KTI
Knowledge Transfer Ireland
Where Research & Business Connect

KTI IMPACT AWARDS 2019

#ktiawards

Welcome to the Knowledge Transfer Ireland Impact Awards 2019. These awards showcase the success in Irish knowledge transfer carried out in Ireland's Higher Education Institutions and publicly funded research organisations for the wider benefit of the economy and society at large.

Across five categories the awards recognise top performance in industry engagement and commercialisation of research and they pay tribute to the business and research performing organisations involved in knowledge transfer. The awards also acknowledge and celebrate the technology transfer offices and their staff who make this knowledge transfer happen.

FINALISTS ARE LISTED ALPHABETICALLY

KTI Impact Awards 2019 Judging Panel

Julie Byrne
Head of Collaboration at Nokia Bell Labs, Ireland

Brendan Cremen
Advisor Atlantic Bridge Venture Capital, Ireland

Maxine Ficarra
CEO, Praxisauril, United Kingdom

Eavan O'Brien
Assistant Director for Impact and Partnerships, Irish Research Council, Ireland

Richie Paul
VP Intellectual Property Operations, Alkermes Pharma Ireland Ltd

Holly Wales Meadows
US Patent Attorney & Director AUTM, United States

Panel Chair
Alison Campbell
Director KTI

Categories 2019

01
Collaborative Research

02
Consultancy

03
Licensing

04
Spin-out Company

05
KT Achievers

COLLABORATIVE RESEARCH

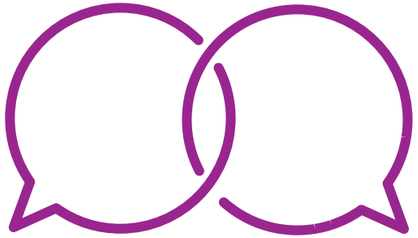
Collaborative Research

The Collaborative Research Award recognises successful research collaborations between Irish publicly-funded research performing organisations (RPOs) and the business community. Through working on research problems of mutual interest, there will have been a demonstrable impact both for the company and the RPO. Those shortlisted have all shown a significant event for the company that occurred in 2018/19, which is related to the collaboration. The collaboration itself may have occurred in prior years.

Collaborative Research

DCU & Oriel Marine

Lead Researcher:
Dr. Ronan P. Murphy



DCU &
Oriel Marine

Oriel Marine Extracts is an Irish owned company employing six people and based in Port Oriel Clogherhead, Co. Louth. It is an award-winning sea salt company that has transformed into a life sciences company supplying global leaders in skincare, wound-care, burn-care and nutrition as a result of its collaborative research with Dublin City University (DCU).

In 2017 Oriel engaged the Murphy Group laboratory at DCU in an Innovation Partnership focused on skin-based research that discovered the benefit of Oriel's proprietary deep-sea magnesium mineral complex in the treatment of burns. Having presented these findings to one of the leading companies in burn care, Waterjel Inc USA, DCU and Oriel realigned their research to undertake what would become an industry-changing study on the treatment of burns. Initial results from this study positioned Waterjel to present to the US Military and subsequently secure a 3 year contract for all burn gels and dressings to the US Military. This, in turn, resulted in Oriel and Waterjel signing Supply and Licence contracts.

The collaborative approach to the research between Oriel, Waterjel and Dr Ronan Murphy at DCU ensured a communications and product development strategy that led to developing a new research method to burn, biopsy, treat and monitor the healing process in real time at cell and molecular level. In less than two years, this collaboration took a project from concept to commercial success, filed multiple patents and issued exclusive licences to industry while also paving the way for the next stage of research.

The success of this project provided major benefits to the research group at DCU. It has led to expansion of the Murphy Lab at the university and led to the development of a new research consortium that includes national and international researchers and companies and that focuses on cross disciplinary approaches to skin, health and biology.

The TTO, DCU Invent, has supported Dr. Murphy in his collaboration with Oriel since its inception in 2015 having negotiated the Collaborative Research Agreements for the collaborative projects as well as having given continuous support through providing access to DCU Invent facilities for business development, client engagement and corporate presentations.

Public funding sources include:
Enterprise Ireland | Horizon 2020 | Irish Research Council | Science Foundation Ireland

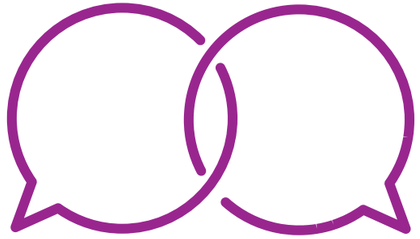
Collaborative Research

Teagasc and UCC & Suntory Wellness

Lead Researchers:
Catherine Stanton
Paul Ross
John Cryan

Suntory Wellness Ltd is the leading health food company in Japan and part of the multinational Suntory Group which employs 39,000 employees globally with an annual revenue of $20 billion. Its key business segments are health foods including functional foods and foods for specified use, packaged foods, food services, beverages and nutritive drinks. The company develops new and innovative health and wellness products and conducts R&D activities in partnership with international collaborators.

