



**NovaUCD**  
**CELEBRATING 10 YEARS OF**  
**ENTREPRENEURIAL SUCCESS**  
**2003-2013**



# NovaUCD's Impact 2003 - 2013

*"Great things are not done by impulse,  
but by a series of small things brought together."*

Vincent van Gogh (1853-90)



**€91,000,000**  
EQUITY FUNDING RAISED



**€87,700,000**  
TOTAL ECONOMIC VALUE  
EXPECTED BY 2016



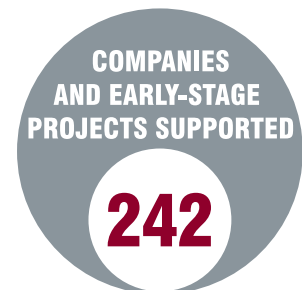
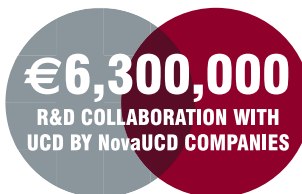
**€71,200,000**  
ANNUAL TURNOVER OF  
NovaUCD COMPANIES



**€36,600,000**  
CURRENT ECONOMIC VALUE  
TO THE IRISH ECONOMY



**€11,100,000**  
CURRENT ECONOMIC VALUE TO  
THE INTERNATIONAL ECONOMY



**2,527**



TOTAL JOBS  
SUPPORTED BY 2016

**1,341**



JOBS SUPPORTED  
CURRENTLY

**1,186**



NEW JOBS  
TO BE  
SUPPORTED  
BY 2016



**€5,200,000**  
COMMERCIALISATION  
INCOME TO UCD



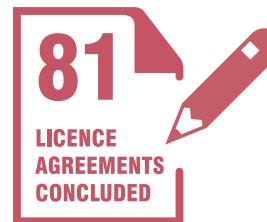
UCD SPIN-OUT  
COMPANIES  
INCORPORATED



**445**  
INVENTIONS  
DISCLOSED



**318**  
PATENTS FILED



**81**  
LICENCE  
AGREEMENTS  
CONCLUDED



**10**  
YEARS SINCE NovaUCD  
OFFICIALLY OPENED



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*NovaUCD has an unparalleled infrastructure, a range of comprehensive support programmes and a peer-support system that has nurtured an enthusiastic and dynamic community of highly talented entrepreneurs.*



# Creating a Dynamic Entrepreneurial Community

Professor Peter Clinch, UCD Vice-President for Innovation

*At UCD, innovation sits alongside research and education as one of the three pillars of the University.*

UCD is a leading research-intensive University that recognises the importance of scholarship, creativity, and innovation across all disciplines and the contribution they make to innovation through the creation of value from knowledge.

Innovation at UCD revolves around four themes: inspiring creative and innovative graduates, putting knowledge to work through applied research, partnering with industry and the public sector, and growing and supporting new business.

Ten years ago UCD seized first-mover advantage and created a world-class, custom-built incubation facility based around one of its historic Georgian buildings. Today, NovaUCD has an unparalleled infrastructure, a range of comprehensive support programmes and a peer-support system that has nurtured an enthusiastic and dynamic community of highly talented entrepreneurs.

In this publication we celebrate these 10 years of entrepreneurial success at NovaUCD. You will read how many of our companies have gone on to achieve considerable success on the world stage with groundbreaking technologies developed from research carried out at UCD. In a series of case studies you can also read how this research has had an impact in sectors as diverse as equine performance, food, healthcare, ICT and space science.

NovaUCD was funded through a unique public-private partnership and was the brainchild of its first Director Dr Pat Frain. His foresight was supported by our founding sponsors - AIB Bank, Arthur Cox, Deloitte, Enterprise Ireland, Ericsson, Goodbody Stockbrokers, UCD and Xilinx.

I would like to thank Kevin Cooney of Xilinx, who makes an insightful contribution to this publication, and all the sponsor representatives who over the last 10 years have helped make the NovaUCD vision a reality.

NovaUCD's achievements are shown, in part, by the strong results from our 10-year economic impact survey featured in this publication. Some highlights of BiGGAR Economics' analysis of the data include:

- **NovaUCD's entrepreneurial and commercialisation activities currently support over 1,000 jobs in the Irish economy alone and this figure is expected to grow to over 1,900 jobs by 2016.**
- **NovaUCD client and graduate companies currently employ some 600 individuals and expect to create over 850 new jobs within the next three years.**
- **The combined current annual turnover of NovaUCD-supported companies is in excess of €70 million and, to date, they have raised over €90 million in equity funding.**

Over the next 10 years these outcomes will be more fully realised as NovaUCD's early-stage companies further develop and fulfill their ultimate employment and earnings potential.



At the launch of the Intellectual Property Protocol, Putting Public Research to Work for Ireland, in June 2012, at NovaUCD are (l-r): Professor Peter Clinch, UCD Vice-President for Innovation; Seán Sherlock TD, Minister for Research and Innovation; Richard Bruton TD, Minister for Jobs, Enterprise and Innovation and Dr Hugh Brady, UCD President

NovaUCD's success in the area of technology transfer is equally compelling:

- **Over the last 10 years gross commercialisation income to UCD has been in excess of €5 million.**
- **30 spin-out companies have been incorporated.**
- **Just under 320 patent applications have been filed, almost 450 inventions have been disclosed and over 80 licensing deals have been concluded.**

While we have become accomplished at spinning-out the University's expertise, we have also welcomed young spin-in companies and helped them develop innovative products and services through partnerships with UCD-based researchers. An excellent example of this is surface technology company Enbio (featured as one of our case studies) which relocated to NovaUCD from Cork and has since become a supplier to the European Space Agency.

All of this success is due in no small part to the highly skilled team at NovaUCD and, of course, to the researchers across the campus whose expertise, hard work and commitment provide the raw material without which none of this would happen.

We are also very appreciative of the continuing support of Enterprise Ireland under the Technology Transfer Strengthening Initiative and I am delighted that Frank Ryan, CEO of Enterprise Ireland, has shared his thoughts on 10 years of NovaUCD with us in this publication.

Looking to the future, as NovaUCD moves into its second decade, we believe that many of the most promising commercial opportunities that lie ahead will result from the convergence of knowledge, for example, in the fields of connected health and medical devices, where technology and healthcare solutions combine. UCD is Ireland's largest university and one of the largest repositories of knowledge in Ireland. Therefore the opportunities ahead of us are immense.

The Vice-President's team, which is based at NovaUCD, is playing an important role in broadening the awareness of what innovation means within a modern university and reflecting the fact that it must embrace traditionally accepted areas of science and technology but also emerging strands such as social entrepreneurship, policy innovation and transfer, design, and cultural innovation. All of this must be realised so that UCD can play its full role in economic and social development.

In recent years UCD has been expanding its global footprint with, for example, the establishment of new campuses in China. Indeed, one day soon, we may see the development of NovaUCD hubs outside of Ireland. We are in no doubt that an exciting future lies ahead for NovaUCD.



# Towards a Shared Vision for Innovation

An interview with Frank Ryan, CEO, Enterprise Ireland

*Enterprise Ireland has been a strong supporter of NovaUCD since its formation not least because both organisations share a vision to foster innovation, encourage the creation of knowledge-intensive enterprises and promote the commercialisation of academic research.*

To date Enterprise Ireland, the State organisation responsible for the development and growth of Irish enterprises in world markets, has provided funding of approximately €7 million to UCD to assist with the original development of the NovaUCD facility itself and to support UCD's technology transfer office as part of the national Technology Transfer Strengthening Initiative across third level institutes.

"The fact that Enterprise Ireland has put this level of funding into UCD is a huge vote of confidence in the team at NovaUCD and in what they have achieved to date and the potential for what they can achieve going forward," says Enterprise Ireland CEO, Frank Ryan.

"As an organisation we are seeking to drive the commercialisation of research and in particular the creation of high potential start-ups from that research in order to create quality job opportunities. We are of the view that Ireland can be the 'comeback economy' of Europe but to

do that the country will have to increase exports of products and services. Publicly funded research within third level institutions has to play a very active role in achieving this. The types of products and services in demand from Ireland today are sophisticated. It is quite likely that they will increasingly come from technologies being developed in universities and from spin-out companies such as Equinome which is based at NovaUCD."

Enterprise Ireland has now funded incubation facilities at virtually every university and institute of technology in the State. These centres are home to roughly 350 young companies employing some 1,500 people.

"We are pleased with the progress to date in these centres but Ireland needs stronger results and we believe that the very professional team at NovaUCD has the experience to do the job," Ryan says. "We also see a huge benefit in NovaUCD having access to the research competencies within UCD in general. That's a huge foundation for future growth."

Ryan believes that as a developed economy, Ireland must look for growth and employment opportunities in different places to developing economies. Based on the experience of developed economies such as the US and Japan, the most likely sources of these opportunities include entrepreneurs and start-up businesses.

*NovaUCD is a key component of Ireland's technology transfer system and exemplifies what we excel at here in Ireland.*



Seminar at NovaUCD

“We are very strong in sectors such as software, digital media and medical devices and there are clear opportunities in the market for innovative products and services within these sectors,” Ryan says. “Centres such as NovaUCD have a big role to play and are now a fundamental part of our ecosystem for the generation of new technology companies.

“Our recent evaluation of how centres such as NovaUCD are performing shows that 90% of respondent companies felt that being located in a campus incubator contributed positively to the growth of the company,” Ryan adds. “In addition 45% viewed the interaction they had with other tenants as highly valuable to the development of their companies while 26% had actually done business or formed business partnerships with companies that were in their incubation network.”

Ryan says that the Technology Transfer Strengthening Initiative was designed to increase the number of technologies that would be identified and successfully licensed to industry. This has paid dividends at UCD where gross commercialisation income over the last 10 years has now exceeded €5 million.

“There has been an almost four-fold increase in the number of spin-out companies from technology transfer offices since the initiative was launched six years ago,” Ryan says. “Ireland currently ranks well above the EU averages in the number of licenses and spin-out companies it generates. For example, we rank third in Europe in terms of the number of start-ups and fourth for the number of technologies transferred to industry. NovaUCD is a key component of Ireland's technology transfer system and exemplifies what we excel at here in Ireland.”

