716 6620
Email: robin.feeney@ucd.ie

My research centres on biological variation and evolution in humans and their ancestors from skeletal and dental material. I examine size and shape variation in dental tissues using micro-CT imaging technology to understand sources of variation in dental morphology and associated evolutionary changes in the human lineage, as well as explore clinical aspects of dental variation.

Affiliations:
- Physical Anthropology Research Group

Prof Oliver FitzGerald
Newman Clinical Research Professor

Location: Dept Rheumatology, St. Vincent's University Hospital
Contact: 01 221 3142
Email: oliver.fitzgerald@ucd.ie

Professor FitzGerald has published over 225 peer-reviewed papers, many on the subject of inflammatory arthritis in particular psoriatic arthritis. His main research interests in psoriatic arthritis include clinical and therapeutic studies; the development of novel imaging techniques for measuring synovial or entheseal inflammation, including ultrasound and MRI; analysis of synovial and skin cellular and cytokine profiles; and, more recently, studies of gene and protein expression in diseased tissue.

Researchers Supported:
Dr M Haroon, Clinical Fellow
Dr A Szentepetery, Clinical Fellow
Opeyemi Ademowo, PhD student
Matthew Doyle, PhD Student

Internal Collaborators:
Phil Gallagher, Research Nurse
Emily Collins, Post-doctoral scientist
Ms Roisin Adams, (Pharmacist) PhD Student
Dr Martina Gogarty, Post-doctoral scientist
Martina Fitzpatrick, Physiotherapist
Prof. Brian Kirby, Dept Dermatology SVHG
Prof Mike Dunn, Proteomics UCD
Prof Steve Pennington, Proteomics UCD
Prof Patrick Brennan, Biologic Imaging UCD
Dr. Sarah Rogers, Dept Dermatology SVHG
Dr. Evelyn Murphy, Veterinary College, UCD

List of Grants active in 2012:
Title: Monitoring innate immunity in arthritis and mucosal inflammation
Start/End Dates: 2012-2015
Funder: FP7-HEALTH-2012-INNOVATION
Amount: Total budget €5.7 million; €774,039 for UCD collaboration

Title: Development of electronic solution to collecting key outcome data
Start/End Dates: 2012-current
Funder: Pfizer
Amount: €40,000

Title: Differential Protein expression in psoriatic

arthritis synovial tissue following anti-TNF therapy
Start/End Dates: 2007 – 2012
Funder: Abbott
Amount: €170,000

Title: Development of Inflammatory Arthritis database
Start/End Dates: 2007 – 2013
Funder: Abbott
Amount: €240,000

Title: Differential expression of T cell subsets including regulatory T-cells (T-regs) following the introduction of Abatacept in Psoriatic Arthritis
Start/End Dates: 2010 – 2013
Funder: Bristol Mayer Squib (BMS)
Amount: €170,000

Title: Bone Biomarkers and bone imaging in early inflammatory arthritis
Start/End Dates: 2010 – 2013
Funder: Abbott
Amount: €140,000

Publications:

1. Adams, R., Craig, B. M., Walsh, C. D., Veale, D. J., Bresnihan, B., FitzGerald, O. and Barry, M. (2011) 'The impact of a revised EQ-5D population scoring on preference-based utility scores in an inflammatory arthritis cohort', *Value Health,* **14**(6), 921-7.

2. Ash, Z., Gaujoux-Viala, C., Gossec, L., Hensor, E. M., FitzGerald, O., Winthrop, K., van der Heijde, D., Emery, P., Smolen, J. S. and Marzo-Ortega, H. (2012) 'A systematic literature review of drug therapies for the treatment of psoriatic arthritis: current evidence and meta-analysis informing the EULAR recommendations for the management of psoriatic arthritis', *Ann Rheum Dis,* **71**(3), 319-26.

3. Bowes, J., Eyre, S., Flynn, E., Ho, P., Salah, S., Warren, R. B., Marzo-Ortega, H., Coates, L., McManus, R., Ryan, A. W., Kane, D., Korendowych, E., McHugh, N., FitzGerald, O., Packham, J., Morgan, A. W., Griffiths, C. E., Bruce, I. N., Worthington, J. and Barton, A. (2011a) 'Evidence to support IL-13 as a risk locus for psoriatic arthritis but not psoriasis vulgaris', *Ann Rheum Dis,* **70**(6), 1016-9.

4. Bowes, J., Eyre, S., Flynn, E., Ho, P., Salah, S., Warren, R. B., Marzo-Ortega, H., Coates, L., McManus, R., Ryan, A. W., Kane, D., Korendowych, E., McHugh, N., FitzGerald, O., Packham, J., Morgan, A. W., Griffiths, C. E., Bruce, I. N., Worthington, J. and Barton, A. (2011b) 'Evidence to support IL-13 as a risk locus for psoriatic arthritis but not psoriasis vulgaris', *Ann Rheum Dis,* **70**(6), 1016-9.

5. Bowes, J., Ho, P., Flynn, E., Ali, F., Marzo-Ortega, H., Coates, L. C., Warren, R. B., McManus, R., Ryan, A. W., Kane, D., Korendowych, E., McHugh, N., FitzGerald, O., Packham, J., Morgan, A. W., Bruce, I. N. and Barton, A. (2012a) 'Comprehensive assessment of rheumatoid arthritis susceptibility loci in a large psoriatic arthritis cohort', *Ann Rheum Dis,* 71(8), 1350-4.

6. Bowes, J., Ho, P., Flynn, E., Ali, F., Marzo-Ortega, H., Coates, L. C., Warren, R. B., McManus, R., Ryan, A. W., Kane, D., Korendowych, E., McHugh, N., FitzGerald, O., Packham, J., Morgan, A. W., Bruce, I. N. and Barton, A. (2012b) 'Comprehensive assessment of rheumatoid arthritis susceptibility loci in a large psoriatic arthritis cohort', *Ann Rheum Dis,* **71**(8), 1350-4.

7. Bowes, J., Ho, P., Flynn, E., Salah, S., McHugh, N., FitzGerald, O., Packham, J., Morgan, A. W., Helliwell, P. S., Bruce, I. N. and Barton, A. (2012c) 'Investigation of IL1, VEGF, PPARG and MEFV genes in psoriatic arthritis susceptibility', *Ann Rheum Dis,* **71**(2), 313-4.

8. Bowes, J., Orozco, G., Flynn, E., Ho, P., Brier, R., Marzo-Ortega, H., Coates, L., McManus, R., Ryan, A. W., Kane, D., Korendowych, E., McHugh, N., FitzGerald, O., Packham, J., Morgan, A. W., Bruce, I. N. and Barton, A. (2011c) 'Confirmation of TNIP1 and IL23A as susceptibility loci for psoriatic arthritis', *Ann Rheum Dis,* **70**(9), 1641-4.

9. Coates, L. C., Mumtaz, A., Helliwell, P. S., Mease, P. J., Callis-Duffin, K., Krueger, G. G., McHugh, N. J., Strand, V., Gladman, D. D. and FitzGerald, O. (2011) 'Development of a disease severity and responder index for psoriatic arthritis (PsA)--report of the OMERACT 10 PsA special interest group', *J Rheumatol,* **38**(7), 1496-501.

10. Collins, N. E., Fitzgerald, O. and Murphy, C. C. (2011a) 'Clinical image: keratitis in reactive arthritis', *Arthritis Rheum*, **63**(8), 2522.

11. Collins, N. E., Fitzgerald, O. and Murphy, C. C. (2011b) 'Clinical image: keratitis in reactive arthritis', *Arthritis Rheum,* **63**(8), 2522.

12. Connolly, M., Mullan, R. H., McCormick, J., Matthews, C., Sullivan, O., Kennedy, A., FitzGerald, O., Poole, A. R., Bresnihan, B., Veale, D. J. and Fearon, U. (2012a) 'Acute-phase serum amyloid A regulates tumor necrosis factor α and matrix turnover and predicts disease progression in patients with inflammatory arthritis before and after biologic therapy', *Arthritis Rheum,* **64**(4), 1035-45.

13. Connolly, M., Mullan, R. H., McCormick, J., Matthews, C., Sullivan, O., Kennedy, A., FitzGerald, O., Poole, A. R., Bresnihan, B., Veale, D. J. and Fearon, U. (2012b) 'Acute-phase serum amyloid A regulates tumor necrosis factor α and matrix turnover and predicts disease progression in patients with inflammatory arthritis before and after biologic therapy', *Arthritis Rheum,* **64**(4), 1035-45.

14. Donlon, B., Veale, D., Brennan, P., Gibney, R., Carr, H., Rainford, L., Ng, C., Pontifex, E., McNulty, J., FitzGerald, O. and Ryan, J. (2012) 'MRI-Based Visualisation and quantification of Rheumatoid and Psoriatic Arthritis of the Knee' in Linsen, L., Hagen, H. and Hamann, B., eds., Visualisation in Medicine and Life Sciences II, Berlin Heidelberg New York: Springer.

15. Doyle, M. S., Collins, E. S., Fitzgerald, O. M. and Pennington, S. R. (2012a) 'New insight into the functions of the interleukin-17 receptor adaptor protein Act1 in psoriatic arthritis', *Arthritis Res Ther,* **14**(5), 226.

16. Doyle, M. S., Collins, E. S., Fitzgerald, O. M. and Pennington, S. R. (2012b) 'New insight into the functions of the interleukin-17 receptor adaptor protein Act1 in psoriatic arthritis', *Arthritis Res Ther,* **14**(5), 226.

17. FitzGerald, O. (2012) 'Diagnosis: Screening for arthritis in patients with psoriasis', *Nat Rev Rheumatol,* **8**(11), 640-1.

18. Fitzgerald, O. and Chandran, V. (2012a) 'Update on biomarkers in psoriatic arthritis: a report from the GRAPPA 2010 annual meeting', *J Rheumatol,* **39**(2), 427-30.

19. Fitzgerald, O. and Chandran, V. (2012b) 'Update on biomarkers in psoriatic arthritis: a report from the GRAPPA 2010 annual meeting', *J Rheumatol,* **39**(2), 427-30.

20. FitzGerald, O., Helliwell, P., Mease, P., Mumtaz, A., Coates, L., Pedersen, R., Nab, H. and Molta, C. (2012) 'Application of composite disease activity scores in psoriatic arthritis to the PRESTA data set', *Ann Rheum Dis*, **71**(3), 358-62.

21. Fitzgerald, O., Ritchlin, C. T. and Mease, P. J. (2012) 'Biomarkers of radiographic progression in psoriatic arthritis: a report from the GRAPPA 2011 annual meeting', *J Rheumatol,* **39**(11), 2189-92.

22. French, H. P., Fitzpatrick, M. and FitzGerald, O. (2011) 'Responsiveness of physical function outcomes following physiotherapy intervention for osteoarthritis of the knee: an outcome comparison study', *Physiotherapy,* **97**(4), 302-8.

23. Gladman, D. D., Ritchlin, C. T. and Fitzgerald, O. (2012a) 'The path forward to biomarker discovery in psoriatic disease: a report from the GRAPPA 2010 annual meeting', *J Rheumatol,* **39**(2), 434-6.

24. Gladman, D. D., Ritchlin, C. T. and Fitzgerald, O. (2012b) 'The path forward to biomarker discovery in psoriatic disease: a report from the GRAPPA 2010 annual meeting', *J Rheumatol,* **39**(2), 434-6.

25. Gossec, L., Smolen, J. S., Gaujoux-Viala, C., Ash, Z., Marzo-Ortega, H., van der Heijde, D., FitzGerald, O., Aletaha, D., Balint, P., Boumpas, D., Braun, J., Breedveld, F. C., Burmester, G., Cañete, J. D., de Wit, M., Dagfinrud, H., de Vlam, K., Dougados, M., Helliwell, P., Kavanaugh, A., Kvien, T. K., Landewé, R., Luger, T., Maccarone, M., McGonagle, D., McHugh, N., McInnes, I. B., Ritchlin, C., Sieper, J., Tak, P. P., Valesini, G., Vencovsky, J., Winthrop, K. L., Zink, A., Emery, P. and Rheumatism, E. L. A. (2012) 'European League Against Rheumatism recommendations for the management of psoriatic arthritis with pharmacological therapies', *Ann Rheum Dis,* **71**(1), 4-12.