Resulting from Irish Ministerial trade visits to Japan in 2008 and 2009, Suntory initially worked with Teagasc and UCC in 2011 to focus on substantiating health claims surrounding their novel probiotic product, Lactet. The results of this research, allowed Suntory to strengthen their scientific and marketing literature for the product that led to a tripling of sales from $6.1m in 2013 to $19.1m in 2016. This growth, in turn, led to the commercial decision to build Lactet as a major product in its business. It also influenced the company's R&D strategy and the research undertaken with Teagasc and UCC formed the basis of a human trial in 2017/18. The product has now been rebranded as LacFIT and was launched to market in 2019 having been successfully granted a function food claim for body fat reduction by the Japan Consumer Affairs Agency.



Teagasc and UCC & Suntory Wellness

Suntory attributes the successful conclusion of this product's commercial journey to its early partnering with Teagasc and UCC which began with an EI-funded Innovation Partnership and led to two further collaborative research projects in 2014 and 2016 with SFI-funded APC Microbiome Ireland that included Teagasc and UCC. The project positioned Teagasc and UCC as leaders in the field of microbiota, probiotics and metabolic health and contributed to their ability to attract increasing numbers of international partner companies.

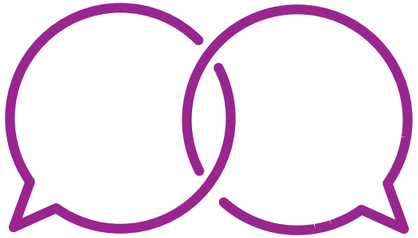
Having led the negotiation of the initial Innovation Partnership Agreement with Suntory, the TTO at Teagasc was instrumental in successfully getting this project underway. The office worked with the company to ensure they were familiar with Irish procedures including the National IP Protocol and managed all elements relating to Background and Foreground IP across the project. The TTOs at Teagasc and UCC maintain contact with the team at Suntory to track success of the product and enjoy a continued strong relationship.

Public funding sources include:
Enterprise Ireland | Science Foundation Ireland

Collaborative Research

UCD & Glanbia

Lead Researcher:
Professor Kevin O'Connor



UCD & Glanbia

Glanbia Ireland DAC, a joint venture between Glanbia Co-op and Glanbia plc, is an integrated agri-food and nutrition business. The company is Ireland's leading dairy processor and is the fastest growing dairy company in the world, processing 2.7 billion litres of milk annually, with an annual revenue of €1.8 billion and employing over 2,000 staff primarily across its 11 processing plans in Ireland.

Through its production processes, Glanbia generates large amounts of low-value delactosed whey permeate (DLP), an unusable by-product of whey processing that presents a waste stream for the business. In 2014, the company approached UCD to investigate potential solutions to address these waste streams.

Based on this challenge posed by Glanbia UCD undertook some preliminary research which demonstrated the capability of converting whey-based substrates to lactic acid which can then be used to make biodegradable plastics, fertiliser and minerals for human nutrition.

The results of this initial research led Glanbia to formally engage UCD in a collaborative research project for two years under an Enterprise Ireland Innovation Partnership programme. This in turn resulted in UCD, Glanbia and others being successfully awarded €22 million in 2018 under the EU Horizon 2020 Bio-Based Industries Joint Undertaking Programme for a new project called AgriChemWhey. This was Ireland's biggest win under the fund to date and the first dairy project to be awarded funding under the programme.

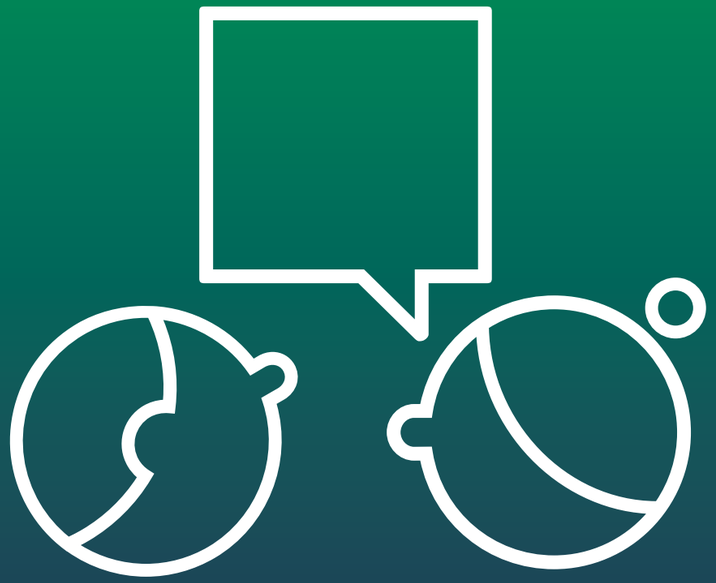
AgrichemWhey has established a new facility in Tipperary on the site of the former Lisheen mines which will transform dairy waste products into high value bio-based products for growing global markets. There are currently 12 people employed at the facility which is set to grow once the facility is fully operational. Furthermore, the development of the site will renew and invigorate the local and wider economy.