“I would see the number of spin-in companies also growing. Last year Enterprise Ireland helped 12 overseas entrepreneurs establish high potential start-ups in Ireland and will do the same again this year. In doing so we compete against the likes of London, Berlin, and Silicon Valley for talent. That whole world of mobile entrepreneurship is increasing considerably and we intend to be part of it,” Ryan says.

“The results of the NovaUCD economic impact survey are very positive and we think there is a great future for Ireland through the Technology Transfer Strengthening Initiative,” he continues. “Indeed Enterprise Ireland is establishing a centralised technology transfer office and the level of interaction with NovaUCD is going to deepen. We expect big things from NovaUCD as they have a proven capability to commercialise research and to assist with the development of very successful spin-out companies such as BiancaMed and ChangingWorlds.”

“From Enterprise Ireland's point of view the ultimate objective is jobs and exports and being involved in leading-edge applied science that can ultimately be commercialised is key. There is a relentless drive towards a knowledge-based society and an ecosystem that includes NovaUCD is very attractive and advantageous for the country,” Ryan concludes.



# Innovation - The Way Forward for Ireland Inc.

An interview with Kevin Cooney, Managing Director Xilinx EMEA and Corporate CIO

*Xilinx is the world's largest manufacturer of high-powered microchips, commanding half the world market for these products. It has revenues in excess of US\$2 billion and employs 3,000 people worldwide.*

Over the last 20 years Xilinx has developed close connections with Ireland as an active member of the foreign direct investment community, and as one of the founding sponsors of NovaUCD.

Xilinx designs and develops the microchips used across a broad spectrum of industrial, scientific and medical device applications. The company operates in a fast moving R&D world where innovation is critical and it is accustomed to bringing new products to market within tight time frames. Xilinx is at the leading edge of its industry and the fruits of its extensive research have resulted in the registration of over 2,500 patents since its formation in 1984.

Underpinned by a strong innovation culture, Xilinx recognised the significance of NovaUCD's vision and mission from the outset and was keen to support it. "Xilinx believed that backing NovaUCD was worth doing, whether or not we ever derived any direct benefit from our involvement. It was about contributing to a bigger picture, not about getting anything specific for ourselves," says the company's most senior executive in Europe, Irish-born Kevin Cooney, who is Managing Director of its Dublin-based European headquarters, corporate Vice-President and Chief Information Officer.

"Putting money into the establishment of NovaUCD was a business decision, not least because it was a highly innovative project that struck a chord with us," he adds. "Through NovaUCD we could see the University taking a strategic role that complements its teaching and research roles. It enables the academic and student communities to use their knowledge base to develop something beyond the confines of the University, something with the potential to create employment opportunities for graduates and revenue for the country through spin-out companies. The future and potential growth of Ireland Inc. is linked to our capacity to innovate. If we do not innovate we will fail and centres such as NovaUCD are the natural home of bright individuals with high potential innovations."

While Cooney has spent a large part of his career working for multinational companies, he is in no doubt about the need to foster and support the development of indigenous businesses and expertise. "We need places like NovaUCD where people can bring their ideas and develop them into solutions that in turn build companies with export potential," he says. "As a company we wanted to play our part in this and over the last 10 years we have seen the growth of a high calibre skills base at NovaUCD that supports entrepreneurs not only with technical back-up but also with the business acumen needed to drive their ideas to commercial success."



NovaUCD courtyard

Cooney spends a great deal of his time in the US and is no stranger to the highly professional incubation hubs created by US universities such as Stanford. He says NovaUCD compares very favourably. “It’s not just about having ideas and smart people; an idea is only as good as its realisation,” he says. “It’s also about developing a fostering environment and creating an atmosphere that gives people the best possible chance of success. Entrepreneurs often start out with one idea and discover, as that idea evolves, that they need to go in a different direction. They need space to do this. The lay-out of the NovaUCD building is very conducive to good interaction between the companies based there and this mutual support and information sharing is very important at the start-up stage. So, too, are the links and contacts that NovaUCD and UCD have made by interacting with industry.

“We have spoken with a number of NovaUCD companies over the years that were working on ideas that were relevant for us. When I look at NovaUCD I see an organisation that has spent a decade building very solid foundations that have delivered excellent results,” Cooney adds.

Xilinx has recently increased its own employment in Ireland by 60 to 340 people and for Cooney two key statistics that jumped out of NovaUCD’s economic impact survey were the approximately 600 jobs that have been created by NovaUCD companies so far and the estimated 850 additional jobs that will be created by 2016.

*Putting money into the establishment of NovaUCD was a business decision, not least because it was a highly innovative project that struck a chord with us.*

“It takes time to create an embedded infrastructure to support an entrepreneurial culture. I believe that NovaUCD has successfully done this and is now moving to the next level under its current leadership,” Cooney says. “NovaUCD is a very enabling environment. If you look at the number of patents filed, for example, it is hugely encouraging as it reflects the level of innovation taking place at UCD and the potential for great business opportunities.”

“UCD has shown both vision in establishing NovaUCD and a very strong commitment to making it work. The centre is going to go from strength to strength and I think it is going to be even more successful in its next decade. Ultimately, the more successful NovaUCD is, the better it will be for Ireland Inc.”

# Innovation at University College Dublin

Innovation is a key element of University College Dublin's core mission and sits as an equal pillar of the University alongside education and research. UCD, Ireland's global University, justly prides itself on being a world-class, research-intensive University where excellence in education is combined with a commitment to research, creativity and innovation.

UCD's commitment to innovation recognises the importance of actively participating, contributing and collaborating to exploit leading-edge research and development outputs.

Professor Peter Clinch is UCD's Vice-President for Innovation and he leads the Office of the Vice-President for Innovation at the University.

The mission of the Office of the Vice-President for Innovation is to enhance the value and quality of UCD's innovation activities in order to achieve the maximum impact for the University, its partners, and for social and economic life in Ireland in the wider world.

To advance this mission, the Office of the Vice-President for Innovation supports system-wide innovation activities across the University, including technological, policy, social and cultural innovation, through four innovation themes:

## **Inspiring Creative Graduates**

UCD provides leading-edge programmes to ensure that UCD's graduates are highly-skilled, innovative and entrepreneurial and compete effectively for international employment.

## **Putting Knowledge to Work**

The Office of the Vice-President for Innovation promotes initiatives that provide integrated solutions to global problems through problem-driven research at the University.

Through its technology transfer team, the Office of the Vice-President for Innovation engages with UCD's research community to commercialise the outputs of their research programmes.

## **Partnering with Industry**

The Office of the Vice-President for Innovation is a core interface between the University and the needs of industry and it promotes the creation and development of business partnerships including the licensing of UCD technology.

The Office of the Vice-President for Innovation also develops, advises and manages programmes and activities that support and enhance a vibrant environment for collaboration with local, national and global companies.

## **Growing and Supporting New Business**

The Office of the Vice-President for Innovation manages NovaUCD, the University's Centre for New Ventures and Entrepreneurs. At NovaUCD, in state-of-the-art facilities, new high-tech and knowledge-intensive companies are nurtured and supported to enable them to grow, develop and create jobs.

# NovaUCD, the Centre for New Ventures and Entrepreneurs

NovaUCD, located in a magnificent mid-18th-century house, formerly known as Merville House, has been the hub for new ventures and entrepreneurs at University College Dublin since 2003.

NovaUCD is a purpose-built, state-of-the-art incubation facility for high-tech and knowledge-intensive start-up companies. At NovaUCD a comprehensive business support programme for client companies is also provided. This programme comprises advice, seminars and workshops as well as facilitated access to the NovaUCD network of University researchers, business leaders and investors.

At NovaUCD a highly networked community of entrepreneurs provides an environment for the promoters of new ventures to share their experiences to assist other start-ups to develop and grow. This innovative and entrepreneurial community, along with the wider NovaUCD network, creates an invaluable support for client companies.

The concept for the NovaUCD facility, designed by Brian Kavanagh of Kavanagh Tuite Architects, was to restore the original house as the centrepiece of a complex of subsidiary buildings that surround it. The buildings are bright, airy and open with high-quality shared and circulation spaces that encourage the formal and informal interactions necessary for the development of a community of entrepreneurs.

The conversion to a modern centre for new ventures and entrepreneurs was funded by a unique public-private partnership which was established by Dr Pat Frain, then Director of NovaUCD.

Six private sector sponsors, AIB Bank, Arthur Cox, Deloitte, Ericsson, Goodbody Stockbrokers, and Xilinx, contributed 75% of the €10 million raised to develop the first two phases of the NovaUCD complex.

These sponsors were chosen to bring an appropriate mix of expertise and experience to the support programmes offered at NovaUCD. The balance of funds for the first two phases was contributed by Enterprise Ireland and the University.

Additional funding of €1.3 million was provided by Enterprise Ireland and UCD for bio-incubation facilities and equipment to accommodate biotechnology start-up companies.

NovaUCD was officially opened by An Tánaiste and Minister for Enterprise, Trade and Employment, Mary Harney TD, on 13th October 2003.

Appendix 1 contains a brief overview of UCD's support for entrepreneurship prior to the establishment of NovaUCD.



At the official opening of NovaUCD in 2003 are (l-r): John Kelly, AIB Bank; Feargal Ó'Móráin, Enterprise Ireland; Dr Art Cosgrove, UCD President; Mark O'Donovan, Goodbody Stockbrokers; An Tánaiste, Mary Harney TD; Pádraig Ó'Riordáin, Arthur Cox; Ian Cahill, Ericsson; Paul McCambridge, Xilinx; Pat Kenny, Deloitte and Dr Pat Frain, Director, NovaUCD

# Making a Real Economic Impact

1,341

NovaUCD activities support a total of 1,341 jobs currently worldwide, 1,056 in Ireland

The Office of the Vice-President for Innovation commissioned BiGGAR Economics to carry out an economic impact analysis of NovaUCD's entrepreneurial and commercialisation activities over a 10-year period from 2003 to 2013.