26. Haroon, M. and Fitzgerald, O. (2012a) 'Pathogenetic overview of psoriatic disease', *J Rheumatol Suppl,* **89**, 7-10.

27. Haroon, M. and Fitzgerald, O. (2012b) 'Vitamin D and its emerging role in immunopathology', *Clin Rheumatol,* **31**(2), 199-202.

28. Haroon, M. and FitzGerald, O. (2012) 'Vitamin D deficiency: subclinical and clinical consequences on musculoskeletal health', *Curr Rheumatol Rep,* **14**(3), 286-93.

29. Haroon, M., Kirby, B. and Fitzgerald, O. (2012) 'High prevalence of psoriatic arthritis in patients with severe psoriasis with suboptimal performance of screening questionnaires', *Ann Rheum Dis.*

30. Harty, L. C., Ng, C. T., Fearon, C., Murray, C. A., Fitzgerald, O. and Veale, D. J. (2012) 'Joint tenderness and swelling in biologic-treated inflammatory arthritis patients - a tricky trade off?', *Int J Clin Pract,* **66**(2), 128-31.

31. Helliwell, P. S., Fitzgerald, O. and Mease, P. J. (2012a) 'Development of composite measures for psoriatic arthritis: a report from the GRAPPA 2010 annual meeting', *J Rheumatol,* **39**(2), 398-403.

32. Helliwell, P. S., Fitzgerald, O. and Mease, P. J. (2012b) 'Development of composite measures for psoriatic arthritis: a report from the GRAPPA 2010 annual meeting', *J Rheumatol,* **39**(2), 398-403.

33. Helliwell, P. S., Fitzgerald, O., Strand, C. V. and Mease, P. J. (2011a) 'Composite Measures in Psoriatic Arthritis: a report from the GRAPPA 2009 annual meeting', *J Rheumatol,* **38**(3), 540-5.

34. Helliwell, P. S., Fitzgerald, O., Strand, C. V. and Mease, P. J. (2011b) 'Composite Measures in Psoriatic Arthritis: a report from the GRAPPA 2009 annual meeting', *J Rheumatol,* **38**(3), 540-5.

35. Mumtaz, A., Gallagher, P., Kirby, B., Waxman, R., Coates, L. C., Veale J. D., Helliwell, P. and FitzGerald, O. (2011) 'Development of a preliminary composite disease activity index in psoriatic arthritis', *Ann Rheum Dis*, **70**(2), 272-7.

36. Nicholson, P. J., Hegarty, C., Jackson, M., Keane, D., Fitzgerald, O., Bresnihan, B., Veale, D. and Dodd, J. D. (2012) 'Pulmonary fibrosis in systemic sclerosis: association with myocardial fibrosis', *J Thorac Imaging,* **27**(1), 44-50.

37. Pontifex, E. K., Gerlag, D. M., Gogarty, M., Vinkenoog, M., Gibbs, A., Burgman, I., Fearon, U., Bresnihan, B., Tak, P. P., Gibney, R. G., Veale, D. J. and FitzGerald, O. (2011a) 'Change in CD3 positive T-cell expression in psoriatic arthritis synovium correlates with change in DAS28 and magnetic resonance imaging synovitis scores following initiation of biologic therapy--a single centre, open-label study', *Arthritis Res Ther,* **13**(1), R7.

38. Pontifex, E. K., Gerlag, D. M., Gogarty, M., Vinkenoog, M., Gibbs, A., Burgman, I., Fearon, U., Bresnihan, B., Tak, P. P., Gibney, R. G., Veale, D. J. and FitzGerald, O. (2011b) 'Change in CD3 positive T-cell expression in psoriatic arthritis synovium correlates with change in DAS28 and magnetic resonance imaging synovitis scores following initiation of biologic therapy--a single centre, open-label study', *Arthritis Res Ther,* **13**(1), R7.

39. Reid, A., Brady, A., Blake, C., Mongey, A. B., Veale, D. J., FitzGerald, O. and Cusack, T. (2011) 'Randomised controlled trial examining the effect of exercise in people with rheumatoid arthritis taking anti-TNFα therapy medication', *BMC Musculoskelet Disord,* **12**, 11.

40. Schmitz, S., Adams, R., Walsh, C. D., Barry, M. and FitzGerald, O. (2012) 'A mixed treatment comparison of the efficacy of anti-TNF agents in rheumatoid arthritis for methotrexate non-responders demonstrates differences between treatments: a Bayesian approach', *Ann Rheum Dis*, **71**(2), 225-30.

41. Tsoi, L. C., Spain, S. L., Knight, J., Ellinghaus, E., Stuart, P. E., Capon, F., Ding, J., Li, Y., Tejasvi, T., Gudjonsson, J. E., Kang, H. M., Allen, M. H., McManus, R., Novelli, G., Samuelsson, L., Schalkwijk, J., Ståhle, M., Burden, A. D., Smith, C. H., Cork, M. J., Estivill, X., Bowcock, A. M., Krueger, G. G., Weger, W., Worthington, J., Tazi-Ahnini, R., Nestle, F. O., Hayday, A., Hoffmann, P., Winkelmann, J., Wijmenga, C., Langford, C., Edkins, S., Andrews, R., Blackburn, H., Strange, A., Band, G., Pearson, R. D., Vukcevic, D., Spencer, C. C., Deloukas, P., Mrowietz, U., Schreiber, S., Weidinger, S., Koks, S., Kingo, K., Esko, T., Metspalu, A., Lim, H. W., Voorhees, J. J., Weichenthal, M., Wichmann, H. E., Chandran, V., Rosen, C. F., Rahman, P., Gladman, D. D., Griffiths, C. E., Reis, A., Kere, J., Nair, R. P., Franke, A., Barker, J. N., Abecasis, G. R., Elder, J. T., Trembath, R. C., (CASP), C. A. S. o. P., Consortium, G. A. o. P., Extension, P. A. G. and 2, W. T. C. C. C. (2012) 'Identification of 15 new psoriasis susceptibility loci highlights the role of innate immunity', *Nat Genet,* **44**(12), 1341-8.

42. Walsh, C. E., Ryan, E. J., O'Farrelly, C., Golden-Mason, L., FitzGerald, O., Veale, D. J., Bresnihan, B. and Fearon, U. (2011) 'Differential expression of NK receptors CD94 and NKG2A by T cells in rheumatoid arthritis patients in remission compared to active disease', *PLoS One,* **6**(11), e27182.

43. Winchester, R., Minevich, G., Steshenko, V., Kirby, B., Kane, D., Greenberg, D. A. and FitzGerald, O. (2012) 'HLA associations reveal genetic heterogeneity in psoriatic arthritis and in the psoriasis phenotype', *Arthritis Rheum,* **64**(4), 1134-44.

Prof Sean Gaine
Associate Clinical Professor
Location: Mater Misericordiae University Hospital
Contact: 01 803 4420
Email: sgaine@mater.ie

My main research interest is in the pulmonary circulation. I run the National Pulmonary Hypertension Unit (www.pulmonaryhypertension.ie) at the Mater Hospital where I actively follow around two hundred patients with pulmonary arterial hypertension. I am involved in clinical trials and translational work in collaboration with Prof Paul McLoughlin and his group in the Conway institute. We are currently looking at novel biomarkers of disease severity in the blood of our patients. We are also involved with the UK PH Centres with both epidemiological and translational science studies.

Researchers Supported:

Dr John Keaney, Clinical Research; Newman Pulmonary Hypertension Translational Medicine Fellow
Dr Lili Lee, Post Doctoral Fellow
Dr Brian McCullagh, Research MD; Newman Pulmonary Hypertension Translational Medicine Fellow
Dr Caroline O'Connell, Research MD
Dr Andy Roy, Clinical Research; Newman Pulmonary Hypertension Translational Medicine Fellow

List of Grants active in 2012:
Clinical Trials:
PI: Actelion: (GRIPHON) An international, multicenter, double blind, randomized, placebo-controlled comparison of the safety and efficacy of Selexipag in patients with pulmonary arterial hypertension.

PI: United Therapeutics:(FREEDOM) An International , multicenter, double blind, randomized, placebo-controlled comparison of the safety and efficacy of oral treprostinol in patients with pulmonary arterial hypertension.

List of Grants received in 2012:
5 yr grant:
Collaborator: BHF Special Project no. SP/12/12/29836 "National cohort study of heritable pulmonary arterial hypertension"
Total Grant: £1,178,425.00
List of Publications:

1. Costello CM, McCullagh B, Howell K, Sands M, Belperio JA, Keane MP, *et al.* A role for the CXCL12 receptor, CXCR7, in the pathogenesis of human pulmonary vascular disease. *Eur Respir J* 2012,**39**:1415-1424.

2. Hoeper MM, Huscher D, Ghofrani HA, Delcroix M, Distler O, Schweiger C, *et al.* Elderly patients diagnosed with idiopathic pulmonary arterial hypertension: Results from the COMPERA registry. *Int J Cardiol* 2012.

3. Ling Y, Johnson MK, Kiely DG, Condliffe R, Elliot CA, Gibbs JS, *et al.* Changing demographics, epidemiology, and survival of incident pulmonary arterial hypertension: results from the pulmonary hypertension registry of the United Kingdom and Ireland. *Am J Respir Crit Care Med* 2012,**186**:790-796.

4. Murphy O, O'Connell O, Liston R, Connaughton J, Costello R, Breiden J, *et al.* Venous thromboembolism risk and prophylaxis in the acute hospital care setting: the Irish results of the ENDORSE study. *Ir Med J* 2012,**105**:140-143.

5. Ní Chróinín D, Gaine S. Crack-ing the case: a patient with persistent delirium due to body packing with cocaine. *Ir Med J* 2012,**105**:118-119.

6. O'Connell C, O'Callaghan D, Gaine S. New drugs for pulmonary hypertension. *Eur Respir Mon* 2012,**57**:1-14.

7. Vachiéry JL, Gaine S. Challenges in the diagnosis and treatment of pulmonary arterial hypertension. *Eur Respir Rev* 2012,**21**:313-320.

Mr James Geraghty
Consultant Breast Surgeon

Location: St Vincent's University Hospital
Contact: 01 418 8411
Email: james.geraghty@ucd.ie

I am a Consultant Surgeon working in the field of Breast Diseases in St Vincent's University Hospital. My research interests are twofold. Firstly in the area of Transcription Master Regulators of Senescence in Breast Cancer and the second area of interest is in the field of Familial Breast Cancer and in particular genes associated with breast cancer. A unique liaison has been set up between the Breast Department at St Vincent's University Hospital, University College Dublin and the world renowned Smurfit Institute of Genetics at Trinity College Dublin. Specifically a link was established initially with Prof David McConnell with the appointment of a lecturer, Dr Adrian Bracken who is the main individual conducting this joint research project. This research currently funds a Post Doc as well as a trainee surgeon who is doing a PhD in Genetics and Breast Cancer. This work is currently on-going and is funded via St Vincent's Foundation, the Health Research Board, Enterprise Ireland and is the subject of a further application to the Health Research Board.

Additional info:
I have been involved in two specific European initiatives. The first was in the establishment of a European wide Fellowship Programme for young doctors wishing to train in a clinical setting in different types of cancer. This is done in conjuction with the European School of Oncology based in Milan. This project, which is co-ordinated by University College Dublin, is also associated with cancer centres in London, Paris and Milan. The first Fellows to undertake this project did a six month Fellowship Programme in St Vincent's University Hospital in 2012.

The second European Project was the hosting of an International Conference on Young Women with Breast Cancer which was held in the O'Reilly Hall Dublin in November 2012. This conference had an International Faculty from Europe and the United States with over 400 participants from 40 different nationalities. The conference was funded by an unrestricted educational grant from the European School of Oncology and was very successful.