The success of this collaboration has enhanced Glanbia's international reputation as a pioneer in research and development and equally has positioned UCD as a global leader in the field of bioeconomy research.

Glanbia has invested in the UCD Lyons Dairy Education and Research Facility supporting numerous student placements and employing many UCD graduates. As a result of the project UCD has become a founding member of the National Bioeconomy Campus at Lisheen and further funding awards of €18 million and €11 million have been granted to the research centres BEACON and Food for Health Ireland respectively.

Working with the lead researcher and the company, NovaUCD, the UCD TTO, has supported this project from its inception. The UCD TTO provided support throughout the collaborative relationship between the university and Glanbia Ireland DAC that included helping to identify and protect results coming from the research and supporting the contracting and the negotiation of terms for the initial Innovation Partnership as well as subsequent terms relating to licensing and assignment.

Public funding sources include:
Enterprise Ireland and Glanbia | Horizon 2020 | Science Foundation Ireland



CONSULTANCY

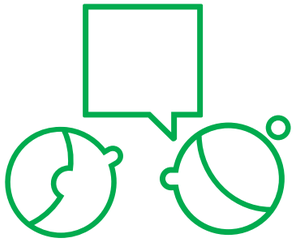
Consultancy

The Consultancy Award recognises consultancy provided through an Irish publicly-funded research performing organisation (RPO), by its researchers, to a business or public sector organisation. The consultancy activity will have resulted in a demonstrable economic and/or public benefit. Recognising that it can take some time from providing the consultancy support to achieving an outcome, the consulting engagements put forward for this award may have taken place within the past five years.

Consultancy

Trinity & CO2 Logic

Lead Researcher:
Dr. Seamus O'Shaughnessy



Trinity & CO2 Logic

CO2Logic is a Belgian carbon-offsetting advisory company that promotes carbon reduction by helping organisations to identify opportunities & threats related to CO2, helping those organisations to implement carbon reduction strategies and offsetting incompressible CO2 emissions by supporting certified climate projects. With offices in Brussels and New York, they have a team of fourteen people and have worked in many developing countries around the world in relation to areas such as conservation and water treatment.

In 2018, CO2Logic engaged in an efficient cookstove project in the North of Benin in Africa. Local company, EcoBenin, had developed a fixed mud stove called the Wanrou cookstove and CO2Logic was retained to explore the possibility of generating electricity from these stoves that would then provide the opportunity of improved access to technology to remote, off-grid communities.

To deliver this project, CO2Logic sought to work with Dr Seamus O'Shaughnessy at Trinity College Dublin based on his well-publicised experience and expertise in the field. Dr O'Shaughnessy was tasked with designing and manufacturing technology that could be integrated into the Wanrou stoves to deliver electricity from the waste heat produced. The company also sought Dr O'Shaughnessy's advice in relation to how best a field trial of the Wanrou stoves might be carried out in Benin.

Dr O'Shaughnessy successfully developed the required technology – a device called the Thermal Electrical Generator (TEG) – that could be fitted into the stoves and would generate electricity from the heat of the stove that could then be used for practical applications such as the charging of mobile phones. Dr O'Shaughnessy also travelled to Benin to help with the installation of the generators and to monitor and review the technology in practice. This enabled him to provide valuable data to CO2Logic about the Wanrou cookstoves which proved to be more energy efficient and environmentally cleaner than a regular stove. It also served to confirm that the electricity generated from the heat of the stoves could be applied to charge a mobile phone.

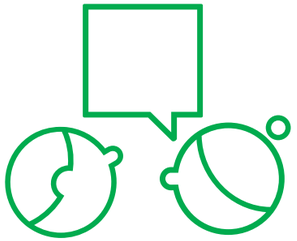
Support from the TTO at Trinity – the Office of Corporate Partnership and Knowledge Exchange (OCPKE) – was an integral part of this project, with the office providing advice from the outset on how best to manage the consultancy engagement and supporting the negotiation of a contract to ensure fair and reasonable terms. The TTO also liaised with the company on behalf of Dr O'Shaughnessy to manage invoicing and payment relating to the project.

This consultancy project has allowed Dr O'Shaughnessy to develop connections and networks that may lead to broader collaborative research projects, exploring similar challenges in sustainable international development in different regions. The success of this project and its potential for leading to future work is an important example for Trinity's new such consultancy office as it demonstrates the benefits of such consultancy for all parties involved.