The study findings were based on two main information sources. Current turnover and current and future employment figures for companies supported by NovaUCD since 2003 were collected, amongst other data, via a survey carried out in summer 2013 with a 70% response rate. Data on commercialisation income and other technology transfer related metrics for the period was provided directly by the Office of the Vice-President for Innovation.

Analysis of the collected data by BiGGAR Economics uses Gross Value Added (GVA) which is generally regarded as the best measure of the total wealth creation in a given area. It is the difference between the value of goods and services produced (outputs) and the cost of raw materials and other inputs.

Since 2003, UCD has provided business development support to 242 companies and early-stage projects through the incubation services and supports provided at NovaUCD and through the NovaUCD Campus Company Development Programme.

In the last 10 years 126 companies have been direct clients of NovaUCD and availed of desk space, bio-incubation units or business unit facilities within the on-campus centre.

These supported companies, which currently employ 599 staff, of whom 489 are in Ireland, have raised €91 million in equity funding to date, and have a current annual turnover of €71.2 million. Furthermore, these same companies expect to create 851 new jobs by 2016, with 630 of them in Ireland.

Today, NovaUCD-supported companies contribute €34.5 million a year in Gross Value Added (GVA) to the Irish economy and a further €7.7 million GVA to the international economy. Between them these companies currently support 1,252 jobs, directly and indirectly, of which 1,022 are based in Ireland and 230 internationally.

Since 2003 the University has earned €5.2 million in commercialisation income. This includes €3 million from the sale of shareholdings in spin-out companies and €2.2 million in royalty-related income, of which 12% has come from Irish-owned companies, 54% from multinational companies with a base in Ireland and 34% from multinationals with no Irish presence.

As a direct result of entering into licensing agreements with UCD, businesses have been able to increase their annual turnover in Ireland by an average €3.6 million and international turnover by €5.8 million.



Donal Ryan, Managing Director and Dr Emmeline Hill, Co-founder, Equinome

Intellectual property developed at UCD currently generates an additional €2.1 million GVA for the Irish economy and an additional €3.4 million GVA for the international economy and supports a total of 89 additional jobs each year.

The scale of NovaUCD's contribution to Ireland's economy looks set to increase significantly in years to come.

BiGGAR Economics estimate that, by 2016, existing supported companies will be generating €64 million GVA for the Irish economy each year and directly and indirectly supporting 1,900 jobs in Ireland, as well as contributing €18.2 million GVA and supporting 538 jobs in the international economy each year.

By 2016 total entrepreneurial and commercialisation activities at NovaUCD, assuming that the income generated by intellectual property remains in line with the trend of the past 10 years, will be generating €87.7 million GVA a year and supporting directly and indirectly some 2,527 jobs in all. Some €66.1 million of this GVA and 1,934 of these jobs will be within Ireland.

# €47.7 million

NovaUCD activities support an annual contribution of €47.7 million (gross value added) to the worldwide economy, €36.6 million in Ireland

## NovaUCD – Key Economic Impact Data (2003-2013)

### Companies supported

- 242: Companies and early-stage projects supported
- 126: Companies incubated at NovaUCD
- 30: UCD spin-out companies incorporated

### Commercialisation activities

- €6.3 million: Value of R&D collaboration with UCD by NovaUCD-supported companies
- €5.2 million: UCD's commercialisation income
- 445: Inventions disclosed
- 318: Patents filed
- 81: Licence agreements concluded

### Equity and turnover

- €91 million: Equity funding raised
- €71.2 million: Current annual turnover of NovaUCD-supported companies

### Current employment impact

- 1,056: jobs (direct & indirect) currently supported by NovaUCD's activities in Ireland
- 285: jobs (direct & indirect) currently supported by NovaUCD's activities outside of Ireland

### Current economic value

- €36.6 million: NovaUCD's total annual GVA contribution to the Irish economy
- €11.1 million: NovaUCD's total annual GVA contribution to the international economy

### Expected employment impact by 2016

- 1,934: jobs (direct & indirect) supported by NovaUCD's activities in Ireland
- 593: jobs (direct & indirect) supported by NovaUCD's activities outside of Ireland

### Expected economic value by 2016

- €66.1 million: NovaUCD's total annual GVA contribution to the Irish economy
- €21.6 million: NovaUCD's total annual GVA contribution to the international economy

# Supporting New Ventures and Entrepreneurs

2,527

NovaUCD activities will be supporting a total of 2,527 jobs worldwide by 2016, 1,934 in Ireland

University College Dublin has a proven track record in supporting entrepreneurs and new ventures on campus at NovaUCD, from the early feasibility stage, through to business development, growth and investment.

## Office Facilities

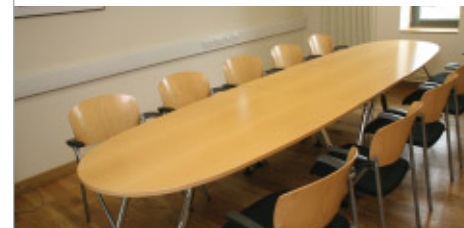
The buildings at NovaUCD, which cover 4,500 sq.m., are bright, airy and open with high-quality shared and circulation spaces that encourage the informal and formal interactions necessary for the development of a community of entrepreneurs.

At NovaUCD a wide range of flexible occupancy options (desk space, business units and bio-incubation) are provided to entrepreneurs to enable them to move as their businesses grow. The office facilities consist of 14 desk spaces, 45 business units (ranging from 12 sq.m. to 64 sq.m.) and 10 bio-incubation units (ranging from 17 sq.m. to 64 sq.m.).

The bio-incubation units are equipped with power and water supply, sinks, fume hoods and benching, as well as voice and data points. Shared facilities available include fridge freezers, de-ionised water, ice machines, dishwashers etc.

## Additional Facilities and Services

At NovaUCD, which has 24/7 access, additional facilities and services include; reception services, a permanent boardroom, seminar and meeting rooms, a dedicated video conferencing room, wireless network, a dedicated server room and a café with external decking.



Facilities at NovaUCD

### Support Programme for New Ventures

A comprehensive business support programme is offered to client companies. This comprises advice, clinics, seminars and workshops as well as facilitated access to the NovaUCD network of world-class UCD researchers, business leaders, NovaUCD sponsors and investors.

### Workshops and seminars

At NovaUCD a series of workshops and seminars are provided on average three times per month on topics based upon client requirements. The workshops cover issues which affect knowledge intensive start-up companies such as: raising investment, business development and sales, finance and tax, product positioning and intellectual property. The workshops generate group discussion and interaction around key issues and assist clients to establish new networks as part of the community of entrepreneurs at NovaUCD.

In addition, a specialist investment series frequently takes place at NovaUCD which brings in investors to discuss their funds and provides the opportunity for clients to interact with investors informally through a one-to-one meeting.



Dr Hermann Hauser, serial tech entrepreneur and venture capitalist, speaking at a NovaUCD seminar



€87.7 million

NovaUCD activities will be supporting an annual contribution of €87.7 million (gross value added) to the worldwide economy by 2016, €66.1 million in Ireland

€71.2 million

NovaUCD-supported companies  
have a current annual turnover  
of €71.2 million

Brendan Clavin and Brian Farrell, Co-founders, Tethras

Tethras, based at NovaUCD, provides a localization and translation service for mobile apps

### NovaUCD Client Companies

Over 45 innovative new ventures are current clients at NovaUCD. Many of these are spin-out companies that are commercialising research specifically undertaken at UCD. The remaining are spin-in companies that have located at NovaUCD in order to interact more closely with the University. See Appendix 2.

In addition over 50 companies have graduated from NovaUCD and moved on to new premises. It is an important element of NovaUCD's strategy to refresh continuously our community of entrepreneurs and to have the capacity at all times to take on new projects. See Appendix 3.

### Current clients include:



# 126

126 companies have been incubated at NovaUCD during the last 10 years

### **NovaUCD Campus Company Development Programme**

The NovaUCD Campus Company Development Programme (CCDP), which ran annually from 1996-2012, was the main support programme run at NovaUCD for UCD academic and research entrepreneurs who were establishing UCD spin-out companies.

The aim of the CCDP was to assist such entrepreneurs in the establishment and development of knowledge-intensive enterprises to commercialise the output of their research and other innovative ideas.

The programme assisted participants to define and develop their innovative ideas and to prepare a detailed business plan.

Each year the programme culminated in an awards evening during which the promoters of each project delivered an 'elevator pitch' to an invited audience. The business plans of three shortlisted projects were then presented in detail before the panel decided on the overall winner who was presented with the annual NovaUCD CCDP Award.

The winners of this award for each year since 2004 are provided in Appendix 4.

30

30 UCD spin-out companies  
have been incorporated  
over the last 10 years



Dr Peter Richardson, a postdoctoral researcher in UCD's School of Electrical, Electronic and Communications Engineering, a participant on the first UCD Commercialisation Bootcamp

### **VentureLaunch Accelerator**

The NovaUCD Campus Company Development Programme has been further developed and enhanced and, from September 2013, it will be called the UCD VentureLaunch Accelerator Programme.

VentureLaunch, which uses the Business Model Canvas approach, is UCD's new accelerator programme, held at NovaUCD, to support the creation and launch of sustainable and profitable new ventures based on UCD intellectual property.

The objective of the programme, run by staff of the Office of the Vice-President for Innovation, is to equip UCD researchers with the knowledge, skills and understanding that will be required to work as part of a team leading a new commercial venture. On completion of the programme, the expectation is that participating new venture projects will have developed a commercially viable business plan.

The annual programme will end with an annual showcase event during which the overall winner of the programme will be announced.

### **UCD Commercialisation Bootcamp**

In 2013 a new UCD Commercialisation Bootcamp was delivered for the first time. The Bootcamp took place over a five week period at NovaUCD. The overall aim of the Bootcamp, which will run twice a year, is to strengthen the pipeline of commercial opportunities arising from UCD research programmes.

The Bootcamp's objective is to equip academic researchers, staff and postgraduate research students with the knowledge, skills and understanding of the commercialisation process.

On completion of the Bootcamp, participants will have developed a solid awareness of what it takes to build a commercialisation plan around their research outputs.

It is envisaged that researchers who complete this new Bootcamp, and whose commercialisation strategy includes the establishment of a spin-out company, may progress to participate on the VentureLaunch Accelerator Programme.