Researchers Supported:
Dr Adrian Bracken, Lecturer, Smurfit Institute of Genetics, Trinity College Dublin
Mr Gerry Brien, Post Doctoral Research, Smurfit
Dr Fiona Lanigan, Post Doctoral Fellow, Smurfit Institute of Genetics, Trinity College Dublin
Institute of Genetics, Trinity College Dublin

List of Grants active in 2012:
Title: Master Transcription Regulators
Funder: St Vincent's Foundation
Start/End Dates: 2011 – to present
Amount: €100,000

Title: Master Transciption Regulators in Breast Cancer
Funder: HRV
Start/End Dates: 2011 – to present
Amount: €300,000

Title: Genetics – Novel Genes involved in Breast Cancer
Funder: St Vincent's Foundation
Start/End Dates: 2010 – to present
Amount: €100,000

List of Publications:
Publications specific to the above projects are currently being submitted with the intention of aiming for high impact factor journals. The first paper published in this area was in Onogene in 2011.

Prof Stephen Gordon
Associate Professor

Location: Veterinary Science Centre
Contact: 01 716 6181
Email: stephen.gordon@ucd.ie

I hold a joint appointment across the School of Medicine and Medical Science, School of Veterinary Medicine, and School of Biomolecular and Biomedical Science. My research is focussed on mycobacterial pathogens of humans and animals, in particular tuberculosis (TB). A current focus is on the exploitation of the genome sequence of human TB pathogen, Mycobacterium tuberculosis, and the bovine pathogen, Mycobacterium bovis, to accelerate vaccine and diagnostic development.

We have also started a research programme on Mycobacterium paratuberculosis, the causative agent of Johne's Disease in ruminants, and a pathogen with a proposed link to Crohn's disease in humans.

Researchers Supported:
Ms Lorraine Carr, PhD
Ms Jing Chen, PhD
Dr Kevin Conlon, Post-Doc
Ms Claire Healy, PhD
Ms Kerri Malone, PhD
Mr Kevin Rue, PhD

List of Grants active in 2012:
Title: PRTLI 5: MolCellBiol - Split Accounts School of VM
Funder: Higher Education Authority (HEA)
Start/End Dates: 01-MAR-11 / 29-FEB-16
Amount: €135,400

Title: MYCOBACTDIAGNOSIS
Funder: Dept. of Agriculture, Fisheries & Food (DAFF)
Start/End Dates: 01-JUN-12 / 01-JUN-15
Amount: €299,625

Title: Functional genomics and proteomics studies of bovine tuberculosis
Funder: Science Foundation Ireland (SFI)
Start/End Dates: 01-SEP-09 / 01-SEP-14
Amount: €1,744,010

List of Grants received in 2012:
Title: ICONMAP
Funder: Dept. of Agriculture, Fisheries & Food (DAFF)
Start/End Dates: 01-NOV-12 / 01-NOV-17
Amount: €1,499,250

List of Publications:

1. Ameni G, Vordermeier M, Firdessa R, Aseffa A, Hewinson G, Gordon SV, *et al.* Mycobacterium tuberculosis infection in grazing cattle in central Ethiopia. *Vet J* 2011,**188**:359-361.

2. Berg S, Garcia-Pelayo MC, Müller B, Hailu E, Asiimwe B, Kremer K, *et al.* African 2, a clonal complex of Mycobacterium bovis epidemiologically important in East Africa. *J Bacteriol* 2011,**193**:670-678.

3. Cadmus SI, Gordon SV, Hewinson RG, Smith NH. Exploring the use of molecular epidemiology to track bovine tuberculosis in Nigeria: an overview from 2002 to 2004. *Vet Microbiol* 2011,**151**:133-138.

4. Chen JM, Uplekar S, Gordon SV, Cole ST. A point mutation in cycA partially contributes to the D-cycloserine resistance trait of Mycobacterium bovis BCG vaccine strains. *PLoS One* 2012,**7**:e43467.

5. Firdessa R, Tschopp R, Wubete A, Sombo M, Hailu E, Erenso G, *et al.* High prevalence of bovine tuberculosis in dairy cattle in central ethiopia: implications for the dairy industry and public health. *PLoS One* 2012,**7**:e52851.

6. Killick KE, Browne JA, Park SD, Magee DA, Martin I, Meade KG, *et al.* Genome-wide transcriptional profiling of peripheral blood leukocytes from cattle infected with Mycobacterium bovis reveals suppression of host immune genes. *BMC Genomics* 2011,**12**:611.

7. Magee DA, Taraktsoglou M, Killick KE, Nalpas NC, Browne JA, Park SD, *et al.* Global gene expression and systems biology analysis of bovine monocyte-derived macrophages in response to in vitro challenge with Mycobacterium bovis. *PLoS One* 2012,**7**:e32034.

8. Rodriguez-Campos S, Schürch AC, Dale J, Lohan AJ, Cunha MV, Botelho A, *et al.* European 2--a clonal complex of Mycobacterium bovis dominant in the Iberian Peninsula. *Infect Genet Evol* 2012,**12**:866-872.

9. Smith NH, Berg S, Dale J, Allen A, Rodriguez S, Romero B, *et al.* European 1: a globally important clonal complex of Mycobacterium bovis. *Infect Genet Evol* 2011,**11**:1340-1351.

10. Ussery DW, Gordon SV. Two novel methods for using genome sequences to infer taxonomy. *Microbiology* 2012,**158**:1414.

11. Vordermeier M, Gordon SV, Hewinson RG. Mycobacterium bovis antigens for the differential diagnosis of vaccinated and infected cattle. *Vet Microbiol* 2011,**151**:8-13.

Dr Allys Guerandel
Senior Clinical Lecturer

Location: St Vincents University Hospital
Contact: 01 277 3900
Email: allys.guerandel@ucd.ie

Affiliations:
- Dept of Psychiatry and Mental Health Research

Researchers Supported:
Dr Aine Butler, Senior Registrar
Dr Leonard Douglas, Senior Registrar
Dr Richard Duffy, Special Lecturer
Dr Peter Holloway, Special Lecturer/ Educational Technologist
Dr Clare Mc Givern, Registrar
Dr Karen O'Connor, Senior Registrar
Dr Ian Schneider, Senior Registrar
Dr Hiberet Tessema, Senior Registrar
Mr Niall Watts, Educational Technologist

List of Grants active in 2012:
Title: NDLR/HEA Grant Support Award
Funder: NDLR/HEA
Start/End Dates: 2011
Amount: €2400

List of Publications:

1. Naughton M, Guerandel A, Callanan I, Malone K. Medical students knowledge of data protection legislation. *Clinical Governance: an International Journal* 2012.

2. O'Connor K, O'Loughlin K, Somers C, Wilson L, Pillay D, Brennan D, *et al.* Attitudes of medical students in Ireland towards Psychiatry: comparison of students from 1994-2010. *The Psychiatrist* 2012,**36**:349-356.

3. O'Loughlin K, Guerandel A, Malone K. A reflection on continuing professional development. *The Psychiatrist* 2012,**35**.

Prof Desmond Gerard Higgins
Professor of Bioinformatics

Location: UCD Conway Institute
Contact: 01 716 6833
Email: des.higgins@ucd.ie

Our laboratory works on Bioinformatics. The main focus is on the development and maintenance of the Clustal package for multiple sequence alignment. This is one of the most widely used bioinformatics applications and was originally written by me in 1988. We also work on transcriptomics and proteomics data analysis and I am a PI in Systems Biology Ireland.

Affiliations:
- Systems Biology Ireland

Researchers Supported:
Mr Kieran Boyce, PhD
Mr Gearoid Fox, PhD
Mr Graham Hughes, PhD
Mr Peter Jehl, PhD
Mr Markus Schroeder, PhD
Mr Thomas Schwarzl, PhD
Dr Fabian Sievers, Post doc

List of Grants active in 2012:

Title: Clustal Omega and the future of multiple sequence alignment
Funder: Science Foundation Ireland (SFI)
Start/End Dates: 01-JUL-12 / 01-JUL-17
Amount: €1,000,000

List of Publications:

1. Cederlund ML, Vendrell V, Morrissey ME, Yin J, Gaora P, Smyth VA, *et al.* mab2112 transgenics reveal novel expression patterns of mab2111 and mab2112, and conserved promoter regulation without sequence conservation. *Dev Dyn 2011*,**240**:745-754.

2. Ding C, Yin J, Tovar EM, Fitzpatrick DA, Higgins DG, Thiele DJ. The copper regulon of the human fungal pathogen Cryptococcus neoformans H99. *Mol Microbiol* 2011,**81**:1560-1576.

3. Guida A, Lindstädt C, Maguire SL, Ding C, Higgins DG, Corton NJ, *et al.* Using RNA-seq to determine the transcriptional landscape and the hypoxic response of the pathogenic yeast Candida parapsilosis. *BMC Genomics* 2011,**12**:628.

4. Mulrane L, Madden SF, Brennan DJ, Gremel G, McGee SF, McNally S, *et al.* miR-187 is an independent prognostic factor in breast cancer and confers increased invasive potential in vitro. *Clin Cancer Res* 2012,**18**:6702-6713.

5. O'Connell Motherway M, Zomer A, Leahy SC, Reunanen J, Bottacini F, Claesson MJ, *et al.* Functional genome analysis of Bifidobacterium breve UCC2003 reveals type IVb tight adherence (Tad) pili as an essential and conserved host-colonization factor. *Proc Natl Acad Sci U S A* 2011,**108**:11217-11222.

6. Shi W, Carr MJ, Dunford L, Zhu C, Hall WW, Higgins DG. Identification of novel intergenotypic recombinants of human hepatitis B viruses by large-scale phylogenetic analysis. *Virology* 2012,**427**:51-59.

7. Shi W, Freitas IT, Zhu C, Zheng W, Hall WW, Higgins DG. Recombination in hepatitis C virus: identification of four novel naturally occurring inter-subtype recombinants. *PLoS One* 2012,**7**:e41997.

8. Shi W, Zhu C, Zheng W, Carr MJ, Higgins DG, Zhang Z. Subgenotype reclassification of genotype B hepatitis B virus. *BMC Gastroenterol* 2012,**12**:116.

9. Shi W, Zhu C, Zheng W, Ling C, Carr MJ, Higgins DG, *et al.* Subgenotyping of genotype C hepatitis B virus: correcting misclassifications and identifying a novel subgenotype. *PLoS One* 2012,**7**:e47271.

10. Sievers F, Wilm A, Dineen D, Gibson TJ, Karplus K, Li W, et al. Fast, scalable generation of high-quality protein multiple sequence alignments using Clustal Omega. *Mol Syst Biol* 2011,**7**:539.

11. Yin J, Shine L, Raycroft F, Deeti S, Reynolds A, Ackerman KM, *et al.* Inhibition of the Pim1 oncogene results in diminished visual function. *PLoS One* 2012,**7**:e52177.

Dr Eoin Kavanagh
Senior Lecturer

Location: Mater Misericordiae University Hospital
Contact: 01 803 4350
Email: eoin.kavanagh@ucd.ie

My main research interest is in stroke and neurovascular imaging. Together with a group of close collaborators at the Mater Misericordiae University Hospital (MMUH) and the Dublin Neurological Institute (DNI) we are examining the use of MRI, in particular diffusion weighted imaging, as a biomarker in stroke and transient ischemic attack. I also have a research interest in clinical applications of MRI in the assessment of hip disorders.

Researchers Supported:
Ten radiology specialist registrars at the Mater Misericordiae University Hospital

List of Publications:

1. Adriaensen ME, Hogan B, Al-Bulushi HI, Kavanagh EC. Double-bundle depiction of the anterior cruciate ligament at 3 Tesla. *Skeletal Radiol* 2012,**41**:831-834.

2. Chan VO, Morrison WB, Kavanagh EC. Postoperative infection in the foot and ankle. *Semin Musculoskelet Radiol* 2012,**16**:241-253.

3. Crockett MT, Moynagh MR, Kavanagh EC. The novel oral anticoagulants: an update for the interventional radiologist. *AJR Am J Roentgenol* 2012,**199**:W376-379.

4. Kang J, An H, Hilibrand A, Yoon ST, Kavanagh E, Boden S. Grafton and local bone have comparable outcomes to iliac crest bone in instrumented single-level lumbar fusions. *Spine* (Phila Pa 1976) 2012,37:1083-1091.