Consultancy

UCC & Abbott Nutrition Ireland

Lead Researchers:
Dr. Seamus O'Mahony
Dr. Kevin Cronin



UCC & Abbott Nutrition Ireland

Abbott Laboratories is a Chicago-based healthcare company that sells a range of branded generic pharmaceuticals, medical devices, diagnostics and nutrition products. Abbott employs 103,000 globally and has been in Ireland for over 70 years employing approximately 3,000 people across 11 sites. The Abbott Nutrition Cootehill site was established in 1975 to manufacture infant milk formula (IMF) for the export markets under the Similac™ and Gain™ brands.

Approximately 1,000 Irish and Northern Irish dairy farms in Ireland and Northern Ireland supply 500,000 litres per day to the Abbott facility in Cootehill for further processing. The entire production process for the infant powders takes place at this state-of-the-art facility where products are blended, pasteurised, dried and packaged for the retail market. In 2018, Abbott Nutrition recognised a need to examine the production process of its infant milk formula product with a view to improving the manufacturing process and the product itself.

The company engaged UCC to investigate the production processes and address issues that might arise. As such, researchers from UCC with track records in two separate disciplines were brought in to work with Abbott and were instrumental in delivering results - Dr Seamus Ol'Mahony, a researcher in UCC's Food Institute with previous experience at Nestle IMP plant in Askeaton and Dr Kevin Cronin, a researcher in Process Engineering with experience building lab-scale conveyor systems.

The first objective of the consultancy project between UCC and Abbott was to train Abbott Nutrition staff on using UCC's equipment for future investigative projects. Secondly, UCC was required to design and build a bespoke pilot piece of equipment that would be used in the review of Abbott's infant nutritional powder. The consultancy project ultimately resulted in a new imaging methodology being developed that led the team at Cootehill to implement changes to the conveyer process and modified equipment on-site. Learnings from the project at Cootehill were then shared with other Abbott manufacturing sites in Spain and Singapore which raised the profile of Cootehill as a site for problem solving and process improvement.

Since the completion of the consultancy project Abbott Nutrition has sponsored a PhD student at UCC who is being supervised by Dr Seamus O'Mahony. Seamus has also delivered a powder technology workshop at UCC which was attended by Abbott where he arranged for an equipment vendor demo for Abbott. In addition, Seamus is considering deploying the imaging equipment at UCC to be made available more widely to infant milk formula producers as an analytical tool.

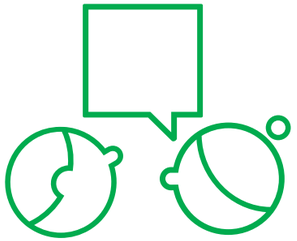
The TTO at UCC together with Research Support Services were instrumental in supporting Dr Seamus O'Mahony and Dr Kevin Cronin in finalising the consultancy project agreement and the equipment access agreement for visiting Abbott staff. As the company was under time pressure to initiate the project, the TTO was able to guide the internal process to ensure all matters were dealt with in a timely manner.

Public funding sources include:
Irish Research Council

Consultancy

UCD & Toyota Ireland

Lead Researchers:
Professor Robert Shorten
Associate Professor David Timoney
Associate Professor Francesco Pilla
Assistant Professor Giovanni Russo



UCD & Toyota

Toyota Ireland was established in 1972, and currently employs 1,200 people in Ireland. Its mission is a better life for everyone, and it believes in technology as a way of improving lives and bettering society. Toyota is a leading voice and strong advocate for sustainable mobility having first launched a hybrid model in 1997. Toyota Ireland actively fosters an environment of innovation and believes in collaboration as a way of achieving its mission. The company has a longstanding relationship with UCD researchers.

In 2018, Toyota Ireland required a neutral and objective assessment of the energy behaviour of the Toyota Prius Hybrid vehicles. Based on a long history of collaboration with UCD, Toyota Ireland commissioned UCD researchers in the UCD School of Mechanical and Materials Engineering, the UCD School of Electrical and Electronic Engineering and the UCD School of Architecture, Planning and Environmental Policy to investigate the energy behaviour of the new Toyota Prius IV hybrid vehicle, under a set of conditions representative of regular Irish commuting patterns.

This consultancy project, which commenced in October 2018, consisted of recording and analysing commuting data from seven volunteers, all of whom were employees of UCD. Each volunteer was supplied with a Toyota Prius IV Hybrid vehicle for one calendar week. The overall study data was based on a total of 157 individual trips covering a total of 2,018 km. Toyota Ireland was interested in studying the length of time the Prius was in zero emissions mode (ZEV). ZEV describes the time the internal combustion engine is not running and therefore emitting no pollutants.

The study revealed that the Toyota Prius was in ZEV for 60% of journeys resulting in reduced CO2 emissions and improved fuel economy. Toyota Ireland is using the study results to influence Irish Government policy and consumer decision making.