# Managing Technology Transfer

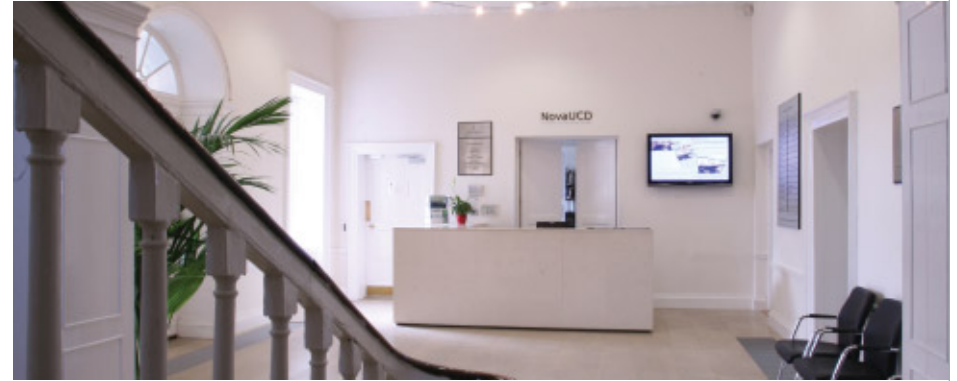
The primary function of UCD's technology transfer team, which is based at NovaUCD, is built around the key activities of:

- (i) identifying intellectual property (IP) arising from UCD research programmes
- (ii) protecting this IP as appropriate
- (iii) commercialising this IP whether through licensing to a commercial partner or through the creation of a spin-out company.

UCD's technology transfer operations are partially supported with funding provided by Enterprise Ireland under the Technology Transfer Strengthening Initiative.

## 445

445 inventions have been disclosed by UCD researchers during the last 10 years



NovaUCD reception area

## Identifying, Protecting and Commercialising Intellectual Property

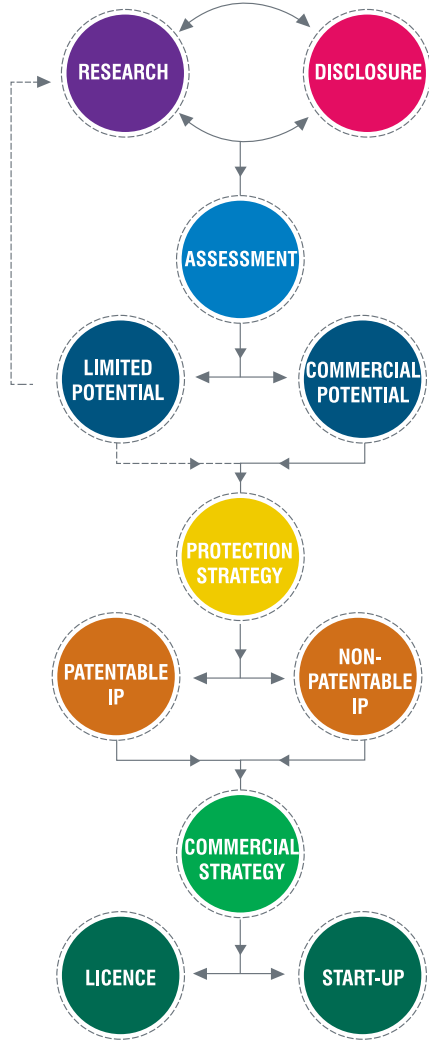
UCD has a structured approach to ensure that intellectual property is identified and appropriately protected. Members of the technology transfer team regularly meet with UCD researchers to provide advice on commercial aspects of research proposals and contracts, to monitor the progress of research projects and provide appropriate assistance to the researchers at the different stages of their research projects. They also remind researchers of the University's contractual obligations to funding agencies and companies. In addition they also implement the University's policy on intellectual property.

The UCD technology transfer team is primarily responsible for ensuring that the intellectual property terms on ownership and access rights reflect the objectives of the project, do not conflict with any other agreements into which UCD has entered, comply with State Aid Rules, the requirements of the Funding Agency Guidelines and National Codes of Practice, and importantly preserve wherever possible the researcher's right to publish and use the intellectual property in future research projects.

## €5.2 million

UCD's commercialisation income over the last 10 years is €5.2 million

# UCD Commercialisation Process



81

UCD has concluded 81 licences with national and international businesses during the last 10 years

## Links with Industry & Commercial Opportunities

Bridging the gap between academic research and industry, and building relationships with industry, are key elements of UCD’s commercialisation strategy. The University, through the Office of the Vice-President for Innovation, has a growing portfolio of licence deals. These will benefit the companies licensing the technology by making them more competitive, helping them to create new products, achieve scale and generate employment. Hopefully, with time, this will yield financial returns to the University and the inventors.

## NovaUCD Innovation Award

The NovaUCD Innovation Award was established in 2004 and is presented annually to an individual, company, organisation or group in recognition of excellence in innovation or of success achieved in the commercialisation of UCD research or other intellectual activity.

Recipients of this award since 2004 are listed in Appendix 5.

**Note:** A listing of the UCD researchers who have disclosed inventions to the UCD technology transfer team since 2004 is provided in Appendix 6.

318

UCD has filed 318 patents during the last 10 years




€91 million

NovaUCD-supported companies have to date raised €91 million in equity funding

NovaUCD courtyard at night

# Case Study

## Enterprising Academic Creates Jobs

A close-up portrait of Professor Barry Smyth, a middle-aged man with short, wavy brown hair and black-rimmed glasses. He is smiling slightly, showing his teeth. He is wearing a blue denim jacket over a light-colored collared shirt. The background is a blurred window with white frames.

*Some people find it hard to manage one job. Professor Barry Smyth juggles three – teacher, researcher and entrepreneur.*

Professor Barry Smyth

Some people find it hard to manage one job. Professor Barry Smyth juggles three - teacher, researcher and entrepreneur. Smyth holds the Digital Chair of Computer Science at UCD and he loves the lecturing and research aspects of this role. However, he also has a knack for spotting ideas with strong commercial potential. Smyth has been the driving force behind two UCD spin-out companies, ChangingWorlds founded in 1999 and HeyStaks established in 2008.

Smyth rarely stands still. UCD has filed more patents (eight) for inventions resulting from Smyth's research than any other researcher at UCD in the last 10 years. He has published in excess of 400 research papers, has led research projects worth in excess of €57 million and is the Director of the Science Foundation Ireland-funded CLARITY: Centre for Sensor Web Technologies and the recently established INSIGHT Centre. Smyth is also an experienced industry collaborator having partnered with companies such as Vodafone, Givaudan, Amdocs and SkillPages.

Clever ideas are central to what makes Smyth the researcher tick. But Smyth the entrepreneur is careful not to let his enthusiasm for an idea cloud his commercial judgment. "I think I have a decent instinct for these things but I'm a firm believer in filtering ideas, not the good from the bad, but the ones that are commercially relevant from the ones that are not," he says.

"Since NovaUCD was established it has always been my first port of call to bounce an idea or pursue IP protection. There is a huge amount of complexity around getting companies off the ground. Anything that helps make it easier is much appreciated. We still do the heavy lifting but at NovaUCD, training, guidance and great facilities such as easy access to office space on campus are provided. Life would be much more difficult if I was trying to commute between College and an office in town for example."

With Smyth's involvement, ChangingWorlds became a leading global provider of mobile content discovery systems employing some 150 people. Its advanced research centre was based at NovaUCD until 2008 when the company was acquired by Amdocs, a global leader in unified communications and network services solutions. A significant number of Smyth's former senior research students found employment with ChangingWorlds. This was a good outcome for the UCD graduates, but also for the company as it was heavily populated with experienced PhDs as a result.

Smyth loves building solutions and says the best way of seeing them come to fruition is through developing products that people use. "ChangingWorlds is a mature example of this process as the technology ultimately found its way into the hands of millions of people," he says. "It predates App stores so anyone using the mobile Internet on a smart phone a few years ago was probably using ChangingWorlds software."

"By comparison HeyStaks is at an early-stage in its development. We have just finished a product development cycle and currently employ just under 10 people. In about a year's time we will be looking to recruit between 30 and 40 people as we move to the next phase of our development."

Smyth says he learnt a lot from participating in the NovaUCD Campus Company Development Programme. "I did it in 1999 and have sent numerous students on it since. It's a great way of broadening the mindset of someone doing a PhD whose head is deep in their research. It makes them think more commercially about what they're doing," he says.

"For me setting up ChangingWorlds was about getting the technology into the hands of real people and seeing how it worked. As a researcher you develop ideas and then try to evaluate them. But lab conditions are often unsatisfactory because they are small scale and an artificial evaluation environment - especially for the type of software we were building. The second reason for spinning-out is to create a business that brings jobs. I have a view of research that includes patenting, protection and commercialisation. As funded academics I think we have an obligation to try to develop something beyond the research bench where that's possible."


Smyth says that as a busy academic, the support and services at NovaUCD have played a big part in helping him express his entrepreneurial spirit.

"This may sound like a strange thing to say, but when you're involved in really exciting research as I am, there is huge competition for your head. There are often more interesting things I could be working on instead of company development stuff. If there hadn't been support provided through NovaUCD it would have been all too easy to have focused on something else and maybe let the projects fall by the wayside."

**"Since NovaUCD was established it has always been my first port of call to bounce an idea or pursue IP protection."**

# Case Study

Savouring the Taste of Success

A close-up portrait of Professor Dolores O'Riordan, a woman with short dark hair, smiling warmly. She is wearing a light-colored blazer over a red top. The background is a blurred laboratory setting with white equipment and shelves.

*Researchers at the UCD Institute of Food and Health have spent the last two years developing a new health food technology that delivers every snack food lover's dream - healthy, guilt-free nibbles.*

Professor Dolores O'Riordan

Researchers at the UCD Institute of Food and Health have spent the last two years developing a new health food technology that delivers every snack food lover's dream - healthy, guilt-free nibbles.

The research team is led by Professor Dolores O'Riordan, Director of the Institute and a leading researcher in the UCD School of Agriculture and Food Science. Under her guidance the team has developed and patented ground-breaking technology with the potential to produce a savoury snack that is high in protein and fibre but low in fat and salt.