5. Kearney H, O'Dowd S, Murray B, Kavanagh E, O'Connell M, Lynch T. Re-emergence of artistic traits in a patient with frontotemporal dementia. *Clin Neurol Neurosurg* 2012,**114**:417-420.

6. Knox MT, Kavanagh EC. CT perfusion imaging in the assessment of stroke. *AJR Am J Roentgenol* 2012,**199**:W417; author reply W418-419.

7. Kwee RM, Kavanagh EC, Adriaensen ME. Normal anatomical variants of the labrum of the hip at magnetic resonance imaging: a systematic review. *Eur Radiol* 2012.

8. Long NM, Zoga AC, Kier R, Kavanagh EC. Insufficiency and nondisplaced fractures of the talar head: MRI appearances. *AJR Am J Roentgenol* 2012,**199**:W613-617.

9. MacMahon PJ, Murphy DT, Zoga AC, Kavanagh EC. Postoperative imaging of the elbow, wrist, and hand. *Semin Musculoskelet Radiol* 2011,**15**:340-356.

10. MacMahon PJ, Shelly MJ, Scholz D, Eustace SJ, Kavanagh EC. Injectable corticosteroid preparations: an embolic risk assessment by static and dynamic microscopic analysis. *AJNR Am J Neuroradiol* 2011,**32**:1830-1835.

11. Marnane M, Merwick A, Sheehan OC, Hannon N, Foran P, Grant T, *et al.* Carotid plaque inflammation on 18F-fluorodeoxyglucose positron emission tomography predicts early stroke recurrence. *Ann Neurol* 2012,**71**:709-718.

12. McGuire CM, MacMahon P, Byrne DP, Kavanagh E, Mulhall KJ. Diagnostic accuracy of magnetic resonance imaging and magnetic resonance arthrography of the hip is dependent on specialist training of the radiologist. *Skeletal Radiol* 2012,**41**:659-665.

13. Murphy L, Lawler L, Kavanagh EC. Dabigitran and the radiology department. *Ir J Med Sci* 2012,**181**:161.

Dr Brendan Kelly
Senior Lecturer

Location: Mater Misericordiae University Hospital
Contact: 01 803 4474
Email: brendankelly35@gmail.com

I am a senior lecturer in psychiatry at University College Dublin and consultant psychiatrist at the Mater Misericordiae University Hospital.

I hold masters degrees in epidemiology (MSc), healthcare management (MA) and Buddhist studies (MA), and doctorates in medicine (MD), history (PhD) and governance (DGov).

I have authored and co-authored over 150 peer-reviewed papers and 300 non-peer-reviewed papers, as well as various book chapters and books.

I am editor-in-chief of the Irish Journal of Psychological Medicine.

Internal Collaborators:
I have broad internal collaborations within University College Dublin, in the areas of mental health law (Dr Richard Duffy), epidemiology (Prof Patricia Casey), transcultural mental health (Department of Psychology), and various other areas.

External Collaborators:
Neuro-developmental research collaborators:
Prof John Waddington, Royal College of Surgeons in Ireland, Dublin, Ireland
Prof Suzanne King, McGill University , Montreal, Canada

Mental health law collaborators:
Dr Jose Miola, Department of Law, University of Leicester, England
Dr Elizabeth Wicks, Department of Law, University of Leicester, England
Dr Faraz Jabbar, Canada

Transcultural psychiatry collaborators:
Dr Niall Crumlish, St James's Hopsital, Dublin, and Trinity College Dublin
Dr Fiona Kelly, University of Edinburgh and NHS, Scotland
Mr Greg Stratton, SPIRASI Centre for Asylum Seekers, Dublin, Ireland

Historical research collaborators:
Prof Sharlene Wlabaum, University of Quinnipiac, Connecticut, USA
Prof Harry Kennedy, Central Mental Hospital, Dublin Ireland

Happiness research collaborators:
Dr John Garry, Queens University, Belfast, Northern Ireland
Dr Anne Doherty, King's College Hospital, London

List of Grants active in 2012
Title: Cutural Psychiatry Research Programme
Start/End Dates: 2007-2014 (ongoing)
Funder: National Disability Authority and Mater College for Postgraduate Research and Education
Amount: €62,500

List of Publications:

1. Adlam J, Gill I, Glackin SN, Kelly BD, Scanlon C, Mac Suibhne S. Perspectives on Erving Goffman's "Asylums" fifty years on. *Med Health Care Philos* 2012.

2. M D, N S, E B, BD K. Graphology and psychiatric diagnosis: Is the writing on the wall? *Irish Journal of Psychological Medicine* 2012,**29**:52-54.

3. Davoren M, Breen E, Kelly B. Dr Ada English: patriot and psychiatrist in early twentieth-century Ireland. *Irish Journal of Psychological Medicine* 2011,**28**:91-96.

4. Doherty AM, Kelly BD. When Irish eyes are smiling: income and happiness in Ireland, 2003-2009. *Ir J Med Sci* 2013,**182**:113-119.

5. Jabbar F, Casey P, Schelten SL, Kelly BD. What do you think of us? Evaluating patient knowledge of and satisfaction with a psychiatric outpatient service. *Ir J Med Sci* 2011,**180**:195-201.

6. Jabbar F, Doherty AM, Aziz M, Kelly BD. Implementing the Mental Health Act 2007 in *British general practice: Lessons from Ireland. Int J Law Psychiatry* 2011,**34**:414-418.

7. BD K. Head shop drugs: they haven't gone away. *Irish Journal of Psychological Medicine* 2011,**28**:51.

8. BD K. Brain imaging in clinical psychiatry: Why? In: *I Know What You're Thinking: Brain Imaging and Mental Privacy.* Edited by Edwards S, Richmond S, Rees G: Oxford University Press; 2012. pp. 111-121.

9. BD K. Contemplative traditions and meditation. In. Edited by Miller L: Oxford University Press; 2012. pp. 307-325.

10. BD K. Mental health need amongst the intellectually disabled. *Irish Journal of Medical Science* 2012.

11. BD K. The Irish Journal of Psychological Medicine and the College of Psychiatry of Ireland. *Irish Journal of Psychological Medicine* 2012,**29**:3-6.

12. BD K. Tuberculosis in the nineteenth-century asylum: clinical cases from the Central Criminal Lunatic Asylum, Dundrum, Dublin. In: *Asylums, Mental Health Care and the Irish,* 1800-2010. Edited by Prior P: Irish Academic Press; 2012. pp. 205-220.

13. Kelly BD. Mental health legislation and human rights in England, Wales and the Republic of Ireland. *Int J Law Psychiatry* 2011,**34**:439-454.

14. Kelly BD. Self-immolation, suicide and self-harm in Buddhist and Western traditions. *Transcult Psychiatry* 2011,**48**:299-317.

15. Kelly BD. Mental illness and structural violence. *Ir Med J* 2012,**105**:30.

16. Kelly B. 'Happiness-deficit disorder?' Prevention is better than cure. *The Psychiatrist* 2011,**35**:41-45.

17. Kelly B, AM D. Impact of recent economic problems on mental health in Ireland. *International Psychiatry* 2012,**10**:6-8.

18. Latif Z, Jabbar F, Kelly B. Clozapine and blood dyscrsia. *The Psychiatrist* 2011,**35**:27-29.

19. MacSuibhne S, Kelly B. Vampirism as mental illness: myth, madness and the loss of meaning in psychiatry. *Social History of Medicine* 2011,**24**:445-460.

20. Nasim S, F J, A A, BD K. Serotonin toxicity. *Irish Journal of Pychological Medicine* 2011,**28**:i-vi.

21. Ng XT, Kelly BD. Voluntary and involuntary care: three-year study of demographic and diagnostic admission statistics at an inner-city adult psychiatry unit. *Int J Law Psychiatry* 2012,**35**:317-326.

22. C OC, YL A, AYL L, MSD Y, R D, EG B, *et al.* Screening for metabolic syndrome in long-term psychiatric illness: audit of patients receiving depot antipsychotic medication at a psychiatry clinic. *European Journal of Psychiatry* 2011,**24**:213-222.

23. Wilson LS, Kelly BD, Morgan S, Harley M, O'Sullivan M. Who gets admitted? Study of referrals and admissions to an adolescent psychiatry inpatient facility over a 6-month period. *Ir J Med Sci* 2012,**181**:555-560.

24. Zyrianova Y, Kelly BD, Sheehan J, McCarthy C, Dinan TG. The psychological impact of arthritis: the effects of illness perception and coping. *Ir J Med Sci* 2011,**180**:203-210.

Prof Peter Kelly
Adjunct Associate Professor

Location: Mater Misericordiae University Hospital
Contact: 01 716 4575
Email: pjkelly@partners.org

- Discovery and validation of blood and imaging biomarkers of unstable atherosclerosis in the cerebrovascular circulation
- Discovery and validation of blood and imaging biomarkers for detection and diagnosis of transient ischaemic attack and ischaemic stroke
- Development and validation of prediction models and clinical prediction tools for risk stratification

and prognosis after transient ischaemic attack and stroke
- Population based epidemiology of stroke and transient ischaemic attack
- Phase 2, 3, and 4 studies of therapeutic agents to prevent stroke, coronary disease, and vascular cognitive decline in high risk individuals

Appointments:
Clinical Lead (Neurology), National Stroke Programme, Ireland
Member Organising Committee (Chair, Prevention Category), American Stroke Association/American Heart Association International Stroke Conference

Researchers Supported:
Dr L. Akijian, PhD
Dr Elizabeth Callaly, MD
Dr Niamh Hannon, PhD
Dr Michael Marnane, PhD
Dr Aine Merwick, PhD
Dr Danielle Ní Chronin, MD
Dr Orla Sheehan, PhD

List of Grants active in 2012:
Title: Prediction of Recurrent Stroke after TIA and Ischaemic Stroke
Funder: HRB
Start/End Dates: 11/2006-11/2012
Amount: €1,600,000

List of Grants received in 2012:
Title: Blood and Imaging Of Vulnerable AtheroSclerosis in Symptomatic Carotid Disease (BIOVASC)
Funder: HRB
Start/End Dates: 12/2012-11/2016
Amount: €994,000

List of Publications:
1. Kelly PJ, Crispino G, Sheehan O, Kelly L, Marnane M, Merwick A, *et al.* Incidence, event rates, and early outcome of stroke in Dublin, Ireland: the North Dublin population stroke study. *Stroke* 2012,**43**:2042-2047.

2. Marnane M, Merwick A, Sheehan OC, Hannon N, Foran P, Grant T, *et al.* Carotid plaque inflammation on 18F-fluorodeoxyglucose positron emission tomography predicts early stroke recurrence. *Ann Neurol* 2012,**71**:709-718.

3. Rost NS, Biffi A, Cloonan L, Chorba J, Kelly P, Greer D, *et al.* Brain natriuretic peptide predicts functional outcome in ischemic stroke. *Stroke* 2012,**43**:441-445.

4. Smith S, Horgan F, Sexton E, Cowman S, Hickey A, Kelly P, *et al.* The cost of stroke and transient ischaemic attack in Ireland: a prevalence-based estimate. *Age Ageing* 2012,**41**:332-338.

Dr Lorraine Kyne
Consultant and Senior Lecturer

Location: Mater Misericordiae University Hospital
Contact: 01 716 4527
Email: lkyne@mater.ie

My main area of research is Clostridium difficile and healthcare-associated infections in older people. Together with a group of collaborators at UCD, the Mater Misericordiae and St Vincent's University hospitals, Beaumont hospital and the Health Protection Surveillance Centre (HPSC) our research has focussed on the epidemiology and the human immune response to C. difficile. We are currently examining the host inflammatory response to C. difficile infection and outcome, as well as changes in faecal microbiota in hospitalised patients. As a member of a sub-committee of the HPSC, I was involved in drawing up National Guidelines for the Surveillance, Diagnosis and Management of C. difficile Infection which were launched in 2008 and revised this year. I am also involved in other collaborative research on stroke, atrial fibrillation and medical education.