They are doing so by demonstrating that hybrids have a significant role to play in decarbonising the Irish car fleet, contributing to meeting EU directives on reducing C02 emissions, supporting the Government policy to lower VAT and car tax on hybrid-electric vehicles and increase tax on nitrogen oxide emissions as seen in Budget 2020.

The project allowed the UCD researchers apply their knowledge to a real-world issue and has served to enhance UCD's reputation in green technology research and its impact on climate change and sustainable development.

ConsultUCD provided guidance on how best to engage with an external organisation via consultancy. This included providing assistance with drafting and negotiating the contract. ConsultUCD also provided support in relation to the financial transaction for the piece of work liaising with Toyota Ireland purchasing department, receipting proceeds to UCD and distributing to support academics' research activities.

UCD and Toyota Ireland continue to enjoy a mutually beneficial relationship and continue to seek opportunities to work together again in the future.

LICENSING

Licensing

The Licence2Market Award is given in respect of a product or service that is active on the market or delivering customer benefit and value to the licensee. The product or service must be based on a licence to intellectual property rights (IPR) from an Irish publicly funded research performing organisation (RPO). The product or service must have reached the market in 2018/19. Recognising that in some sectors it takes time for products or services to come to the market, the execution of the underpinning licence may go back several years.

Licensing

RCSI & Foras na Gaeilge

Lead Researchers:
Professor David Cotter
Professor Mary Cannon
Dr. Helen Coughlan
Dr. Lorna Lopez
Dr. Eoin Kelleher

Foras na Gaeilge was set up as one of the North-South Implementation Bodies after the signing of the Good Friday Agreement in 1999 and publishing house An Gúm that had been set up in 1926 was incorporated into Foras na Gaeilge. An Gúm is the largest publisher of books in Irish within Ireland. The focus of Foras na Gaeilge/An Gúm is the promotion of the Irish language and Irish medium education as well as facilitating the use of Irish in speech and writing in public and private life in the South and in Northern Ireland where there is appropriate demand.

In 2015, David Cotter of RCSI was awarded a grant from the HRB Knowledge Exchange and Dissemination Scheme (KEDS) to develop an innovative educational tool in the form of an adult colouring book to introduce young people to the complex world of the human brain. The book uses text, images, brain maps and cartoons to increase our understanding of the brain in a succinct, engaging way and how research in neuroscience can expand our understanding of mental illness.

Translations of the book were negotiated by the RCSI Office of Research and Innovation (ORI) and having secured licences to Italian and Finnish translations, an outreach campaign was launched by the RCSI ORI in 2018 through which several Irish publishers were contacted. Interest was expressed by Foras na Gaeilge in collaborating on an Irish translation and the RCSI ORI negotiated an exclusive copyright licence with Foras na Gaeilge in the field of Irish translation which included an upfront payment and a royalty on sales.

Driven by the need to have the book on the shelves in time for the Christmas sales, the licence was turned around in just 7 days from draft to execution followed by a high-profile launch at RCSI which attracted national media coverage. The Office of Research and Innovation at RCSI supported the researchers throughout the licensing process by ensuring clear communication. It actively managed the relationship with the company to ensure alignment on project timelines. RCSI ORI also negotiated copyright licenses.

As a result of the licence, the book was published in Irish in December 2018. The licence has resulted in increased sales of the book and has provided the company with access to expanded marketing channels. Through the licence, RCSI's reputation has been enhanced for innovative approaches to medical education. This was the first time the Department of Psychiatry at RCSI had engaged with the ORI and the experience has resulted in further interaction on a range of projects. Indeed, both the RCSI and Foras na Gaeilge have indicated an interest in working together again in the future.

Public funding sources include:
Health Research Board

Licensing

Trinity & Volograms Ltd

Lead Researchers:
Professor Aljoša Smolic
Rafael Pagés
Jan Ondrej
Konstantinos Amplianitus
David Monaghan

Volograms is a Trinity Campus Company, operating in the Virtual and Augmented Reality sectors on a mission to bring reality capture closer to everyone. Volograms' technology enables the capture of real people into volumetric holograms, "volograms," which can be enjoyed within all kinds of experiences, apps and social media, using smartphones, tablets, AR and VR headsets.

In April 2018, a licence was executed granting Vologram's rights to Trinity's patented ground-breaking IP and associated software and know-how. This licence has resulted in the company reaching the market very quickly, launching highly innovative new commercial product offerings and developing a diverse and growing customer base. The licence between Trinity and Volograms grants the company exclusive rights to commercialise the patented IP and associated software. In return for the licensed rights, the company pays all patent costs and has agreed to other financial terms aiming to ensure that the company shares commercial success with Trinity in a fair and reasonable way.

Trinity & Volograms Ltd

The IP licence was a crucial requirement for the company to seek and successfully secure investment and in 2018, Volograms secured its first seed investment of €600,000 from Atlantic Bridge and the University Bridge Fund as well as receiving €250,000 from Enterprise Ireland together with having been awarded EI High Potential Start-Up designation.