Professor O'Riordan has a long track record of successful engagements with industry and, in conjunction with UCD's technology transfer team based at NovaUCD, brought the technology to the point where it was ready for marriage with a commercial partner. Through the efforts of UCD and Enterprise Ireland, the technology has now been licensed to Largo Foods, the makers of one of the nation's favourite snack foods - Tayto crisps.

Largo Foods is a major producer of savoury snacks in Ireland. Apart from Tayto, the company also manufactures King, Perri and Hunky Dorys, and has a 50% share of the Irish snack foods market.

The significance of the technology developed by the UCD research team was immediately recognised by Largo's Operations Director, John Donnelly. "The technology represents a very different take on how to make a snack product and is quite 'out there' in terms of innovative thinking and breaking new ground," he says. "In its raw state it was some distance away from being usable in a full scale manufacturing setting to create a commercially viable product. However, we felt it was worth taking the opportunity of developing the technology further as the potential reward is huge."

"I come from a food science background so product and process are two of my areas of interest and I was very interested by what UCD had come up with," adds Donnelly whose responsibilities at Largo cover manufacturing, quality and new product development.

The UCD team presented the technology to Largo two years ago and Professor O'Riordan says a strong relationship has developed between the two organisations since. "We visited Largo to learn how its business worked and to understand its ethos and we found a company that was progressive, open to new ideas and willing to take a risk. Largo is very entrepreneurial and not at all wedded to convention," O'Riordan says.

Once the licensing agreement was put in place work began in UCD on scaling up the technology while Largo began looking at the potential from the consumer perspective, identifying what style of product was needed and where it might be positioned in the market.

"The product is quite different to anything else that's out there. The texture and flavour are not like your typical dense high fibre snack," O'Riordan explains. "What we've achieved is innovative on two levels. The combination of ingredients we have put together is unusual but so too is the manufacturing process. Indeed the really challenging part for the researchers has been to create and scale the manufacturing technology in a way that takes account of key factors in a commercial environment such as energy costs."

The process of patenting the technology and finding a suitable company to buy it was undertaken by UCD's technology transfer team which is based at NovaUCD.

"The UCD technology transfer team was a fantastic support throughout the whole process," Professor O'Riordan says. "They did all of the background work and checks from the patent point of view and advised on the best route to take to protect the IP involved. They subsequently liaised with Largo Foods and drew up the terms of the agreement with them. More generally they play an important role in training and advising researchers in the area of IP as it's not a skill scientists would normally have."

While Largo Foods has its own research and development facilities, John Donnelly says that its R&D is more directly related to its day-to-day business and that resources committed to research are generally linked with specific commercial objectives.

"What UCD is doing for want of a better word is more 'academic' research in that they are not only pushing but reinventing the boundaries and this is not something one would tend to do in a company setting," he says. "By working with them we have gained access to that leading-edge research and to what may ultimately be a snack product with worldwide sales potential."

**"The UCD technology transfer team was a fantastic support throughout the whole process."**

# Case Study

## Revolutionising the Diagnosis of Sleep-Disordered Breathing

*Over 60 million people in Europe and the US alone are affected by sleep-disordered breathing.*

Dr Conor Hanley

MED



Sleep-disordered breathing is surprisingly common and a major contributor to health problems such as high blood pressure and congestive heart failure. Sound sleepers take their undisturbed rest for granted. For those who suffer from sleep-disordered breathing, there is no such thing as a good night's sleep. Over 60 million people in Europe and the US alone are affected by this condition.

In 2003, the UCD spin-out company, BiancaMed, launched a pioneering product that radically changed how sleep disordered-breathing is diagnosed. At the heart of the company's proprietary technology was a highly sensitive, radio frequency motion sensor that detected respiration and movement without being connected to the body.

It uses sophisticated biometric software to convert motion data into a measurement of sleep and made it possible to monitor those with sleep problems at home in their natural sleeping environment. Prior to this, diagnosis was expensive, complicated and typically involved a patient being wired up to monitors in a sleep laboratory.

BiancaMed was a spin-out from research undertaken in UCD's School of Electrical, Electronic and Communications Engineering by Professor Conor Heneghan and Dr Philip de Chazal. The company's third co-founder was Dr Conor Hanley who is widely experienced in technology commercialisation.

BiancaMed was set up at NovaUCD in 2003 and Dr Conor Hanley says the experience of being based there was extremely positive. "The actual physical environment is very nice as there's an architectural mixture of old and new. There's a coffee shop at the heart of the building and the cost of a coffee was kept deliberately minimal to incentivise entrepreneurs to congregate, mingle and share ideas," he says.

"Developing a start-up can actually be quite a lonely path and the emotional support of having people around you in a similar situation was very valuable. This idea of an open area is something we've replicated in our new offices at NexusUCD. So too is having labs close to our desks as we did at NovaUCD. We have tried to capture some of the essence of NovaUCD by creating a working environment that is conducive to collaboration."

Hanley says the fledgling company also benefited from NovaUCD's programme of guest speakers, visits from service providers and the availability of the NovaUCD Campus Company Development Programme. "They covered all the bases from formal business training to providing access to experts and mentors and interaction with other companies going through the same process. This helped accelerate the learning process," Hanley says.

"We have evolved quite significantly since we were set-up and the supports and services provided at NovaUCD certainly made it easy to grow," he adds. "For example, the building is designed in such a way that the space is flexible so you can have more room if you need it."

One of BiancaMed's early investors was the US-based medical devices company, ResMed, a global leader in the development of products for the diagnosis, treatment and management of respiratory disorders, particularly sleep-disordered breathing. In 2011 it acquired the company, which has since been renamed as ResMed Sensor Technologies.

"ResMed is committed to advancing innovative technology in sleep and respiratory medicine and BiancaMed was a strategic acquisition that has allowed it to expand its diagnostic range and patient reach," says Hanley who is now Senior Vice-President, ResMed Ventures & Initiatives.

"We had global ambitions from the start and set out with the vision of moving monitoring from the hospital to the home. Looking to the future there is going to be much greater connectivity between the home and the hospital and remote monitoring will play an increasing role in this. ResMed's vision is helping change people's lives one breath at a time so culturally they were quite aligned with us and it was a good fit."

Following the acquisition, the company graduated from NovaUCD to NexusUCD, the Industry Partnership Centre, located adjacent to the main University campus at Belfield. ResMed Sensor Technologies employs over 30 people at its new base and plans to expand its facility at NexusUCD with the creation of up to 50 new jobs over the next three years.

"Ireland has quite a few things to offer companies like ResMed such as the technology and expertise we've built up here around medical devices," Hanley says. "Secondly, there's a lot of foreign direct investment around IT and thirdly there's quite good industry-academic collaboration. Other positives of being located in a small country include being able to network quite well, test business models and interact easily with people."

**"Developing a start-up can actually be quite a lonely path and the emotional support of having people around you in a similar situation was very valuable."**

# Case Study

Using DNA to Pick a Winner

*It is the question that has perplexed race goers for generations. What makes one horse run faster than another?*

Dr Emmeline Hill



It is the question that has perplexed race goers for generations. What makes one horse run faster than another?

According to Dr Emmeline Hill, a leading horse genomics researcher and lecturer in the UCD School of Agriculture and Food Science, the answer lies in the genes. In 2009 her NovaUCD-headquartered company, Equinome, launched a pioneering test to prove it.

Hill's research into the so-called "speed gene" began in 2004 when she received funding from Science Foundation Ireland to look at the genetic influences on racing performance in Thoroughbred horses. Hill comes from a family steeped in the horseracing tradition and it was her unique combination of scientific and industry knowledge that led to the development of the Equinome Speed Gene Test.

Built around scientific excellence, Equinome's proprietary technology can predict the best race distance (short, middle or long) for an individual horse. This has the potential to transform how those in the multi-billion global bloodstock industry make key decisions. For example, racehorse owners and trainers can use the information for purchasing and training and to identify the most appropriate races for their horses. Breeders, stallion managers and bloodstock agents can use the test to make more precise selection and breeding decisions.

Hill says the support and backing of NovaUCD and her partnership with horse trainer, Jim Bolger, were key elements in the successful launch of Equinome. "I didn't start out with the expectation of building a successful global business but in fact that is what has been achieved. We have customers in 14 countries in all the major bloodstock regions in the world," she says.

While Equinome was still taking shape, Hill joined the NovaUCD Campus Company Development Programme, a nine-month, part-time enterprise-support initiative aimed at giving academics practical business training and consultancy support. In fact Equinome was the overall winner of the 2009 programme.

"When it became apparent that we had a product with good commercial potential I made contact with the team at NovaUCD. Their support was really important to the company's development as they provided the commercialisation know-how and the IP protection knowledge which I didn't have. They also gave me the confidence to believe in my idea. This is really important when you don't come from a business background. To have a partner of Jim Bolger's calibre and experience on one side and NovaUCD on the other was of huge value."

In business, timing is everything and, on the face of it, 2010 was not a good year for Equinome to start pitching a pioneering product at the Irish bloodstock market. The industry had suffered a major downturn due to the recession and there was a 40% drop in the number of new foals being born.

Equinome's original plan of finding its feet in the Irish and UK markets before going international was shelved. "We had to change our strategy very quickly and look to Australia, the US and other overseas markets," Hill says. "This actually proved beneficial in that we became established internationally much faster than we had intended. As a result, a large proportion of our customers are outside Ireland."

By the time the Equinome Speed Gene Test was launched, Hill's team had already begun work on other applications and, in 2011, a second product, the Equinome Elite Performance Test, was unveiled. This identifies horses with the greatest genetic potential for racecourse success.

Equinome now employs six people in Ireland and has a permanent office in Melbourne, Australia. All of the testing is carried out at UCD with samples flown in daily from around the world.

"We have broken new ground but we won't be sitting back," Hill says. "It is our intention to continue developing new products and we will be adding another test to our portfolio in the near future. There is also ongoing work we can do to refine our testing as new pieces of technology become available. For now the focus is on the Thoroughbred industry but we may look at new areas. We are only going three years and did meet a certain level of conservatism early on. But that has changed. We are talked about in the racing media and people know who we are."