Researchers Supported:
Dr Alan Martin, MD
Dr Caoilfhionn O'Donoghue, MD
Dr Katie Solomon, BSc

List of Grants active in 2012:
Title: "Prospective study of the effect of antibiotics on gut flora and growth of Clostridium difficile, and investigation into host immune responses and outcomes of patients colonised with C. difficile-PCR ribotype 027"
Funder: Health Research Board, Clinician Scientist Award
Start/End Dates: 2007-2013
Amount: €1,700,000

List of Publications:
1. Kelly PJ, Crispino G, Sheehan O, Kelly L, Marnane M, Merwick A, *et al.* Incidence, event rates, and early outcome of stroke in Dublin, Ireland: the North Dublin population stroke study. *Stroke* 2012,**43**:2042-2047.

2. Ní Chróinín D, Kyne L, Duggan J, Last J, Molphy A, O'Shea D, et al. Medicine in the community: a unique partnership. *Clin Teach* 2012,**9**:158-163.

3. O'Donoghue C, Iversen C, Duggan J, Power D, Fanning S, Kyne L. Polypharmacy is an independent risk factor for oropharyngeal isolation of gram-negative bacilli in older persons. *J Am Geriatr Soc* 2012,**60**:182-183.

Dr Jason Last
Associate Dean for Programmes and Educational Innovation and Director of Pre-Clinical Studies

Location: UCD Health Science Centre
Contact: 01 716 6629
Email: jason.last@ucd.ie

My main responsibility within the School is educational innovation and programme leadership. In addition, I teach clinical anatomy and physical anthropology to a wide range of health science students and continue to practice medicine. Research interests include clinical anatomy, physical anthropology and medical education. Research achievements in 2012 included publishing significant findings on the maturation on the knee and in establishing a cross university partnership with archaeology in research physical anthropology.

List of Publications:
1. Ní Chróinín D, Kyne L, Duggan J, Last J, Molphy A, O'Shea D, *et al.* Medicine in the community: a unique partnership. *Clin Teach* 2012,**9**:158-163.

2. O'Connor JE, Coyle J, Spence LD, Last J. Epiphyseal maturity indicators at the knee and their relationship to chronological age: Results of an Irish population study. *Clin Anat* 2012.

Dr Matthew Lawless
Lecturer (Adjunct)

Location: Mater Misericordiae University Hospital
Contact: 087 916 5587
Email: matthew.lawless@ucd.ie

My main laboratory research interest is liver biochemistry and my group focuses particularly on hepatitis C infection and other central cofactors (particularly genetic) that may influence a patient's prognosis in the evolution of end stage events such as liver cancer. Together with a group of close collaborators both nationally and internationally this research has developed into an international research program with an established track record and interest in liver diseases including hepatitis C, hereditary haemochromatosis and the childhood liver cancer Z Alpha-1 antitryspin deficiency.

Affiliations:
- Experimental Medicine Research Group, UCD School of Medicine and Medical Science
- Catherine McAuley Research Centre, Mater Misericordiae University Hospital.

Researchers Supported:
Jun Zhao, PhD
Craig Forde, Graduate researcher

List of Publications:
1. Devitt EJ, Power KA, Lawless MW, Browne JA, Gaora PO, Gallagher WM, *et al.* Early proteomic analysis may allow noninvasive identification of hepatitis C response to treatment with pegylated interferon ☐-2b and ribavirin. *Eur J Gastroenterol Hepatol* 2011,**23**:177-183.

2. Lawless MW, Greene CM. Toll-like receptor signalling in liver disease: ER stress the missing link? *Cytokine* 2012,**59**:195-202.

3. Ryan JD, Altamura S, Devitt E, Mullins S, Lawless MW, Muckenthaler MU, et al. Pegylated interferon-☐ induced hypoferremia is associated with the immediate response to treatment in hepatitis C. *Hepatology* 2012, **56**:492-500.

Prof Brendan Loftus
Professor of Comparative Genomics

Location: UCD Conway Institute
Contact: 01 716 6718
Email: brendan.loftus@ucd.ie

I am an SFI Prof in Host-pathogen interactions at the Conway Institute and the Director of Genomics at the Conway Institute. Prof Loftus is interested in Genomics, Bioinformatics, transcriptomics and high throughput mechanisms for identifying host-pathogen interactions. I set up an Illumina based high throughput sequencing facility at the Conway Institute and am the head of genomics at the Conway Institute. I am also a PI on a Science foundation Ireland (SFI) funded research cluster in reproductive biology which has been funded for 5 years.

Affiliations:
- Infection Biology group

Researchers Supported:
Dr Michael Clarke, PhD
Dr Amanda Lohan, post-doc
Ms Pin Tong, PhD

List of Grants active in 2012:
Title: Whole host response to pathogen
Funder: SFI
Start/End Dates: 1/12/2006 / 31/01/2015
Amount: €1,800,000

List of Publications:
1. Brien GL, Gambero G, O'Connell DJ, Jerman E, Turner SA, Egan CM, *et al.* Polycomb PHF19 binds H3K36me3 and recruits PRC2 and demethylase NO66 to embryonic stem cell genes during differentiation. *Nat Struct Mol Biol* 2012,**19**:1273-1281.

2. Forde N, Duffy GB, McGettigan PA, Browne JA, Mehta JP, Kelly AK, *et al.* Evidence for an early endometrial response to pregnancy in cattle: both dependent upon and independent of interferon tau. *Physiol Genomics* 2012,**44**:799-810.

3. Kröger C, Dillon SC, Cameron AD, Papenfort K, Sivasankaran SK, Hokamp K, *et al.* The transcriptional landscape and small RNAs of Salmonella enterica serovar Typhimurium. *Proc Natl Acad Sci U S A* 2012,**109**:E1277-1286.

4. Pluta K, McGettigan PA, Reid CJ, Browne JA, Irwin JA, Tharmalingam T, *et al.* Molecular aspects of mucin biosynthesis and mucus formation in the bovine cervix during the periestrous period. *Physiol Genomics* 2012,**44**:1165-1178.

5. Pozzi C, Waters EM, Rudkin JK, Schaeffer CR, Lohan AJ, Tong P, *et al.* Methicillin resistance alters the biofilm phenotype and attenuates virulence in Staphylococcus aureus device-associated infections. *PLoS Pathog* 2012,**8**:e1002626.

6. Rodriguez-Campos S, Schürch AC, Dale J, Lohan AJ, Cunha MV, Botelho A, *et al.* European 2--a clonal complex of Mycobacterium bovis dominant in the Iberian Peninsula. *Infect Genet Evol* 2012,**12**:866-872.

7. Wuest SE, O'Maoileidigh DS, Rae L, Kwasniewska K, Raganelli A, Hanczaryk K, *et al.* Molecular basis for the specification of floral organs by APETALA3 and PISTILLATA. *Proc Natl Acad Sci U S A* 2012,**109**:13452-13457.

Dr Patricia McCarthy
Lecturer

Location: The School of Psychotherapy, Department of Psychiatry, Psychotherapy and Mental Health Research, St Vincent's University Hospital
Contact: 01 221 3396
Email: patricia.mccarthy@ucd.ie

I am a medical graduate of UCD and am Director of the School of Psychotherapy at St Vincent's University Hospital. I hold an MSc in Psychotherapy from UCD and the MRCPsych (London). I am a member of The College of Psychiatrists of Ireland and am a practising psychoanalyst.

As a member of The Irish School for Lacanian Psychoanalysis ISLP www.lacaninireland.com I participate in a research group, where I engage in the critical examination and interrogation of the organon of Jacques Lacan. This method of conceptual research by means of textual exegesis is the unique means by which psychoanalysis as a clinical praxis is progressed.

I am on the editorial board of The Letter: Irish Journal for Lacanian Psychoanalysis, www.theletter.ie. This specialised journal, in which I have numerous publications, is held in 30 legal deposit libraries worldwide, including The Library of Congress. My last publication, *Evidence-Based Practice and Psychoanalysis: Thought Disorder and the Dream* published in Vol 46 (2011) of The Letter, was part of the conference proceedings On Treatment Challenges in Bipolar Affective Disorder: Voices of Difference – Psychiatry and Psychoanalysis in Dialogue, for which I was the Organiser.

At present, I am completing a paper for publication in Vol 52 (2013) of The Letter, entitled *The Other, its Paradox and 'Un-knowing'*.

I am the academic lead for two taught postgradu-

Prof Aiden McCormick
Consultant Hepatologist / Gastroenterologist

Location: St Vincent's University Hospital
Contact: 01 221 4248
Email: a.mccormick@ucd.ie

Consultant Hepatologist, Liver Unit, St Vincent's University Hospital, Dublin 4 and Newman Clinical Research Prof, University College Dublin.

Interests: Portal hypertension, hypersplenism, clinical trials in chronic liver disease and liver transplantation.

Researchers Supported:
Dr Jun Liong Chin, MD

List of Publications:
1. Chin JL, Nicholas RM, Russell J, Carr M, Connell J, Stewart S, *et al.* Spontaneous clearance of hepatitis C infection after liver transplantation from IL28B rs12979860 CC donors. *Eur J Gastroenterol Hepatol* 2012,**24**:1110-1112.

2. Iqbal M, Cash WJ, Sarwar S, McCormick PA. Paracetamol overdose: the liver unit perspective. *Ir J Med Sci* 2012,**181**:439-443.

3. Morcos A, Nair S, Keane MP, McElvaney NG, McCormick PA. Interstitial pneumonitis is a frequent complication in liver transplant recipients treated with sirolimus. *Ir J Med Sci* 2012,**181**:231-235.

4. Sarwar S, Ryan EJ, Iqbal M, McCormick PA, O'Farrelly C, Hegarty J. Rapid, early and sustained virological responses in a cohort of Irish patients treated with pegylated interferon and ribavirin for chronic hepatitis C virus infection. *Ir J Med Sci* 2012,**181**:53-58.

5. Slattery E, Hegarty JE, McCormick PA. It's a man's world: does orthotopic liver transplantation in the elderly male confer an additional risk on survival? *Can J Gastroenterol* 2012,**26**:697-700.

Dr Enda McDermott
Senior Lecturer

Location: St Vincent's University Hospital
Contact: 01 221 4923
Email: enda.mcdermott@ucd.ie

Senior Consultant Surgeon breast and endocrine surgery St Vincent's University Hospital.

Laboratory and Clinical research in breast cancer and malignant melanoma.

Researchers Supported:
Dr Maura Cotter, Research Breast Cancer
Dr Cormac Joyce, Research Malignant Melanoma

List of Publications:

1. Boland M, Murphy M, McDermott E. Acute-onset severe gastrointestinal tract hemorrhage in a postoperative patient taking rivaroxaban after total hip arthroplasty: a case report. *J Med Case Rep* 2012,**6**:129.

2. Hegarty C, Heaslip I, Murphy M, McDermott EW, Brophy DP. Percutaneous removal of a dropped appendicolith using a basket retrieval device and concomitant abscess drainage. *J Vasc Interv Radiol* 2012,**23**:568-570.

3. Joyce CW, Murphy IG, Rafferty M, Ryan D, McDermott EW, Gallagher WM. Tumor profiling using protein biomarker panels in malignant melanoma: application of tissue microarrays and beyond. Expert Rev *Proteomics* 2012,**9**:415-423.

4. Kavanagh DO, Fitzpatrick P, Myers E, Kennelly R, Skehan SJ, Gibney RG, *et al.* A predictive model of suitability for minimally invasive parathyroid surgery in the treatment of primary hyperparathyroidism [corrected]. *World J Surg* 2012,**36**:1175-1181.

5. Walsh S, Evoy D, Cantwell CP, Kroon N, Sheahan K, Gibbons D, *et al.* Perforation of colon cancer into a benign ovarian cyst. *J Obstet Gynaecol* 2012,**32**:316-317.

6. Walsh S, Flanagan L, Quinn C, Evoy D, McDermott EW, Pierce A, *et al.* mTOR in breast cancer: differential expression in triple-negative and non-triple-negative tumors. *Breast* 2012,**21**:178-182.

Dr Aisling Mulligan
Senior Lecturer in Child and Adolescent Psychiatry

Location: Catherine McAuley Education and Research Centre & Mater Child and Adolescent Mental Health Services
Contact: 01 803 4793
Email: aisling.mulligan@ucd.ie

Dr Aisling Mulligan MD MRCPCH MRCPsych DCH MSc(CBT).

I have an interest in ADHD and in particular in the overlap between ADHD and autism spectrum disorders. I also have an interest in environmental influences in ADHD and in genetic influences in ADHD, with publications in both areas, in collaboration with others.

In 2012 I continued my interest in Attention Deficit Hyperactivity Disorder by collaboration with Prof Thomas Frodl and Prof Michael Gill in Trinity College Dublin, in research on imaging adults with ADHD. I also became the academic lead in the Child Art Psychotherapy MSc programme run by the Mater CAMHS and by UCD, and formed a research group who plan to increase the literature base around this mode of psychotherapy.

Affiliations:
- Prof Michael Gill's group in Trinity College Dublin
- International researchers in Europe & Melbourne
- Child Psychiatry Academic Group

List of Grants active in 2012:
Title: Co-Applicant in Health Research Award "Clinical and biological outcome of adults with childhood diagnosed Attention Deficit/Hyperactivity Disorder (ADHD)"
Start/End Dates: 2011
Funder: HRB (grant number HRA_POR/2011/8)
Amount: -

List of Publications:

1. Ali SI, Byrne N, Mulligan A. Autism in association with Triple X syndrome. *Eur Child Adolesc Psychiatry* 2012,**21**:233-235.

Dr William Murphy
Clinical Lecturer

Location: HSE Clinical Programmes, King's Inns House, Parnell Street
Contact: 087 231 9442
Email: william.murphy@ucd.ie

We are currently focused on exploring the presence and degree of microvascular vasodilation in populations that can be quantitated by measuring differences between microvascular and large vessels haemoglobin levels. These observations help explain sex and seasonal differences in haemoglobin levels, and the relationship between red cell mass and thrombosis. In addition I work on a translational programme of ex vivo culture of red cells for clinical use with Universities and Blood Services in the UK.

List of Grants active in 2012:
Title: Stem cell derived red cell concentrates for clinical transfusion
Start/End Dates: October 2009 –April 2013
Funder: Wellcome Trust
Amount: £3.5 million in total
Collaborative award with Universities of Glasgow, Edinburgh and Bristol, and Scottish National Blood Transfusion Service. One of 7 P.I.s on the grant.

List of Publications:

1. Ala F, Allain JP, Bates I, Boukef K, Boulton F, Brandful J, *et al.* External financial aid to blood transfusion services in sub-Saharan Africa: a need for reflection. *PLoS Med* 2012,**9**:e1001309.

2. Coste J, Prowse C, Grabmer C, Schennach H, Santos Prado Scuracchio P, Wendel SN, *et al.* Prion reduction of red-blood-cells. *Vox Sang* 2012,**103**:260-272.

3. Kubio C, Tierney G, Quaye T, Nabilisi JW, Ziemah C, Zagbeeb SM, *et al.* Blood transfusion practice in a rural hospital in Northern Ghana, Damongo, West Gonja District. *Transfusion* 2012, **52**:2161-2166.

4. Lahoti V, Murphy W, Al-Rubeai M. Mathematical approach for the optimal expansion of erythroid progenitors in monolayer culture. *J Biotechnol* 2012,**161**:308-319.

5. Murphy WG. Pathogen reduction: state of reflection in Ireland. *Transfus Clin Biol* 2011,**18**:488-490.

6. Murphy WG. Of mad cows and bolted horses: the economics of blood safety. *Transfusion* 2012,**52**:2278-2281.

7. Murphy WG, Coakley P. Testing platelet components for bacterial contamination. *Transfus Apher Sci* 2011,**45**:69-74.

8. Piccin A, Murphy C, Eakins E, Kinsella A, McMahon C, Smith OP, *et al.* Protein C and free protein S in children with sickle cell anemia. *Ann Hematol* 2012,**91**:1669-1671.

9. Rajpal R, Dowling P, Meiller J, Clarke C, Murphy WG, O'Connor R, *et al.* A novel panel of protein biomarkers for predicting response to thalidomide-based therapy in newly diagnosed multiple myeloma patients. *Proteomics* 2011,**11**:1391-1402.

Prof Patrick T. Murray
Dean of Medicine, Head of School of Medicine & Medical Science, Professor of Clinical Pharmacology

Location: Mater Misericordiae University Hospital
Contact: 01 716 4519
Email: patrick.murray@ucd.ie

Patrick Murray is Prof of Clinical Pharmacology in University College Dublin, and a consultant physician (clinical pharmacologist & nephrologist) at the Mater Misericordiae University Hospital, Dublin, Ireland. He received his medical education at University College Dublin, Ireland.

Following his internship at the Mater Misericordiae University Hospital in Dublin, he completed a residency in internal medicine at Hennepin County Medical Center in Minneapolis, Minnesota, USA. He completed fellowship training programs in nephrology, critical care medicine, and clinical pharmacology at the University of Chicago Hospitals in Chicago, Illinois, USA.

He is board-certified in internal medicine, nephrology, critical care medicine, and clinical pharmacology. He practiced as an intensivist, nephrologist, and clinical pharmacologist at the University of Chicago Hospitals from 1996–2008, serving as the fellowship training programme director in nephrology, also directing the Acute Dialysis Service.

He has a longstanding interest in research and education to improve the prevention, diagnosis, and therapy of acute kidney injury and nephrotoxicity, and the pharmacotherapy of patients with kidney disease. He is a member of several international consensus groups that have produced guidelines for research and practice in the field of acute kidney injury (ADQI, AKIN, KDOQI).

Since 2008, he has been the Prof of Clinical Pharmacology at University College Dublin, and a Consultant in Nephrology & Clinical Pharmacology at the Mater Misericordiae University Hospital. He is Chair of the Mater Misericordiae University Hospital Drugs & Therapeutics Committee. He is the Clinical Director of the UCD-Mater Clinical Research Centre. In 2011, he was appointed Associate Dean for International Affairs in the UCD School of Medicine and Medical Science. In 2012, he was appointed Director of the Dublin Centre for Clinical Research (DCCR) Consortium Network. In December 2012, he was appointed Interim Dean and Head of the School of Medicine & Medical Science at UCD.

List of Publications:

1. Coca SG, Jammalamadaka D, Sint K, Thiessen Philbrook H, Shlipak MG, Zappitelli M, *et al.* Preoperative proteinuria predicts acute kidney injury in patients undergoing cardiac surgery. *J Thorac Cardiovasc Surg* 2012,**143**:495-502.

2. Cullen MR, Murray PT, Fitzgibbon MC. Establishment of a reference interval for urinary neutrophil gelatinase-associated lipocalin. *Ann Clin Biochem* 2012,**49**:190-193.

3. Haase M, Devarajan P, Haase-Fielitz A, Bellomo R, Cruz DN, Wagener G, *et al.* The outcome of neutrophil gelatinase-associated lipocalin-positive subclinical acute kidney injury: a multicenter pooled analysis of prospective studies. *J Am Coll Cardiol* 2011,**57**:1752-1761.

4. Matzke GR, Aronoff GR, Atkinson AJ, Bennett WM, Decker BS, Eckardt KU, *et al.* Drug dosing consideration in patients with acute and chronic kidney disease-a clinical update from Kidney Disease: Improving Global Outcomes (KDIGO). *Kidney Int* 2011,**80**:1122-1137.

5. Murray PT. Acute kidney injury biomarkers and endpoints for clinical trials. *Contrib Nephrol* 2011,**171**:208-212.

6. Murray PT. Diagnosis of kidney damage using novel acute kidney injury biomarkers: assessment of kidney function alone is insufficient. *Crit Care* 2011,**15**:170.

7. Murray P, Udani S, Koyner JL. Does renal replacement therapy improve outcome? Controversies in acute kidney injury. *Contrib Nephrol* 2011,**174**:212-221.

8. Murray P, Liu K. Acute Kidney Injury and Critical Care Nephrology. American Society of Nephrology. *NephSAP* 2011,**10**:201-270.

9. Okusa MD, Molitoris BA, Palevsky PM, Chinchilli VM, Liu KD, Cheung AK, *et al.* Design of clinical trials in acute kidney injury: a report from an NIDDK workshop--prevention trials. *Clin J Am Soc Nephrol* 2012,**7**:851-855.

10. Okusa MD, Molitoris BA, Palevsky PM, Chinchilli VM, Liu KD, Cheung AK, *et al.* Design of clinical trials in acute kidney injury: a report from an NIDDK workshop--prevention trials. *Clin J Am Soc Nephrol* 2012,**7**:851-855.

11. Palevsky PM, Molitoris BA, Okusa MD, Levin A, Waikar SS, Wald R, *et al.* Design of clinical trials in acute kidney injury: report from an NIDDK workshop on trial methodology. *Clin J Am Soc Nephrol* 2012,**7**:844-850.

12. Rao MV, Murray P, Yancy CW. Management of heart failure with renal artery ischemia. *Cardiol Clin* 2011,**29**:433-445.

Dr Jean O'Connor
Lecturer

Location: UCD Health Sciences Centre
Contact: 01 716 6624
Email: jean.oconnor@ucd.ie

My research lies in the field of biological anthropology and in particular the radiographic analysis of skeletal maturation and its relationship to chronological age. I am also particularly interested in the effect of childhood obesity on skeletal maturation.

Affiliations:
- Anatomy/ Anthropology

Researchers Supported:
Dr Zeenat Gul, MSc

List of Publications:

1. O'Connor JE, Coyle J, Spence LD, Last J. Epiphyseal maturity indicators at the knee and their relationship to chronological age: Results of an Irish population study. *Clin Anat* 2012.

Dr Mark Pickering
Lecturer

Location: UCD Health Sciences Centre
Contact: 01 716 6621
Email: mark.pickering@ucd.ie

My research is currently focused on the biology of myelin in the central and peripheral nervous system, Myelin repair as a therapeutic strategy for demyelinating diseases, Neuro-glial interactions

List of Publications:

1. Murphy RP, Murphy KJ, Pickering M. The development of myelin repair agents for treatment of multiple sclerosis: Progress and challenges. *Bioengineered* 2012,**4**.

Dr Terence Prendiville
Pediatric cardiology post-doc & clinical fellow

Location: Boston Children's Hospital
Contact(US): (1) 410 624 8987
Email: terence.prendiville@gmail.com

With a research interest in cardiovascular genetics, I am focusing my bench lab work on understanding the role of cardiac ion channelopathies in cardiovascular disease, specifically Long QT syndrome and Sudden Infant Death Syndrome. I also have projects investigating candidate genes responsible for congenital heart disease through whole exome sequencing. Finally, I am investigating knock-out mouse models for ventricular performance through regional strain echocardiographic imaging.

Researchers Supported:
Dr William Pu

List of Grants active in 2012:
Title: Dr Brian McGovern Travelling Fellowship
Funder: Irish Cardiac Society
Start/End Dates: July 2012 – June 2013
Amount: €30,000

Title: Immunodeficiency in Heterotaxy syndrome
Funder: Keegan's Spirit Foundation (parent-funded group)
Start/End Dates: July 2012 – June 2013
Amount: $3,000

Title: Whole exome sequencing project for familial Persistent Truncus Arteriosus
Funder: Manton Center for Orphan Disease Research, Boston Children's Hospital
Start/End Dates: July 2012 – June 2013
Amount: not disclosed

List of Publications:

1. Prendiville TW, Ravekes WJ, Spevak PJ. Fetal myocardial injury progressing to ventricular septal rupture and aneurysm formation. *Prenat Diagn* 2011,**31**:405-406.

Dr Marion Rowland
Lecturer in Clinical Research

Location: Catherine McAuley Research Centre
Contact: 01 716 4497
Email: marion.rowland@ucd.ie

Epidemiological studies, which provide large cohorts of well-characterized participants, are a key platform to enable the translation of new technologies and laboratory techniques into real advances in patient care. As an island nation I believe we have a unique opportunity to contribute to future advances in translational research in a number of areas. My research has focused on long-term epidemiological studies, which seek to increase our understanding of the disease process/phenotype in the areas of Cystic Fibrosis, Helicobacter pylori, and Functional Disorders in Children.

Affiliations:
- Child Health Group

Researchers Supported:
Ms Jennifer Drummond, Research Nurse
Ms Sherly George, Research Nurse

List of Grants active in 2012:
Title: The Natural History of Cystic Fibrosis Liver Disease
Start/End Dates: April 2014
Funder: Health Research Board
Amount: €274,216

List of Grants received in 2012:
Title: An evaluation of H. Pylori prevalence and strain diversity in a unique cohort of adolescents in a developed country
Start/End Dates: November 2012
Funder: Health Research Board
Amount: 323,394.00

List of Publications:

1. Brett T, Rowland M, Drumm B. An approach to functional abdominal pain in children and adolescents. *Br J Gen Pract* 2012,**62**:386-387.

2. Drumm BR, Bourke B, Drummond J, McNicholas F, Quinn S, Broderick A, *et al.* Cyclical vomiting syndrome in children: a prospective study. *Neurogastroenterol Motil* 2012,**24**:922-927.

3. Drumm B, Rowland M. Why is Helicobacter pylori disappearing? More questions than answers. *J Pediatr (Rio J)* 2011,**87**:369-370.

4. Hirsch C, Tegtmeyer N, Rohde M, Rowland M, Oyarzabal OA, Backert S. Live Helicobacter pylori in the root canal of endodontic-infected deciduous teeth. *J Gastroenterol* 2012,**47**:936-940.

Dr Karen Ryan
Senior Clinical Lecturer

Location: Mater Misericordiae University Hospital, St. Francis Hospice
Contact: 087 940 2232
Email: kryan@sfh.ie

List of Grants active in 2012:
Title: The International Access, Rights and Empowerment Study (IARE): An international mixed methods study to compare palliative care experiences among older people affected by cancer and non-cancer populations.
Funder: The Atlantic Philanthropies
Principle investigator: Prof Irene Higginson.
Lead investigators: Dr Barb Daveson (UK); Prof Diane Meier, Prof Sean Morrison (US); Prof Charles Normand, Dr Karen Ryan, Dr Regina McQuillan (Ireland).
Start/End Dates: 2011-2015
Amount: Grant held by King's College London

Title: Developing A Framework For Palliative Interventions In Heart Failure Services In Ireland
Funder: The Irish Hospice Foundation, the Irish Heart Foundation and Baxter International Foundation.
Investigators: Dr Niall Mahon (Mater Misericordiae University Hospital), Dr Jim O'Neill (Connolly Hospital, Blanchardstown), Dr Karen Ryan (Mater Misericordiae University Hospital, Connolly Hospital, Blanchardstown, St Francis Hospice), Dr Mel Bates (Fairview Family Practice).
Start/End Dates: 2009-2012
Amount: €120,000

List of Grants received in 2012:
Title: 2012: The Three Rs of Integrating Palliative Care and Emergency Department Care (IHF Grant Scheme A).
Funder: Irish Hospice Foundation
Principle Investigators: Dr Karen Ryan (Clinical Lead, Palliative Care Programme), Dr Una Geary (Clinical Lead, Emergency Medicine Programme).
Start/End Dates: 2012-2013
Amount: €50,839

List of Publications:

1. Lucey M, Conroy M, Ryan K. Exploring the Challenges of Implementing the Edmonton Symptom Assessment Scale in a Specialist Palliative Care Unit. *J Palliative Care Med* 2012,**2**.

2. Ni Chroinin D, Haslam R, Blake C, Ryan K, Kyne L, Power D. Death in long-term care facilities: attitudes and reactions of patients and staff. A qualitative study. *European Geriatric Medicine* 2011,**2**:56-59.

3. Rowley D, McLean S, O'Gorman A, Ryan K, McQuillan R. Review of cancer pain management in patients receiving maintenance methadone therapy. *Am J Hosp Palliat Care* 2011,**28**:183-187.

4. Ryan K, Guerin S, Dodd P, McEvoy J. Communication contexts about illness, death and dying for people with intellectual disabilities and life-limiting illness, Palliative and Supportive Care In; 2011. pp. 201-208.

5. Ryan K, Guerin S, Dodd P, McEvoy J. End-of-Life Care for People with Intellectual Disabilities: Paid Carer Perspectives. *Journal of Applied Research in Intellectual Disabilities* 2011,**24**:199-207.

6. Ryan K, Guerin S, Dodd P, McEvoy J. Exploring the experiences of people with intellectual disabilities when service users die. *British Journal of Learning Disabilities* 2011,**39**:259-265.

Mr Asim Sheikh
Lecturer

Location: UCD Health Science Centre
Contact: 01 716 6642
Email: asim.sheikh@ucd.ie

My main research interests are in the area of medical negligence and medico-legal issues of clinical risk management regarding issues such as consent and data protection in healthcare settings. A specific area of research and professional interest is in the area of genetics and the law.

List of Publications:

1. Sheikh AA. Medico-legal Aspects of the Savita Halappnavar Case. Medico-Legal Journal of Ireland 2012,**18**.

2. Sheikh AA. The HIQA Report and Corporate Healthcare: Some *Medico-Legal Aspects and Issues*. *Medico-Legal Journal of Ireland* 2012,**18**.

3. Sheikh AA. The Right to Life & Bodily Integrity. In: *Law Society of Ireland - Human Rights Law*. Edited by al. MBe. 4th Edition ed: Oxford University Press; 2012.

Dr Dubhfeasa Slattery
Clinical Lecturer

Location: Children's University Hospital
Contact: 087 659 9417
Email: dubhfeasa.slattery@cuh.ie

I work as a Respiratory and General paediatrician at Children's University hospital, Temple St., which is a full time clinical post. I have a PhD in molecular medicine, and a Masters in education for health care professionals. I am associate dean of hospital inspections at R.C.P.I., member of the medical and scientific committee of the Cystic Fibrosis Association of Ireland , CF Registry and just last year completed my time as the vice dean of the Faculty of Paediatrics at RCPI. I am the republic of Ireland representative on the advisory board of the Congress of International Paediatric Pulmonology and a member of the European Cystic Fibrosis Working group.

Research interests include the study of molecular predictors of disease severity in bronchiolitis. In collaboration with researchers at Molecular Medicine Ireland. I am co-supervising Dr Ronan Leahy who was a awarded a HRB grant and is performing a PhD currently.

I have a strong interest in clinical research particularly cystic fibrosis and have collaborated on research nationally and internationally on CF liver disease, CF related diabetes, radiological changes and radiation exposure in this patient group.

Research in medical education interests me and the impact of the EWTD on teaching and training formed the basis of my thesis for my masters and a paper has just been accepted pertaining to same.

I have been on maternity leave from July 2012 to end April 2013.

Researchers Supported:
Dr Ronan Leahy, PhD

List of Grants active in 2012:
Title: Molecular predictors of disease severity in bronchiolitis
Funder: HRB: Research Training Fellowship for Healthcare Professionals HPF/2011/17
Start/End Dates: July 2011-2014
Amount: €215,000

Title: Molecular predictors of disease severity in RSV bronchiolitis
Funder: CFH at Childrens Univeristy Hospital Temple St, Dublin
Start/End Dates: July 2011-Jun2014 (reagents only) Previously July 1 2009- 2011 (salary + reagents)
Amount: €220,000

List of Publications:

1. Flanagan F, Glackin L, Slattery DM. Successful treatment of idiopathic pulmonary capillaritis with intravenous cyclophosphamide. *Pediatr Pulmonol* 2013,**48**:303-305.

2. Rowland M, Gallagher CG, O'Laoide R, Canny G, Broderick A, Hayes R, *et al.* Outcome in cystic fibrosis liver disease. *Am J Gastroenterol* 2011,**106**:104-109.

3. Slattery DM. Paediatric asthma--some questions answered. *Ir Med J* 2011,**104**:101.

4. Slattery D. Paediatric Bronchoscopy. *Irish Medical Journal* 2011,**104**:60.

5. Slattery D, Donoghue V. Cystic Fibrosis. In: *Imaging in Paediatric Pulmonology*. Edited by Springer New York H, London; 2012.

Dr Albert Smolenski
Lecturer

Location: UCD Conway Institute
Contact: 01 716 6746
Email: albert.smolenski@ucd.ie

My main laboratory research interest is in thrombosis and my group particularly focuses on the regulation of platelet functions. We have identified new proteins and we have characterised new signalling mechanisms in platelets.

The aim of our work is to develop new diagnostic and therapeutic approaches in atherothrombotic disease associated with myocardial infarction and stroke.

Researchers Supported:
Ms Kristina Gegenbauer, PhD
Ms Ashling Hampson, PhD
Mr Zoltan Nagy, MSc

List of Grants active in 2012:
Title: Cyclic nucleotide mediated inhibition of platelet function: mechanisms and new targets for diagnosis and therapy of vascular disease
Funder: Science Foundation Ireland
Start/End Dates: 01/01/2009 – 31/12/2013
Amount: €407,000

Title: Science Foundation Ireland Technology and Innovation Development Award (TIDA), Generation and characterisation of a phosphorylation site specific antibody against serine 7 of Rap1GAP2 for application in the diagnosis of platelet reactivity
Funder: Science Foundation Ireland
Start/End Dates: 01/01/2012 – 28/02/2013
Amount: €70,300

List of Publications:

1. Gegenbauer K, Elia G, Blanco-Fernandez A, Smolenski A. Regulator of G-protein signaling 18 integrates activating and inhibitory signaling in platelets. *Blood* 2012,**119**:3799-3807.

2. Smolenski A. Novel roles of cAMP/cGMP-dependent signaling in platelets. *J Thromb Haemost* 2012,**10**:167-176.

3. Steele BM, Harper MT, Smolenski AP, Alkazemi N, Poole AW, Fitzgerald DJ, *et al.* WNT-3a modulates platelet function by regulating small GTPase activity. *FEBS Lett* 2012,**586**:2267-2272.

4. Watson CJ, Phelan D, Xu M, Collier P, Neary R, Smolenski A, *et al.* Mechanical stretch up-regulates the B-type natriuretic peptide system in human cardiac fibroblasts: a possible defense against transforming growth factor-□mediated fibrosis. *Fibrogenesis Tissue Repair* 2012,5:9.

Prof Michael Stephens
Consultant Orthopaedic Surgeon

Location: Mater Private Hospital
Contact: 01 838 1406 / 087 967 5302
Email: footstep@tinet.ie

Active research at the present time involves two multicentre trials (1) with Malmo University in relation to a foot and ankle coding system and (2) Multicentre study which will end up as a level 3 publication comparing different techniques of 1st metatarsal phalangeal joint fusion.

I continue as Senior Editor "Foot & Ankle Surgery" and international editor to "Foot & Ankle International".

In Beijing China I was a founding member of the World Orthopaedic Alliance. I continue on as President of the Irish Orthopaedic Foot & Ankle Society.

List of Publications:

1. Byrne AM, Stephens M. Paediatric talus fracture. BMJ Case Rep 2012,**2012**.

2. Groarke PJ, Thomason K, Stephens MM. Simian foot at skeletal maturity: long-term case report followup. Foot Ankle Int2012,**33**:675-677.

3. Groarke P, Galvin R, Kelly J, Stephens MM. Quality of life in individuals with chronic foot conditions: a cross sectional observational study. *Foot (Edinb)* 2012,**22**:66-69.

4. Lui DF, Baker JF, Nfila G, Perera A, Stephens M. Hand dominance in orthopaedic surgeons. *Acta Orthop Belg* 2012,**78**:531-537.

5. Thomason K, MM S. Tarsal Coalition. *Ortop Practice* 2012,**23**:229-234.

Prof Cormac Taylor
Associate Professor

Location: UCD Conway Institute
Contact: 01 716 6732
Email: cormac.taylor@ucd.ie

Current research is directed towards expanding our understanding of the mechanisms by which hypoxia regulates transcriptional events in epithelial cells. Specifically, we are interested in the regulation of global gene expression in response to hypoxia and the modification of transcriptional regulators which underlies the induction of such events.

Researchers Supported:
Mr Mario Cabrera, PhD
Mr Miguel Cavadas, PhD
Dr Alex Cheong, Research Fellow
Dr Eoin Cummins, Research Fellow
Dr Silke Ryan, Research Fellow
Dr Carsten Scholz, Postdoc
Mr Andrew Selfridge, PhD
Dr Murtaza Tambuwala, Postdoc

List of Grants active in 2012:
Science Foundation of Ireland (Principal Investigator Award)
2007-2012 (€1,200,000)

Science Foundation Ireland (Principal Investigator Award)
2012-2017 (€1,157,000)

National University of Ireland Postdoctoral Fellowship (Mentor to Dr Bettina Schaible)
2013-2015 (€80,000)

HRB Postdoctoral Fellowship in Translational Research (Mentor to Dr Silke Ryan)
2011-2015 (€516,000).

Johnson & Johnson Inc. (Sponsored Research Agreements).
2010-2013 (€30,000)

List of Publications:

1. Succinate is an inflammatory signal that induces IL-1ß through HIF-1α Tannahill GM, Curtis AM, Adamik J, Palsson-McDermott EM, McGettrick AF, Goel G, Frezza C, Bernard NJ, Kelly B, Foley NH, Zheng L, Gardet A, Tong Z, Jany SS, Corr SC, Haneklaus M, Caffrey BE, Pierce K, Walmsley S, Beasley FC, Cummins E, Nizet V, Whyte M, Taylor CT, Lin H, Masters SL, Gottlieb E, Kelly VP, Clish C, Auron PE, Xavier RJ, O'Neill LA. Nature. 2013 In *Press*.

2. Bruning U, Cerone L, Neufeld Z, Fitzpatrick, SF, Cheong A, Scholz, CC, Simpson D, Leonard MO, Tambuwala MM, Cummins, EP & Taylor CT. (2011) MicroRNA-155 promotes resolution of hypoxia-inducible factor-1a activity during prolonged hypoxia in intestinal epithelial cells. *Mol. Cell Biol.* **31** (19); 4087-4096.

3. Fitzpatrick SF, Tambuwala MM, Bruning U, Schaible B, Schol CC, Byrne A, O'Connor A, Gallagher WM, Lenihan CR, Garvey JF, Howell K, Fallon PG, Cummins EP and Taylor CT. (2011) An intact canonical NF-kB pathway is required for inflammatory gene expression in response to hypoxia. *J. Immunol.* **186**: 1091-1096.

4. Agbor TA, Cheong A, Comerford KM, Scholz CC, Bruning U, Clarke A, Cummins EP, Cagney G & Taylor CT. (2011) Small ubiquitin-related modifier (SUMO)-1 promotes glycolysis in Hypoxia. *J. Biol.* Chem. **286**:4718-26.

5. Cummins EP, Oliver KM, Lenihan CR, Fitzpatrick SF, Bruning U, Scholz CC, Slattery S, Leonard MO, McLoughlin P and Taylor CT. (2010) NF-kB links CO2 sensing to innate immunity and inflammation in mammalian cells. *J. Immunol* **185**; 4439-4445.

6. Tambuwala MM, Cummins EP, Lenihan CR, Kiss J, Stauch M, Scholz CC, Fraisl P, Lasitschka F, Mollenhauer M, Saunders SP, Maxwell PH, Carmeliet P, Fallon PG, Schneider M, Taylor CT. (2010). Loss of prolyl hydroxylase-1 protects against colitis through reduced epithelial cell apoptosis and increased barrier function. *Gastroenterology.* **139**; 2093-2101.

7. Cummins, EP, Seeballuck, F, Keely, SJ, Mangan, NE, Callanan, JJ, Fallon, PG, & Taylor, CT*. (2008) The hydroxylase inhibitor Dimethyloxalylglycine is protective in a murine model of colitis. *Gastroenterology* **134**; 156-165.

8. Cummins, EP, Berra, E, Comerford, KM, Fitzgerald, KT, Seeballuck, F, Godson, C, Nielsen, JE, Moynagh, P, Pouyssegur, J & Taylor, CT. (2006) Prolyl hydroxylase-1 negatively regulates IKKb giving new mechanistic insight into hypoxia-induced NFkB activity . *Proc. Natl. Acad. Sci.* USA **103**: 18154-18159.

9. Leonard, MO, Kieran, NE, Howell, K, Burne, MJ, Varadarajan, R, Dhakshinamoorthy, S, Porter, AJ, O'Farrelly, C, Rabb, H & Taylor, CT. (2006). Reoxygenation Specific Activation of the Anti-Oxidant Transcription Factor Nrf2 Mediates Cytoprotective Gene Expression in Ischemia Reperfusion Injury. *FASEB J.* **20**(14):2624-26.

10. Comerford, KM, Cummins, EP & Taylor, CT. JNK activation contributes to HIF-1a-dependent p-glycoprotein expression in hypoxia. (2004) *Cancer Res.* **64**; 9057-9061.

11. Hagen, T., Taylor C.T., Lam, F. & Moncada S. Redistribution of intracellular oxygen in hypoxia by nitric oxide: effect on HIF-1a. (2003) *Science,* **302**; 1975-1978.

12. Leonard M.O., Cottell D.C., Godson C., Brady H.R. & Taylor C.T. The role of HIF-1alpha in transcriptional regulation of the proximal tubular epithelial cell response to hypoxia. (2003) *J Biol Chem.* **278**(41); 40296-40304.

13. Comerford, K.M., Leonard, M.O., Karhausen, J., Carey, R., Colgan, S.P. & Taylor C.T. SUMO-1 modification mediates resolution of CREB-dependent responses to hypoxia. (2003) *Proc. Natl. Acad. Sci. U S A* **100**(3): 986-991.

Prof Douglas Veale
Adjunct Professor

Location: UCD Health Sciences Centre
Contact: 01 220 4910
Email: douglas.veale@ucd.ie

The Translational Research programme integrates immunology research across groups - colorectal, endocrine, hepatic and rheumatology in the ERC, the Conway Institute, UCD and TCD. Our primary clinical focus is on inflammatory arthritis and scientifically on hypoxia, angiogenesis and inflammation. In 2012, I was elected to the Editorial Board of Annals of Rheumatic Disease (Impact Factor 8.9) and Rheumatology, and the EULAR Scientific Committee. I chaired at the American College of Rheumatology.

Researchers Supported:
Dr Emese Balogh, Clinical Research Fellow
Dr Monika Biniecka, Post Doctoral Fellow
Dr Mary Connolly, Post Doctoral Fellow
Dr Wei Gao, Post Doctoral Fellow
Dr Len Harty, PhD
Ms Jennifer Mc Cormick, Research Assistant
Ms Trudy Mc Garry, PhD
Ms Danielle Molloy, 4th Year BSc
Dr Michael O'Rourke, Clinical Research Fellow
Mr Owen O'Sullivan, Research Assistant
Mr Peadar Rooney, PhD

List of Grants active in 2012:
Title: Biopharmaceutical/Pharmaceutical Science Programme
Funder: HEA PRTLI Cycle 4
Start/End Dates: 2007-2012
Amount: €180,000

Title: Hypoxia and altered mitochondrial bio-energetics results in cellular transcriptional and metabolic profiles to drive angiogenesis and the inflammatory response
Funder: HRB
Start/End Dates: 2006-2012
Amount: € 1,500,000

Title: BeThe Cure
Funder: IMI EU
Start/End Dates: 2011-2016
Amount: € 550,000

Title: CTRSP MMI Translational Medicine
Funder: HEA PRTLI Cycle 5
Start/End Dates: 2011-2015
Amount: €1,125,000

Title: Does hypoxia induced vascular dysfunction and Notch signalling alter response to anti-TNF therapy in Inflammatory Arthritis.
Funder: HRB
Start/End Dates: 2012-2015
Amount: €310,000

List of Grants received in 2012:
Title: Does hypoxia induced vascular dysfunction and Notch signalling alter response to anti-TNF therapy in Inflammatory Arthritis.
Funder: HRB
Start/End Dates: 2012-2015
Amount: €310,000

Title: Does TNF inhibitor therapy alter miRNA expression in inflammatory arthritis?
Funder: IRCSET
Start/End Dates: 2012-2014
Amount: €180,000

Title: Does hypoxia induced vascular dysfunction and Notch signalling alter response to anti-TNF therapy in Inflammatory Arthritis.
Funder: HRB
Start/End Dates: 2012-2015
Amount: €310,000

Title: Does hypoxia induced vascular dysfunction and Notch signalling alter response to anti-TNF therapy in Inflammatory Arthritis.

Funder: HRB
Start/End Dates: 2012-2015
Amount: €310,000

List of Publications:

1. Connolly M, Mullan RH, McCormick J, Matthews C, Sullivan O, Kennedy A, *et al.* Acute-phase serum amyloid A regulates tumor necrosis factor and matrix turnover and predicts disease progression in patients with inflammatory arthritis before and after biologic therapy. *Arthritis Rheum* 2012,**64**:1035-1045.

2. Fransen J, Johnson SR, van den Hoogen F, Baron M, Allanore Y, Carreira PE, *et al.* Items for developing revised classification criteria in systemic sclerosis: Results of a consensus exercise. *Arthritis Care Res (Hoboken)* 2012,**64**:351-357.

3. Gao W, Sweeney C, Connolly M, Kennedy A, Ng CT, McCormick J, *et al.* Notch-1 mediates hypoxia-induced angiogenesis in rheumatoid arthritis. *Arthritis Rheum* 2012,**64**:2104-2113.

4. Gao W, Sweeney C, Walsh C, Rooney P, McCormick J, Veale DJ, *et al.* Notch signalling pathways mediate synovial angiogenesis in response to vascular endothelial growth factor and angiopoietin 2. *Ann Rheum Dis* 2012.

5. Haroon M, Cushen B, Veale D. Miliary nodularity in a patient receiving TNF inhibitors is not always miliary tuberculosis. *J Rheumatol* 2012,**39**:651-652.

6. Harty LC, Biniecka M, O'Sullivan J, Fox E, Mulhall K, Veale DJ, *et al.* Mitochondrial mutagenesis correlates with the local inflammatory environment in arthritis. **Ann Rheum Dis** 2012,**71**:582-588.

7. Harty LC, Ng CT, Fearon C, Murray CA, Fitzgerald O, Veale DJ. Joint tenderness and swelling in biologic-treated inflammatory arthritis patients - a tricky trade off? *Int J Clin Pract* 2012,**66**:128-131.

8. Marzaioli V, McMorrow JP, Angerer H, Gilmore A, Crean D, Zocco D, *et al.* Histamine contributes to increased RANKL to osteoprotegerin ratio through altered nuclear receptor 4A activity in human chondrocytes. *Arthritis Rheum* 2012,**64**:3290-3301.

9. McGonagle DG, Helliwell P, Veale D. Enthesitis in psoriatic disease. *Dermatology* 2012,**225**:100-109.

10. Meier FM, Frommer KW, Dinser R, Walker UA, Czirjak L, Denton CP, *et al.* Update on the profile of the EUSTAR cohort: an analysis of the EULAR Scleroderma Trials and Research group database. *Ann Rheum Dis* 2012,*71*:1355-1360.

11. Mix KS, McMahon K, McMorrow JP, Walkenhorst DE, Smyth AM, Petrella BL, *et al.* Orphan nuclear receptor NR4A2 induces synoviocyte proliferation, invasion, and matrix metalloproteinase 13 transcription. *Arthritis Rheum* 2012,**64**:2126-2136.

12. Pitzalis C, Veale D, Dayer JM. Introduction to "Synovitis - an inflammation of joints destroying the bone". *Swiss Med Wkly* 2012,**142**:w13712.

UCD MR Researchers

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Dr. Patrick Mallon
Associate Dean for Research and Innovation
UCD School of Medicine and Medical Science
Email: paddy.mallon@ucd.ie

Ms Yvonne Barry
Research Administration Manager
UCD School of Medicine and Medical Science
Tel: +353 1 716 6738 | Email: UCDMR@ucd.ie

Ms Densie Gosling
Senior Executive Assistant
UCD School of Medicine and Medical Science
Tel: +353 1 716 6837 | Email: UCDMR@ucd.ie

Ms Niamh Mc Carthy
Senior Executive Assistant
UCD School of Medicine and Medical Science
Tel: +353 1 716 6851 | Email: UCDMR@ucd.ie

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UCD School of Medicine & Medical Science
UCD Health Sciences Centre
University College Dublin
Belfield, Dublin 4