The TTO supported the project through assisting with an application which enabled the funding of an Enterprise Ireland Commercial Feasibility Project. The TTO also gave expert start-up company advice that ensured valuable links into the investment community could be accessed. The TTO remains in regular contact with the company's CEO, Dr Rafa Pagés presenting at several Trinity events and building further research relationships with the Faculty of Arts, Humanities and Social Sciences.

Public funding sources include:
Enterprise Ireland | Science Foundation Ireland

Licensing

UCD & Atlantic Therapeutics

Lead Researcher:
Professor Brian Caulfield

UCD & Atlantic Therapeutics

Atlantic Therapeutics, headquartered in Galway, with offices in the UK, France, Germany and the US, develops professional and consumer medical devices to treat disorders, such as stress urinary incontinence (SUI), by modulating nerves of the pelvic floor thus strengthening the muscles.

SUI is a major medical problem that affects up to one third of middle-aged women and has a significant impact on quality of life, both from a physical and psychological perspective. Men also suffer problems with incontinence, for example following radical prostatectomy surgery.

The Atlantic Therapeutics INNOVO therapy device is an externally worn electrical muscle stimulator that is the first ever transcutaneous electrical stimulator cleared by the FDA as a safe, clinically effective and non-evasive product to treat stress urinary incontinence.

Atlantic Therapeutics has raised €43 million in investment enabling the acceleration of sales growth for the product via market and geographic expansion, specifically in the USA.

The technology underpinning INNOVO, comprising a now granted patent application and associated know-how, was developed in collaboration with UCD and was licensed originally in 2011 to BioMedical Research Ltd (BMR) and in 2017 was then transferred to Atlantic Therapeutics, a spin-out company established to maximise the commercial potential of INNOVO.

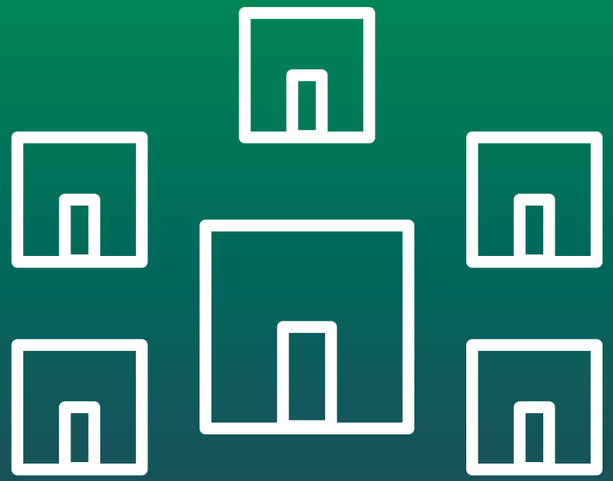
In addition to the commercial success enjoyed by the company, the licence has resulted in increased profiling for the lead researcher at UCD and increased innovation from that researcher and his team.

UCD is also in receipt of royalties on INNOVO sales and expects this revenue to grow following FDA approval in 2018 and projected sales growth.

Support from NovaUCD, the UCD TTO, has been instrumental in the success of Atlantic Therapeutics, having supported the original license of technology from UCD to BMR and then subsequently the transfer of the licence to Atlantic Therapeutics.

The UCD TTO continues to have a strong relationship with Atlantic Therapeutics having had initial discussions around expanding the field of use for the pelvic floor technology to additional therapy areas and the parties are exploring new collaborative opportunities.

Public funding sources include:
Enterprise Ireland | BioMedical Research Ireland Ltd.



SPIN-OUT COMPANIES

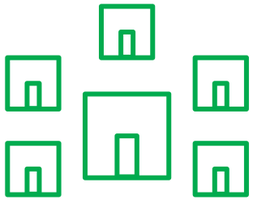
Spin-out Company

This award recognises a spin-out company from an Irish publicly-funded research performing organisation (RPO) that has achieved a successful and “significant event” in 2018/19. The award celebrates both the company success and its heritage in the RPO, including the support provided by the TTO. A spin-out company is one that is based on RPO research and at the time of formation was dependent on the exploitation of specific intellectual property rights of the RPO. The RPO may have/had equity in the spin-out and will have licensed intellectual property rights to the company.

Spin-out Company

Dundalk IT & Nova Leah

Academic Founders:
Anita Finnegan
Dr. Fergal McCaffery



Dundalk IT & Nova Leah

The spin-out company Nova Leah Ltd, provides platform and software tools which allows both medical device manufacturers and institutional users (e.g. hospitals) to quickly automate the process of identifying and mitigating potential software vulnerabilities within their product portfolios. It also plays a major role in providing documentary evidence of compliance for regulatory bodies. Nova Leah employs 23 people between its headquarters in Dundalk and its office in Boston USA. The company has its origins in an Enterprise Ireland Commercialisation Fund programme and was founded in 2015.

The year 2018 saw a series of exceptional achievements for Nova Leah that included raising a third round of seed funding of €2.25million; growing too large for the DkIT incubation centre that necessitated moving to a larger premises; increasing sales by 250% in a 12 month period; signing several Tier 1 healthcare companies including Boston Scientific; beginning a major trial with the regulatory body in the USA, Underwriter Laboratories to further market penetration; and paying the first royalty to DkIT as per licence agreement. In addition, the company co-founder and CEO Anita Finnegan was the Invited Expert at the Archimedes Center for Medical Device Security 2019 Annual "Medical Device Security 101 Conference" in Florida USA.

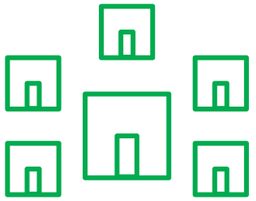
The success of Nova Leah has been significant for DkIT in raising awareness of the research activities there which is particularly important with the development of Technological University status within the Institute of Technology sector. It also reinforces the importance of DkIT in developing employment opportunities in the region.

The TTO has supported the foundation of the company from its inception, having worked with the founders in developing their business plan and having provided critical review of the early assumptions and their go-to-market strategies. The TTO has provided legal agreement supports to ensure that discussions with potential customers and investors protect the company's intellectual property. The TTO continues to work with Nova Leah and has helped the company to develop its pitch for investors and attended discussions with potential investors that has seen significant levels of funding secured.

Public funding sources include:
Enterprise Ireland | Science Foundation Ireland

Spin-out Company

NUI Galway & Neurent Medical



NUI Galway & Neurent Medical

Academic Founders:
Dr. Brian Shields
Mr. David Townley,
Dr. Martin O'Halloran
Professor Ivan Keogh
Professor Peter Dockery

Neurent Medical is developing a new-to-world, medical device led procedure to treat patients with rhinitis, the fifth most common chronic disease in the US and the most common chronic disease in children. Rhinitis is an inflammatory disease of the nose leading to congestion and severe runny nose, which effects up to 40% of the population. Treatments until now have included long term medication or surgery. Neurent Medical spun out of NUI Galway in 2018.

The founders of Neurent Medical, having identified an unmet clinical need in treating rhinitis, developed new technology with support of the Enterprise Ireland Commercialisation Fund. This, in turn, has led to the development of a single-use device that delivers targeted energy to interrupt the neural function and aims to deliver long term relief to patients. The procedure will be performed without anaesthetic removing huge unnecessary spend for the healthcare system.

Upon spinning out from NUI Galway, the company licensed patent applications from the university together with know-how relating to the technology. In May 2018 the company announced that it had raised €9.3m in a Series A financing. In addition, grant aid of €2.8m was secured in 2019 in collaboration with NUI Galway from the Disruptive Technologies Innovation Fund. Early steps have been taken by the Neurent Medical leadership team in securing a further €20m Series B investment in 2020, with strong interest in participation being expressed by leading US and European VC funds and some strategic corporations with ENT divisions. Neurent Medical is entering its first clinical trial. It is focused on the large US market and is planning regulatory clearance from the US FDA in mid 2020 for immediate commercialisation of the product.

The TTO at NUI Galway has supported the project through from idea conception, invention disclosure, funding application, project implementation, IP management and patent protection, and through company formation and licensing the technology from the university. Neurent Medical continues to work closely with NUI Galway and has funded a research programme with the CÚRAM research centre in Galway.

Public funding sources include:
Enterprise Ireland | Disruptive Technology Innovation Fund

Spin-out Company

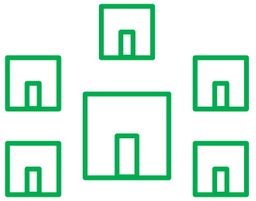
UCD & Equal1 Labs

Academic Founders:
Professor R. Bogdan Staszewski
Dr Dirk Leipold (USA based)
Mike Asker (USA based)

Equal1 Labs is the world's first quantum computing hardware start-up that is developing a new type of quantum computer based on the latest advances in semiconductor CMOS technology. Equal1 Labs was founded by UCD Professor R. Bogdan Staszewski with US based co-founders, Dr Dirk Leipold and Mike Asker, and is a spin-out from the UCD School of Electrical and Electronic Engineering. It currently employs 5 full time and 6 part time staff and the company has recruited a number of UCD graduates.

Quantum computers will realise unprecedented capabilities when it comes to simulating complex systems and are expected to significantly disrupt medical and scientific research as well as the financial and complex logistics industries. Unlike current quantum computers which require very high costs to operate at the extremely low temperature of 15mK, the Equal1 Quantum Processing Unit can operate at higher temperatures which significantly reduces its size and cost by a factor of 10.