While Hill acknowledges that teaching full-time, carrying out research and being involved with Equinome is demanding, she believes that both her company and UCD benefit from her close association with academia and industry. "My research has been critical to the development of the company as has access to the body of knowledge that resides in UCD. In return UCD derives income from the licence agreement, there are job opportunities for UCD graduates with us and the University has strong links with a company at the leading-edge in its field," she says.

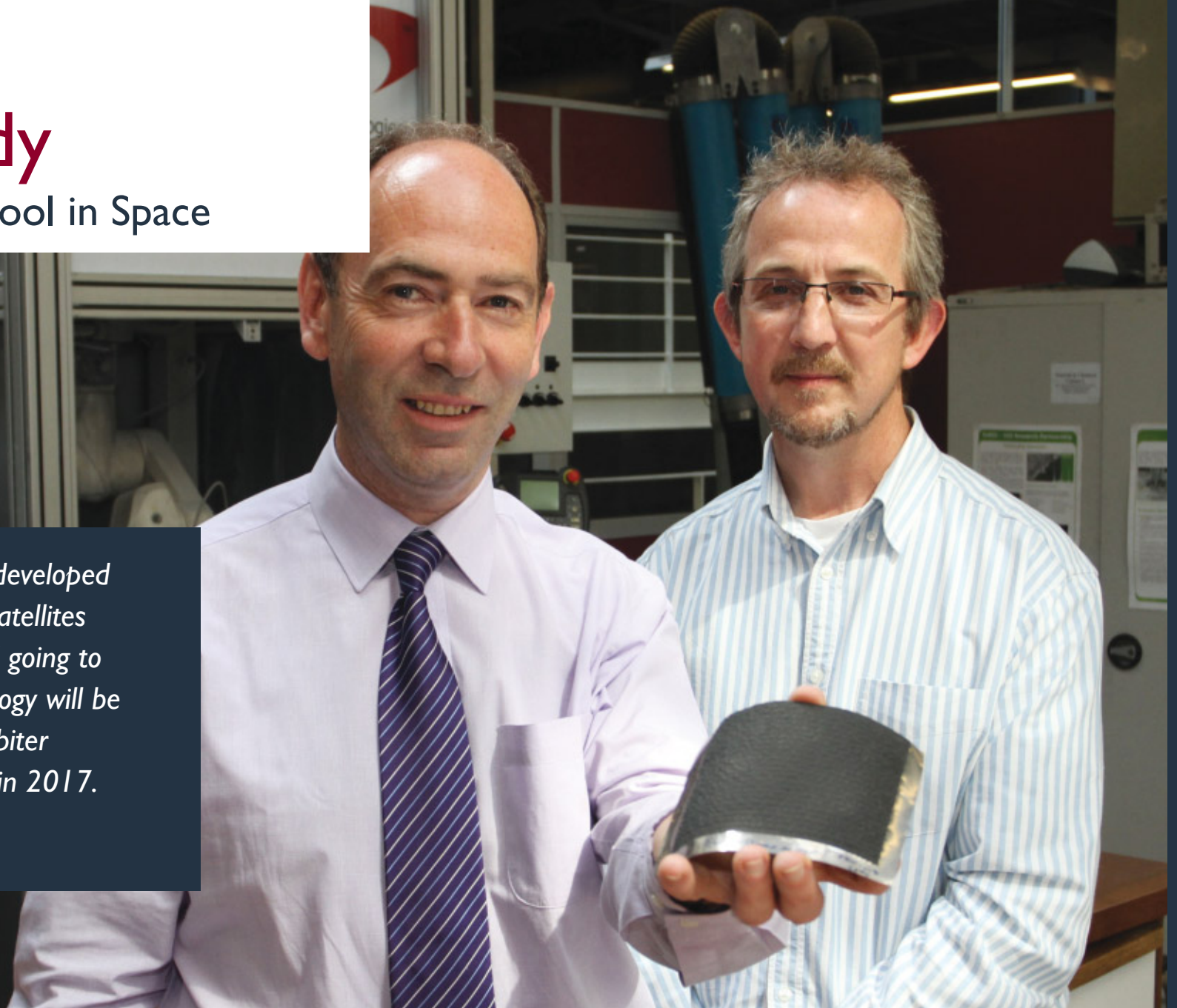
**"I didn't start out with the expectation of building a successful global business but in fact that is what has been achieved."**

# Case Study

## Keeping Things Cool in Space

*In simple terms, Enbio has developed a 'sunscreen' that protects satellites travelling through space. All going to plan, the company's technology will be used on board the Solar Orbiter satellite mission to the Sun in 2017.*

Dr Denis Dowling and John O'Donoghue



In December 2012, Irish surface technology company Enbio got the breakthrough every start-up dreams of - it landed a substantial contract with the European Space Agency. This brought international peer recognition and positioned the company as a serious player in the space arena.

In simple terms, Enbio has developed a 'sunscreens' that protects satellites travelling through space. All going to plan, the company's technology will be used on board the Solar Orbiter satellite mission to the Sun in 2017.

At the core of the company's success is CoBlast a patented platform technology developed by company founder, John O'Donoghue. "Our technology offers unique surface solutions to challenges across multiple sectors including aerospace, energy, automotive and medical devices," he says.

"CoBlast is the grit blasting of a mixed media stream of particles to the surface of a metal in order to strip off and replace the naturally occurring oxide layer. All modern lightweight metals have this layer and it makes it difficult to join anything to those surfaces. We have found a way past that natural barrier and what is underneath is highly reactive. If you can put something onto that surface before the oxide layer naturally grows back - which happens in a fraction of a second - it will bind strongly to the metal, if it has an affinity for it."

In the case of the Solar Orbiter mission, the CoBlast technology is being used to produce "black" surfaces that combine extreme thermal and ultra-violet radiation stability, robustness, and electrical conductivity. Together they provide satellites and their payloads with better protection from extreme solar radiation than is currently available.

Enbio, a UCD spin-in company, has been based at NovaUCD since 2011 when the company relocated from Cork. "Being based at NovaUCD, in particular, and UCD, in general, has made this new phase of Enbio sing," says John O'Donoghue.

"It's a stimulating environment to work in and a rich environment in which to recruit. There is also the interaction with the wider University, which is invaluable. The team at NovaUCD has also facilitated everything we needed to do to get our manufacturing plant up and running."

One of Enbio's key collaborators at UCD is Dr Denis Dowling, Director of the UCD Surface Engineering Research Group and winner of the NovaUCD 2012 Innovation Award. Dowling's extensive experience in this field has led to the successful commercialisation and licensing of a number of the technologies he has developed. These technologies have subsequently been

applied in areas as diverse as food science and the biocompatibility of implanted medical devices. Since 2003, Dowling has submitted 14 invention disclosures to UCD's technology transfer team at NovaUCD.

"NovaUCD provides a framework that allows my research to move to the next stage," Dowling says. "They help assess the commercial potential of an idea and if it has value they will look after IP and patenting issues as well as licensing the technology to industry."

Dowling's connection with Enbio started out through Enterprise Ireland's Innovation Partnership Programme where UCD's role was to obtain a fundamental understanding of the technology Enbio wanted to develop. "From the University's perspective the interaction was highly beneficial as we had the opportunity to work on a challenging new technology. From the company's point of view our involvement gave it access to our knowledge base and to joint publications it was then able to use when pitching for financial support to develop the company," Dowling says.

Enbio's initial focus was the medical devices sector, but when this market proved over-complicated for a start-up to penetrate, it began looking at alternative industries. "I helped them write their first European Space Agency proposal which was successful and they did all the running from there," Dowling says.

"Being located at NovaUCD is ideal for a company like Enbio as it provides a framework and a facility that allows entrepreneurs to develop as part of a community. If you're working on a start-up on your own and you have a bad day it can be very negative.

"At NovaUCD entrepreneurs can bounce ideas and get access to the people they need through networking with like-minded individuals. This sort of collegial engagement is very valuable in terms of helping a company to get going," Dowling adds.

"If you were to ask me what's the essence of being here at NovaUCD, I'd have to say it's the calibre of the people. It's just a fantastic place to be," John O'Donoghue says.

**"Being based at NovaUCD, in particular, and UCD, in general, has made this new phase of Enbio sing."**

# Office of the Vice-President for Innovation

Professor Peter Clinch is UCD's Vice-President for Innovation and he leads the Office of the Vice-President for Innovation which is based at NovaUCD. The members of the team and their contact details are given below.

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 Facebook: www.facebook.com/ucdinnovation  
 YouTube: www.youtube.com/ucdinnovation  
 LinkedIn: UCD Innovation and NovaUCD Groups

## Updates:

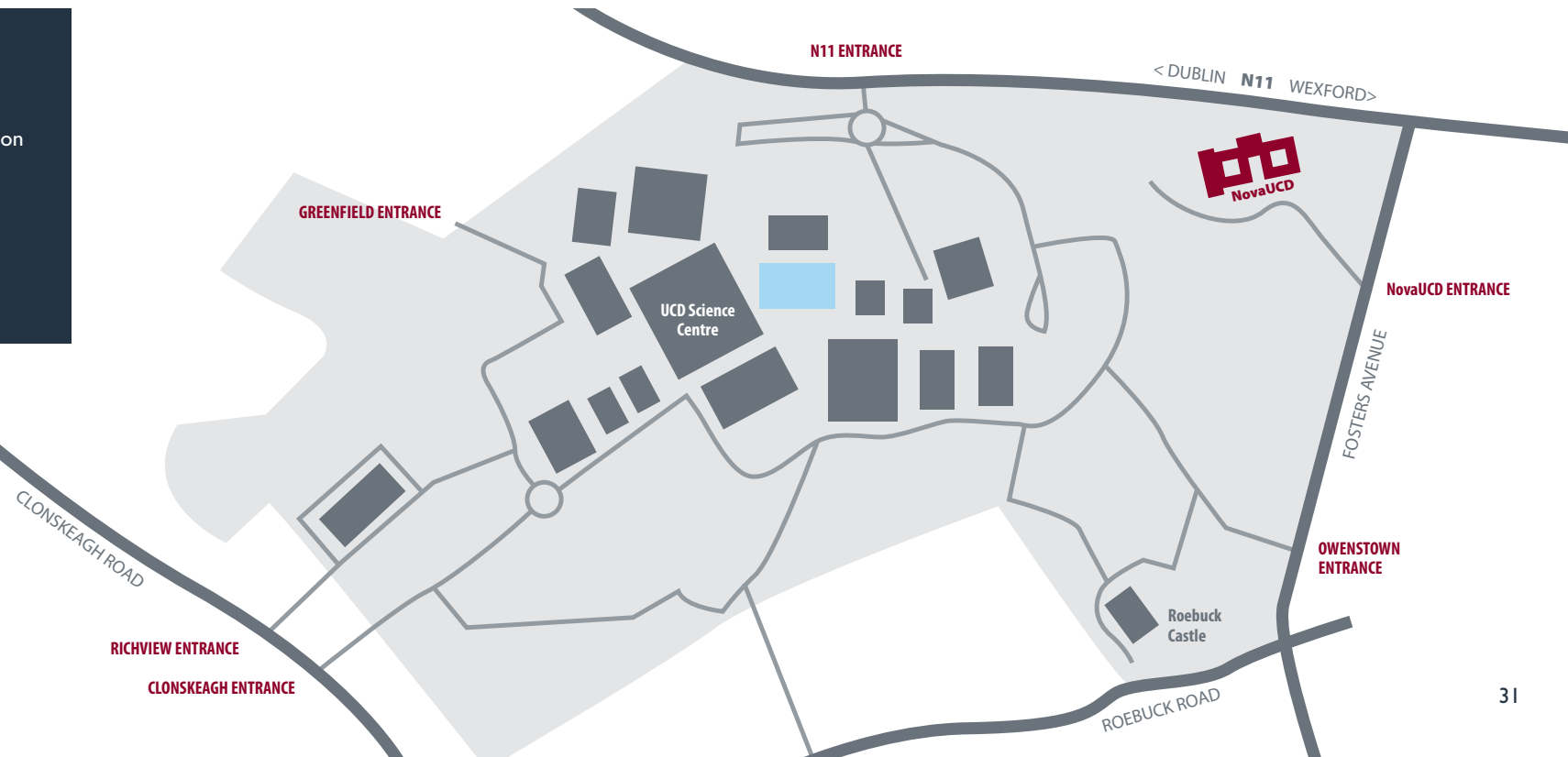
If you would like to receive regular updates on news and events of interest please subscribe via [www.ucd.ie/innovation/subscribeupdates](http://www.ucd.ie/innovation/subscribeupdates)



## NovaUCD Location and Directions

The vehicular entrance to NovaUCD is located on Fosters Avenue, approximately 200m from the Stillorgan dual carriageway (N11). The road from this gate leads directly towards NovaUCD. Car parking for visitors is on the right hand side of the road, before reaching NovaUCD. Visitors may also park in one of the University car parks and approach NovaUCD on foot.

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## Appendix I: From University Industry Centre to NovaUCD

The University Industry Centre (UIC), designed by Ronnie Tallon of Scott Tallon Walker Architects, was officially opened on 20 May 1985 by Dr Garret FitzGerald TD, who was An Taoiseach at the time. The Centre was established as a focal point for University-industry co-operation on the UCD campus.

The Centre was an initiative of the UCD Engineering Graduates Association, which was established in 1982 by Dr John Kelly, Dean of Engineering and Architecture, and its first chairman, Dr Tom Hardiman. The Engineering Graduates Association believed that the future of Irish industry could be greatly assisted by closer co-operation between industry and UCD.

Their intention was that the UIC would encourage such interaction by providing a location for technical meetings, continuing professional education courses, industrial exhibitions and seminars. The development of the UIC marked the implementation of a new policy in UCD towards greater University-industry co-operation.

The Engineering Graduates Association established the University Industry Educational Trust to raise funds to finance the construction of the UIC. Under the direction and with the support of Dr John Kelly, Dr Tom Hardiman and Dr Paddy Galvin, the Trust raised £1 million from some 450 individuals and companies. Most of the money came from Irish industry, but also from engineering academic staff and graduates.

Dr Tom Hardiman was appointed chairman of the board of the UIC, which comprised senior representatives of industry and the University. Dr Hugh Quigley, who was the Centre's first director, initiated a range of programmes, particularly in Continuing Professional Education (CPE).

In 1988 Dr Pat Frain was appointed Director and the University Industry Programme (UIP) was established to develop innovation, technology transfer, CPE and other forms of co-operation between the University and the industrial and business community in Ireland and overseas.

The Campus Innovation Centre (CIC) was established at Roebuck Castle in 1989 with the support of the IDA. The CIC consisted of twelve incubator units in an environment that facilitated the start-up and development of knowledge-based enterprises.

Throughout the 1990s the UIP supported the development of a range of successful multidisciplinary courses at the UIC, new ventures at the CIC and a number of patents and other commercial opportunities.

In the late 1990s the scarcity of incubation space and other facilities to support the activities of the UIP became an increasing constraint to commercialisation, enterprise development and industry co-operation at UCD.

In 2003 NovaUCD, an €11 million Centre for New Ventures and Entrepreneurs, was opened at Merville House with the support of a unique public-private partnership comprising UCD and AIB Bank, Arthur Cox, Deloitte, Enterprise Ireland, Ericsson, Goodbody Stockbrokers and Xilinx.

## Appendix 2: NovaUCD Client Companies

### NovaUCD's current client companies include:

Agricultural Magnetics	HeyStaks
AIB Seed Capital Fund	HiberGene Diagnostics
Aonta Technologies	IncaPlex
APC	Innovios
Aquens	Ionic Business Systems
Auranta	Kinesis Healthcare Technologies
Belfield Technologies	Life Scientific
Berand Neuropharmacology	MuteButton
bioMerieux	New Lambda Technologies
Bioplastech	OncoMark
Biosensia	Orion Veterinary
Cernam	Q-Validus
CityHook	RendezVu
Connectors Marketplace	ServiceFrame
Credit Expo Research	SmartBuilder Software
Crescent Diagnostics	Socowave
Dalton Kingswell	Stair
DOCOSoft	Synference
EgoNav	Talentevo
Enbio	Tethras
Enzolve Technologies	Voucher Pages
Equilume	Vu2Vu
Equinome	Wattics



Members of the Wattics team, winners of the 2012 Best Emerging Company Award, InterTradelreland All-Island Seedcorn Business Competition



Dr Ross O'Neill, Founder, MuteButton



Garrett Hussey and Paul Groarke, Co-founders, RendezVu, winners of the 2009, David Manley Emerging Entrepreneur Award

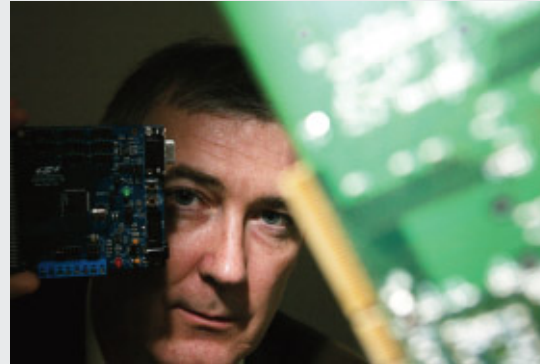


Dr Barbara Murphy, Founder, Equilume, winner Enterprise Ireland 2012 'One to Watch' Award

## Appendix 3: NovaUCD Graduate Companies

### Companies which have graduated from NovaUCD include:

Advanced Diagnostics Laboratory	Evolution
AER Sustainable Energy	gsmExchange.com
Alltracel Technologies	HomeInstead Senior Care
Aonta Technologies	Homewise.ie
AnaTech Silicon	Intelligent Health Systems
BiancaMed	Lightwave Technologies
(now ResMed Sensor Technologies)	Locumotion
Biosystems Engineering	Java Clinical Research
Broadcast Learning	Logentries
Carbon Decisions	LogScreen
Careergro	Management Briefs
Celtic Catalyst	Maritime Management
ChangingWorlds (now part of Amdocs)	Restored Hearing
Cornerstone Knowledge International	Sportora
Duolog Technologies	VideoCrisp
Embark Technologies	Visible Thread
EnvEcon	Visor
Eventznet	



Ray Bulger, Co-founder, Duolog Technologies



Rhona Togher, Co-founder, Restored Hearing



Abhinav Chugh, Founder, VideoCrisp



Tony Connolly, Founder, Visor

## Appendix 4: Winners of the NovaUCD Campus Company Development Programme Award (2004-2012)

**2012:** PurOrigin, Finbarr Maguire and David Ronan, Masters of Engineering students, UCD School of Mechanical and Materials Engineering

**2011:** APC, Professor Brian Glennon and Dr Mark Barrett, UCD School of Chemical and Bioprocess Engineering

**2010:** Logentries (JLizard), Dr Trevor Parsons and Dr Viliam Holub, UCD School of Computer Science and Informatics

**2009:** Equinome, Dr Emmeline Hill, UCD School of Agriculture and Food Science

**2008:** RendezVu (ASimil8), Paul Groarke and Garrett Hussey, a UCD spin-in company

**2007:** EnvEcon (AP EnvEcon), Professor Peter Clinch and Dr Andrew Kelly, UCD School of Geography, Planning and Environmental Policy

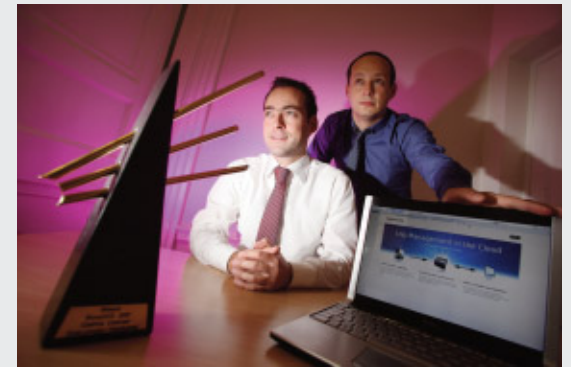
**2006:** FitFone, Dr Conor O'Brien, Royal College of Surgeons in Ireland

**2005:** Vocal Health Screen, Rosalyn Moran, PhD student, UCD School of Electrical, Electronic and Communications Engineering

**2004:** Nanosense, Dr Margaret Brennan, School of Physics, Trinity College Dublin



Professor Brian Glennon and Dr Mark Barrett, Co-founders, APC



Dr Trevor Parsons and Dr Viliam Holub, Co-founders, Logentries

*Note: In the early years of the CCDP, projects from other third-level institutions in Dublin participated on this programme.*

## Appendix 5: Winners of the NovaUCD Innovation Award (2004-2012)

**2012:** Dr Denis Dowling, UCD School of Chemical and Bioprocess Engineering and UCD School of Mechanical and Materials Science

**2011:** Professor William Gallagher, UCD School of Biomolecular and Biomedical Science

**2010:** The Fault Analysis Group, UCD School of Geological Sciences

**2009:** Nicola Mitchell, founder, Life Scientific, a UCD spin-in company

**2008:** Celtic Catalysts, a UCD spin-out company

**2007:** Professor Ciaran Regan, UCD School of Biomolecular and Biomedical Science

**2006:** Professor Conor Heneghan, UCD School of Electrical, Electronic and Communications Engineering

**2005:** Professor Barry Smyth, UCD School of Computer Science and Informatics

**2004:** Professor Mark Rogers, UCD School of Biology and Environmental Science



Professor William Gallagher and his daughter Kate



Dr Tom Manzocchi, Dr Conrad Childs and Professor John Walsh, joint Directors of the Fault Analysis Group



Nicola Mitchell, Founder, Life Scientific

## Appendix 6: Listing of Inventions Disclosed by UCD Researchers (2004-2013)

Lead Inventor	UCD School of	Title of Invention Disclosure
Adams, John	Electrical, Electronic and Mechanical Engineering	Co-Apt (A medical device for heart valves and leaflets)
Albrecht, Martin	Chemistry and Chemical Biology	Process for fabricating siloxanes and silicones
Allan, Bernard	Biomolecular and Biomedical Science	Skeletal cell line
Al-Rubeai, Mohamed	Chemical and Bioprocess Engineering	Disposable RotaBioreactor
Al-Rubeai, Mohamed	Chemical and Bioprocess Engineering	Biomarker for mammalian cell stress in Bioreactors
Al-Rubeai, Mohamed	Chemical and Bioprocess Engineering	Aseptic Sampling Valve Assembly (ASVA)
Al-Rubeai, Mohamed	Chemical and Bioprocess Engineering	An automated straining and flow cytometry process for suspension mammalian cells in culture for the monitoring and analysis of apoptosis
Archambault, Daniel	Computer Science and Informatics	Dynamic Multilevel Tag Clouds
Backert, Stefan	Biomolecular and Biomedical Science	A small fibronectin-mimicking protein from bacteria
Balado, Felix	Computer Science and Informatics	BioCode
Baugh, John	Medicine and Medical Science	Leucine-rich alpha-2-glycoprotein is a novel biomarker of ventricular dysfunction and heart failure
Belton, Orina	Biomolecular and Biomedical Science	Nitrosylated Conjugated Linoleic Acid [NCLA]
Bertolotto, Michela	Computer Science and Informatics	Generating Personalised Maps
Birtwistle, Marc	Biomolecular and Biomedical Science	Rapid multiplexed FRET biosensor cloning system
Blanco, Alfonso	Biomolecular and Biomedical Science	Flow Cytometer Simulator
Bleakley, Chris	Computer Science and Informatics	Method for Predicting the Dynamic Power Consumption of Processors
Bleakley, Chris	Computer Science and Informatics	Low Complexity H.264 Video Encoding Algorithm
Bleakley, Chris	Computer Science and Informatics	Enhanced IEEE 802.15.4 to reduce power consumption and latency
Bleakley, Chris	Computer Science and Informatics	Privacy aware location estimation by timing acquisition
Bleakley, Chris	Computer Science and Informatics	Reference free location estimation by timing acquisition
Bleakley, Chris	Computer Science and Informatics	Phase-difference ambiguity resolution for a single frequency signal
Bleakley, Chris	Computer Science and Informatics	iBell
Bleakley, Chris	Computer Science and Informatics	Method for collision free multi-hop IEEE 802.15.4 networks
Bleakley, Chris	Computer Science and Informatics	Motion capture system and method for exercise monitoring in gym (RepSonic)
Bleakley, Chris	Computer Science and Informatics	High accuracy digital ultrasonic range estimation
Bleakley, Chris	Computer Science and Informatics	1-Doppler-tolerant ultrasonic FHSS signal design and receiver algorithm for 3D motion tracking
Bleakley, Chris	Computer Science and Informatics	2-Motion capture system and method for exercise monitoring in gym (RepSonic)
Bleakley, Chris	Computer Science and Informatics	3-Ultrasonic motion tracking system with low cost Mobile Device
Brayden, David	Veterinary Medicine	Anti-inflammatory effects of polymeric conjugates
Brayden, David	Veterinary Medicine	Polymer-conjugated salmon calcitonin for the treatment of inflammatory conditions
Brayden, David	Veterinary Medicine	Hyaluronic acid-conjugated salmon calcitonin for the treatment of inflammatory conditions including osteoarthritis, rheumatoid arthritis

Lead Inventor	UCD School of	Title of Invention Disclosure
Brayden, David	Veterinary Medicine	Use of CriticalSorb-TM as an oral absorption enhancer in intestinal tissue
Brayden, David	Veterinary Medicine	Discovery of a novel epithelial permeation enhancer with potential to orally deliver poorly permeable molecules
Brazil, Tom	Electrical, Electronic and Communications Engineering	Discrete-Time representation of systems
Brazil, Tom	Electrical, Electronic and Communications Engineering	PAPR Reduction Technique of OFDM Signals
Brennan, Lorraine	Agriculture and Food Science	Markers of Oocyte quality that play a role in fertility treatment
Browne, David	Mechanical and Materials Engineering	Nano-injection moulding using multiscale metallic glass (amorphous metal) tools
Bustamente, Miguel	Mathematical Sciences	Parallel light beam concentrator
Byrne, Gerry	Mechanical and Materials Engineering	Controlled Compliance Tool For Grinding
Byrne, Gerry	Mechanical and Materials Engineering	Integrated Drilling, Chamfering and Deburring Tool
Byrne, Gerry	Mechanical and Materials Engineering	Tool with dual mode local control (DMLC) for the rotation grinding process
Byrne, Gerry	Mechanical and Materials Engineering	Magento-Rheological Elastomer Formulation and control system for active control of the Compliance and Dynamic Stiffness
Byrne, Gerry	Mechanical and Materials Engineering	Tool-holder for Improved Cutting Tool Performance in Interrupted Machining
Byrne, Gerry	Mechanical and Materials Engineering	Continuous In-Process Generation of Tool Coatings in Machining
Byrne, Paula	Biomolecular and Biomedical Science	FRET analysis in living cells
Cagney, Gerard	Biomolecular and Biomedical Science	Method for identifying newly translated proteins
Cahill, Dolores	Medicine and Medical Science	Biomarkers of Ovarian disease
Cahill, Peter	Computer Science and Informatics	Using same language machine translation to create alternative target sequences for text-to-speech synthesis
Callanan, Sean	Veterinary Medicine	Factors influencing lymphotropic viral entry into the central nervous system
Carr, Hamish	Computer Science and Informatics	Robust Building Outline Extraction
Carr, Hamish	Computer Science and Informatics	Automated transformation of voxelized data into computational meshing
Carrington, Stephen	Veterinary Medicine	Mucoadhesive polymers
Carrington, Stephen	Veterinary Medicine	Mucus degradation therapy for pulmonary use
Carrington, Stephen	Veterinary Medicine	Glycan structure in secreted mucins from the ocular surface of man, rabbit and dog
Carrington, Stephen	Veterinary Medicine	Galactose dependent interactions in the regulation of the characteristics of mucus-gels
Carrington, Stephen	Veterinary Medicine	Mucin Glycans as therapeutics for Campylobacter infection
Carrington, Stephen	Veterinary Medicine	Role of mucin sialylation in transcervical sperm migration
Carrington, Stephen	Veterinary Medicine	Modified carbohydrate derivatives as novel reducing agents for the treatment of pathologic mucus in acute and chronic airway disease
Carrington, Stephen	Veterinary Medicine	Carbohydrate-based inhibitors of intelectin as a novel mucolytic and anti-inflammatory strategy for airway diseases
Carrington, Stephen	Veterinary Medicine	Glycosylation of blood proteins as a prognostic biomarker
Casey, Eoin	Chemical and Bioprocess Engineering	An antimicrobial potentiator for biofilm associated infections
Casey, Eoin	Chemical and Bioprocess Engineering	A process for cleaning a membrane supported biofilm reactor
Casey, Eoin	Chemical and Bioprocess Engineering	Corrugated tubing for the growth of biofilm (Oxymem)
Caulfield, Brian	Public Health, Physiotherapy and Population Science	A Garment for Monitoring Posture
Caulfield, Brian	Public Health, Physiotherapy and Population Science	Method and apparatus for stimulating pelvic floor muscles
Caulfield, Brian	Public Health, Physiotherapy and Population Science	Method and apparatus for stimulating lower back and core muscles
Caulfield, Brian	Public Health, Physiotherapy and Population Science	Rehabilitation Design Games
Caulfield, Brian	Public Health, Physiotherapy and Population Science	Novel disposable goniometer for measurement of relative angular motion of body segments

Lead Inventor	UCD School of	Title of Invention Disclosure
Caulfield, Brian	Public Health, Physiotherapy and Population Science	Aerobic exercise variation 27
Clyne, Marguerite	Medicine and Medical Science	The interaction of trefoil peptides with microbial molecules
Clyne, Marguerite	Medicine and Medical Science	Multivalent oligosaccharides
Coburn, Adam	Chemistry and Chemical Biology	Siphoning waste solvent transfer system
Collier, Rem	Computer Science and Informatics	A Method of Segmentation for Ranked Lists
Conway, Rory	Physics	Nodecrypt
Coyle, