



University College Cork

# 2025 Innovation Impact Report



Riailtas na hÉireann  
Government of Ireland



Arna chomhchistiú ag  
an Aontas Eorpach  
Co-funded by the  
European Union



Tionól Réigiúnach  
an Deiscirt  
Southern Regional  
Assembly



Enterprise  
Ireland

# A word from...

## Professor John Cryan Vice President for Research & Innovation

Welcome to UCC's Innovation Impact Report for 2025, showcasing a year in which our university advanced its mission to shape a more sustainable, inclusive, and innovative future through world-class research, creativity, and expertise.

Across UCC researchers continued to translate discovery into impact - from real-time hospital equipment tracking technology developed through a collaboration between the Tyndall National Institute and Reivr Fusion, to evidence-based consultancy informing national public health policy. Breakthroughs in semiconductor technologies, exemplified by spin-outs such as Endurance Semiconductors, Vivid Photonics, and PulpoSemi, signal UCC's growing global impact in energy-efficient and next-generation electronic and photonic systems.

Looking ahead, UCC Futures is enabling us to accelerate the areas where UCC can lead internationally, attracting outstanding talent, strengthening interdisciplinary research, and creating the conditions where bold ideas can flourish. 2025 saw national recognition for our entrepreneurship programmes with the €1 million Higher Education Authority performance funding awarded to UCC's IGNITE programme for its exemplary impact in fostering new ventures.

Innovation and entrepreneurial activity remain central to Securing Our Future - UCC Strategic Plan 2023-2028. By investing in entrepreneurial ecosystem growth, intellectual property development, partnerships, and commercialisation, we are building a university where ideas move with confidence from concept to impact and thus delivering benefits that will resonate across Ireland and far beyond in the years to come.



## Dr Sally Cudmore Director of UCC Innovation

2025 was a year of continued momentum for innovation and research commercialisation, marked by strong and sustained levels of engagement from researchers across a variety of disciplines throughout UCC, alongside the launch of new spin-out companies with global ambition. From UCC and INFANT spin-out company CergenX securing FDA breakthrough status for their neonatal brain injury device early in the year, to UCC being named the leading Irish university in research income derived from industry according to Knowledge Transfer Ireland data, UCC's innovation ecosystem has demonstrated strength, ambition and real-world impact.

Beyond the achievements featured in this report, we continue to broaden innovation and entrepreneurial opportunities for UCC's student, graduate and researcher communities. We look forward to continuing to support these communities and build upon UCC's Business Engagement activities to ensure that UCC expertise connects meaningfully with enterprise and industry to support national competitiveness.

We are grateful for the continued support of Knowledge Transfer Ireland and the European Regional Development

Fund through the ERDF Southern, Eastern & Midland Regional Programme 2021-2027, which enables UCC Innovation to protect discovery, support new ventures and translate research into impact.



# Protecting Ingenuity



## Probiotic Patent Moves From Lab to Market

In 2025 UCC (with Teagasc) was granted a US patent on protecting a  $\gamma$ -Aminobutyric acid (GABA)-producing *Lactobacillus brevis* (DPC6108) and its use in compositions that support weight management and metabolic health (including insulin sensitivity and cholesterol handling). The patent, which protects an invention from the work of Professors Paul Ross (UCC) and Catherine Stanton (Teagasc), builds on APC Microbiome Ireland's long-running programme in microbiome-based solutions for human health.

This invention centres on the use of *Lactobacillus brevis* DPC6108 as a daily oral treatment to improve multiple problems caused by a high-fat diet, especially problems linked to obesity, metabolism, and stress-related behaviour. Preclinical data cited in the patent show that DPC6108 increased intestinal GABA, reduced adiposity, and improved glucose clearance in a high-fat diet model, pointing towards the potential use of probiotics to enhance nutrition for metabolic wellbeing. The claims in the granted

patent enable multiple consumer formats, from foods to supplements, supporting UCC's ambition to achieve translation and impact in as many arenas as possible.

The patent has been licensed to a large food company as part of a of patent bundle from this APC Microbiome Ireland group, which also includes Professors Ted Dinan and John Cryan.

This patent is one of three granted patents this year from APC Microbiome Ireland, which hosts over 300 researchers collaborating across microbiology, nutrition and medicine to move discoveries to help address some of the key global challenges we face today. By securing IP around novel, bioactive strains, UCC is helping create a pipeline of microbiome innovations that can be developed for real-world impact.

Note: US 12,447,185 B2: "GABA-Producing Culturable Bacteria and Use for Improving Health." Assignees: University College Cork and Teagasc (grant date 21 October 2025).

### Winner – UCC Research Image of the Year

Brain Pipelines – the delicate blood vessels in the brain of a 3-day-old zebrafish embryo, with fluorescent green labelling revealing the intricate network. Zebrafish are a valuable model in neuroscience, developmental biology, and pharmacology. Captured using confocal microscopy, the image provides a detailed view of the brain's vascular architecture, essential for nutrient transport, waste removal, and neural health. Studying how this vasculature forms and functions is key to understanding brain biology and has important implications for neurodegenerative disease research and drug delivery.

By Dr Jatin Nagpal, Dr Maria Aburto, Koushika Chandrasekaran, Lorena Morales Garcia, Alexandre Jean Claude Cergneux.



# Impact for Industry

48

Licences, Options & Assignments  
UCC IP transferred to another party  
for commercialisation purposes

95%

were to Irish-owned or  
Irish-based companies

45%

of our licensees were small Irish  
enterprises (<50 employees)

## Case Study: Advancing Real-Time Equipment Tracking in Hospitals through Tyndall–Reivr Fusion Collaboration

A collaboration between Tyndall National Institute and Irish SME Reivr Fusion Ltd. has delivered a next-generation Real-Time Location System (RTLS) designed to transform how hospitals track and manage critical medical equipment. Supported by Enterprise Ireland’s Innovation Partnership Programme, the project produced an integrated sensor-fusion platform combining Ultra-Wideband (UWB) radio technology with AI-enabled vision sensing, culminating in a technology licence agreement transferring Tyndall-developed IP to Reivr Fusion for commercial use.

### Challenge and Vision

Hospitals frequently struggle to locate mobile equipment—80% of which is shared across departments—leading clinicians to spend significant time searching rather than delivering care. Existing RTLS solutions rely on radio-only tracking and often provide difficult-to-use interfaces. This project set out to develop a simple, accurate and deployable system that would enable staff to instantly locate essential equipment and improve clinical workflow efficiency.

### Innovation Through Collaboration

Led by Dr Miomir Todorovic, Tyndall optimised the UWB architecture, evaluating chipsets, power consumption and designing compact hardware capable of one-year battery life. The team worked on the UWB anchor node and UWB tag incorporating secure ranging, an ePaper display, tactile inputs and contactless charging.

Reivr Fusion complemented this work by integrating a state-of-the-art AI vision module, enabling spatial interpretation of equipment movement. The resulting Reivr Fusion Node merges visual and radio data to produce highly reliable, real-time location information with accuracy approaching the 10 cm benchmark associated with UWB technology.

### Impact and Technology Transfer

The collaboration produced a manufacturable RTLS demonstrator now ready for pre-commercialisation. A

hospital pilot is planned, involving installation of fixed sensors, tagging of up to 100 devices and evaluation of improvements in operational efficiency. The project concluded with a technology licence agreement enabling Reivr Fusion to commercialise Tyndall-developed IP and bring the solution to market.

Speaking about his experience working with Tyndall and UCC Innovation, Reivr Fusion CEO, Joe Moore said:

“ We were very satisfied with the outputs of the project and would recommend the Innovation Partnership programme to other companies as a cost-effective means of accessing expertise from Irish universities.



Real Time Location System (RTLS) implementation in a hospital setting, illustrating technology used to automatically track and identify the location of medical equipment in real time.

# Impact for Enterprise

28

Consultancy Contracts signed with  
clients in the public and private sectors  
from Ireland/Asia/UK/USA/Europe

82%

of those with Irish-based enterprise

## Strengthening HPV Vaccination Equity Through Evidence Based Consultancy

Dr Sheena McHugh and Dr Aoife O’Mahony,  
UCC School of Public Health

The National Screening Service (NSS) and the National Immunisation Office (NIO) commissioned UCC researchers Dr Aoife O’ Mahony and Dr Sheena McHugh to deliver a rapid evidence review to inform strategies for improving HPV vaccination uptake among underserved populations, including migrant, Roma, and Traveller communities. The consultancy aimed to generate actionable insights within a tight timeframe to support national programme planning.

UCC Consulting was delighted to support Drs McHugh and O’Mahony with this undertaking. This involved assisting with the development of a detailed statement of work and negotiating contractual terms.

Using rigorous rapid review methodology, the research team systematically searched peer reviewed literature across major databases. Evidence relating to barriers and enablers for HPV vaccination uptake was synthesised, enabling the NSS to understand capability, opportunity, and motivation-related drivers of vaccination uptake in these communities.

A second strand of work identified the types of intervention shown to enhance vaccine participation in comparable underserved populations internationally. These interventions were categorised using the Behaviour Change Wheel, helping decision makers identify the mechanisms, such as education, persuasion, and environmental restructuring most likely to influence behaviour. Where available, effectiveness data were also summarised.

The consultancy delivered two clear, accessible outputs: a comprehensive report with narrative synthesis and summary tables, and a plain language briefing for wider stakeholders.

The NSS and NIO used these findings to inform the design of a pilot project comprising of consultation with communities on HPV vaccination and co-design of resources and outreach for HPV vaccination clinics. By translating complex evidence into practical, context-specific recommendations, the consultancy directly supported efforts to reduce health inequities, ensuring underserved communities are better reached by Ireland’s HPV vaccination programme.

This project was commissioned by the National Screening Service and the National Immunisation Office with Women’s Health Taskforce funding.



Dr Sheena McHugh



Dr Aoife O Mahony

# Nurturing New Ventures

<p>Graduate-led start-ups supported by IGNITE in 2025:</p> <h1>26</h1>	<p>Students Engaged with SPARK in 2025:</p> <h1>1000+</h1> <p>Engaged with 1 or more entrepreneurship and innovation events through the SPARK programme</p>	<p>Active start-ups supported by IGNITE:</p> <h1>110</h1>
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## New UCC Student Entrepreneur of the Year Competition

The UCC Student Entrepreneur Competition is a new university-wide competition for third-level students at UCC who have a promising business idea. The competition is designed to support student entrepreneurs in developing their ideas and potentially launching their own start-ups.

Held in May 2025, Marco Faggiani, a final year BSc Computer Science student at UCC, won the undergraduate category with EaseTalk - an AI-powered app that provides interactive speech practice scenarios for people who stammer or experience social anxiety, with therapist integration. David Cashman, founder and CEO of UCC spin-out company The WellSchools Network and PhD student, was winner of the postgraduate category - a trauma-informed education training platform that offers school-wide programmes, CPD courses, and a scalable SaaS for educator well-being. (see next article)

The UCC Student Entrepreneur of the Year Competition is made possible by a generous donation from a UCC alumna and is one of a wide range of student entrepreneurship supports that also include workshops, hackathons, meet-ups and advice clinics.



Georgie Brown, Senior Startup Consultant with AxisBIC and Marco Faggiani, winner of the undergraduate category of the UCC Student Entrepreneur Competition 2025



David Cashman, winner of the postgraduate category of the UCC Student Entrepreneur Competition 2025 and Eshna Gogia, HBAN Lead

## The WellSchools Network

A PhD student-led Spin-out

Dr David Cashman – Founder, The WellSchools Network, IGNITE Alumnus

The WellSchools Network, founded by Dr David Cashman, is dedicated to transforming how schools understand and support student well-being, learning behaviour, and inclusion. Established in 2023, The WellSchools Network develops and delivers programmes grounded in a Systems and Trauma-Informed Model of Positive Education. Through training, resources, and whole-school development supports, The WellSchools Network equips teachers and leaders with the tools to cultivate safe, supportive, and responsive learning environments. Since its formation, The WellSchools Network has expanded its reach nationally and internationally, influencing school culture, reducing school avoidance, and strengthening well-being practices across a growing number of educational settings.

David completed his employment-based PhD at UCC while working as a school principal and his research work focused on the intersection of trauma, behaviour, and learning. Drawing from his experience leading South Lee Educate Together and his academic research, David identified a gap in structured, evidence-based approaches to well-being in Irish schools. His vision for The WellSchools Network reflects a commitment to empowering educators and improving outcomes for all learners, particularly those most affected by adversity.

IGNITE provided the entrepreneurial foundation that helped transform this vision into a scalable, impact-driven venture. Through the programme, David refined The WellSchools Network value proposition, strengthened its business model, and built the confidence and networks needed to collaborate effectively across academia, education, and enterprise. The WellSchools Network has received significant national recognition for its impact and innovation - it was named Best Business at IGNITE Awards in April 2025 and won the UCC Research and Innovation Spin-out of the Year Award in 2024, highlighting the strength of David Cashman's research-driven approach to well-being in education.

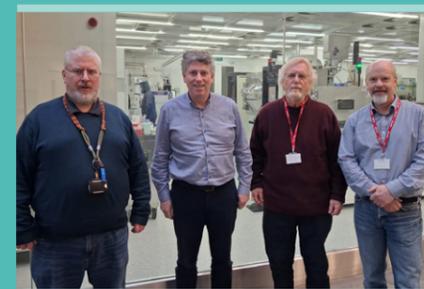
**THE WELL SCHOOLS NETWORK**  
www.wsn.ie

# Nurturing New Ventures

<h1>66</h1> <p>Researchers participated in SPRINT and Tyndall explorer entrepreneurship &amp; IP training</p>	<h1>30</h1> <p>New Ventures mentored by UCC's Entrepreneurs in Residence, with <b>466</b> mentoring hours delivered</p>	<p>New Spinouts established: <b>3</b></p> <p>Portfolio of UCC spin-outs: <b>28</b></p>
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## Endurance Semiconductors

Endurance Semiconductors is a fabless power electronics spin-out company from UCC's Tyndall National Institute. It is bringing to market a form of silicon carbide technology called 3C-SiC, developed by a team led by Alan Blake and Dr Peter Ward in Tyndall's Specialty Products and Services group. Using a proprietary step-flow growth process, Endurance makes low-defect 3C-SiC substrates that offer the efficiency and heat-handling benefits of wide-bandgap materials at lower cost. The material is designed to work with standard silicon manufacturing and packaging, which helps companies adopt it without major factory changes. The technology cuts switching and "dead-time" energy losses in medium-voltage power electronics. First markets include data-centre power management, electric-vehicle inverters, renewable-energy systems and industrial drives. These represent an initial opportunity of about €1 billion within a €23 billion global market. Supported by Enterprise Ireland and the EU ChipStart programme, Endurance is preparing for pilot manufacturing and market entry.



Endurance Semiconductors Board of Directors Alan Blake, Joe O'Keefe, Peter Ward and Ger O'Keefe (CEO)

**ENDURANCE SEMICONDUCTORS**  
endurancesemi.com

## Vivid Photonics

Vivid Photonics is a UCC spin-out company launched in January 2025, arising from over a decade of Super Superluminescent Light Emitting Diode (SLED) research led by Brian Corbett's team at Tyndall National Institute. The company commercialises a unique, patented surface-emitting SLED technology, designed to deliver high-brightness, low-coherence light sources. Vivid Photonics targets premium Augmented and Virtual Reality (AR/VR) headset applications, where existing laser-based solutions suffer from speckle and limited image quality. By combining the brightness of lasers with the visual clarity of LEDs, Vivid's SLEDs enable more realistic, immersive visual experiences. Supported by Enterprise Ireland and the EU ChipStart programme, Vivid Photonics aims to become a global leader in advanced photonic light sources.



Vivid Photonics CEO Chris Gorman

**Vivid Photonics**  
Intelligent Light, Intelligent Reality  
vividphotonics.com

## PulpoSemi Ltd

Led by Tyndall National Institute and UCC researcher Seamus O'Driscoll, and serial entrepreneur Joe O'Keefe, PulpoSemi targets step-change gains in energy efficiency for devices from mobile to data-centre systems, including AI workloads. Supported by Enterprise Ireland and the EU ChipStart programme and established as a UCC spin-out in September 2025, PulpoSemi builds on research at Tyndall's Microelectronic Circuits Centre Ireland and Integrated Magnetics teams to deliver next-generation power-management integrated circuits (PMICs). UCC has licensed a significant block of intellectual property to support translation of Tyndall's publicly funded research into market-ready solutions that lower energy use, reduce emissions and enhance system reliability. PulpoSemi exemplifies UCC's mission to deliver innovation with purpose and aligns with the UN Sustainable Development Goals on clean energy, industry and infrastructure, responsible consumption, and climate action.



Kieran Drain - Chief Commercial Officer & GM North America, Fergal Bonner - Board Chair & Marketing/Investor Strategist, Paul McCloskey - ESA Programs Lead, Séamus O'Driscoll - CEO, Joe O'Keefe - Business Development Manager, Finbarr O'Regan - CMOS Design Manager

**PulpoSemi**

# UCC's Innovation Highlights in 2025

**Jan**

CergenX, a UCC/INFANT spin-out, received Breakthrough Device Designation from the FDA for their neonatal brain assessment product

**Feb**

Vivid Photonics, a UCC and Tyndall National Institute spin-out launched to a global audience at Photonics West in San Francisco

**May**

Marco Faggiani, EaseTalk and David Cashman, The WellSchools Network were named as winners of UCC's Student Entrepreneur of the Year competition

**May**

UCC's Research and Innovation Awards celebrate excellence in research and innovation. Innovation award winners included

- Raman for Lactate: Ray Burke, Dr Simon Toft Sorenson, Dr Jason Yang, Dr Huihui Lu, Professor Fergus McCarthy (Invention of the Year)
- BarraLake - Professor Mark Hutchinson, Professor Philip O'Reilly, Dr. John O'Brien, Dr. Panos Kyziropoulo (Licence of the Year)
- Neurobell – Dr Mark O'Sullivan, Dr Alison O'Shea, Colm Murphy (Spin-out of the Year)
- Professor Hannah Daly (Consultancy Project of the Year)
- PrimaHealth - Danny McEnery (Start-up of the Year)

**July**

UCC students were recognised at the 2025 National Student Entrepreneur Awards - David Cashman won the Grant Thornton High Achieving Merit Award for The WellSchools Network and Sean O'Sullivan received the Local Enterprise Office High Achieving Merit Award for Lion's Reign

**Sept**

UCC is leading Irish university in research income derived from industry, LOAs and Innovation Disclosures according to Knowledge Transfer Ireland's (KTI) 2024 Annual Knowledge Transfer Survey

**Oct**

Mark O' Sullivan, CEO of UCC & INFANT spin-out Neurobell announced as "Founder of the Year" at Enterprise Ireland's High Potential Start-up Awards

**Oct**

UCC's IGNITE start-up incubation programme awarded €1M by Higher Education Authority

**Nov**

Second annual Business Engagement event held at UCC, focusing on Artificial Intelligence (AI)

**Nov**

UCC spin out ArrayPatch announced as overall winner of 2025 InterTradeIreland Seedcorn Awards

**Nov**

Three UCC & Tyndall National Institute spin-outs awarded places on the EU's ChipStart Programme – Vivid Photonics, Endurance Semiconductors and PulpoSemi.

**Dec**

CergenX wins the "Digital Health Innovation of the Year" award at the 2025 Irish Medtech Awards