In 2018/19 Equal1 Labs realised a number of significant achievements that included most notably the design, fabrication and testing of an initial alpha prototype chip and a second chip which has led to commencing the design of the third prototype chip.



UCD &
Equal1 Labs

It has acquired Enterprise Ireland high potential start-up (HPSU) status and secured significant seed investment from Atlantic Bridge through the University Bridge Fund; it has established the company's HQ at NovaUCD, with a base in the US, and in Summer 2019 the cryogenic operation of the quantum processor was confirmed and progression towards a full quantum computer build is underway.

The creation of Equal1 Labs has positioned UCD to become a national and global hub for Quantum Computing with UCD having hosted Ireland's first industry focused Quantum Computing event in March 2019.

It has enabled UCD to partner with IBM, Maynooth University, Tyndall National Institute, Rockley Photonics and Mastercard in an application for €6 million under the Disruptive Technologies Innovation Fund (DTIF). Equal1 Labs also continues to build partnerships with UCD as well as with other academics and industries worldwide and is actively seeking Series A funding to realise a full quantum computer build.

NovaUCD, the UCD TTO, has worked with Equal1 Labs to support its formation and development. This included generating documentation to enable the combination of intellectual property generated in UCD with patents filed by the US team into a single legal entity. The UCD TTO managed the complex process of delivering all of the intellectual property documentation and licensing arrangements.

Public funding sources include:
Science Foundation Ireland Research Professorship Programme

KT ACHIEVERS

KT Achievers

The Knowledge Transfer Achiever of the Year Award recognises the personal achievement of a staff member in a TTO or ILO who has made significant contribution to the business of that office. This category is open to any individual based at the TTO or ILO who is below Director or Head of Technology Transfer level. The Achievers may be nominated by their peers or managers and the nominated person must hold a current post within the office in 2017. There is no shortlist for this category. The winner is announced at the awards ceremony.

KT Achievers

Anthony Morrissey

Commercialisation Case Manager

University College Cork

Anthony O'Callaghan

Operations Executive

Trinity College Dublin

Anu Sahni

Lecturer in Computing &
Technology Transfer Case Manager

National College of Ireland

Conor Morris

Technology Transfer - ICT

University of Limerick

Fiona Neary

Innovation Operations Manager &
Bioexel Accelerator Commercial Lead

NUI Galway

Paddy O'Boyle

Director of Business Development ICT

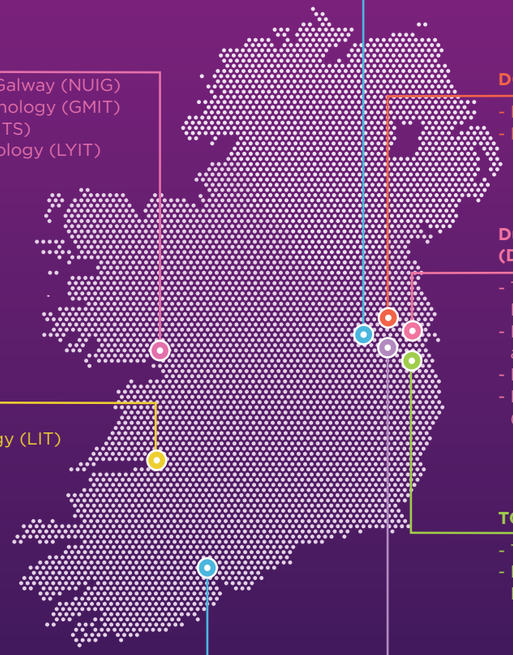
Dublin City University

Simon Factor

Senior Manager New Ventures at NovaUCD

University College Dublin

TTSI Consortia



MU Consortium
- Maynooth University (MU)
- Athlone Institute of Technology (AIT)
- Institute of Technology Carlow (ITC)
- Waterford Institute of Technology (WIT)

Ignite West Consortium
- National University of Ireland Galway (NUIG)
- Galway-Mayo Institute of Technology (GMIT)
- Institute of Technology Sligo (ITS)
- Letterkenny Institute of Technology (LYIT)

DCU Consortium
- Dublin City University (DCU)
- Dundalk Institute of Technology (DKIT)

Dublin Region Innovation Consortium (DRIC)
- Technological University Dublin (TU Dublin)
- Dun Laoghaire Institute of Art, Design and Technology (IADT)
- National College of Ireland (NCI)
- Dublin Institute of Advanced Studies (DIAS)

Limerick Consortium
- University of Limerick (UL)
- Limerick Institute of Technology (LIT)

TCD Consortium
- Trinity College Dublin (TCD)
- Royal College of Surgeons in Ireland (RCSI)

Bridge Consortium
- University College Cork (UCC)
- Cork Institute of Technology (CIT)
- Institute of Technology Tralee (ITT)
- Teagasc (TEAG)

UCD Consortium
- University College Dublin (UCD)
- National College of Art and Design (NCAD)

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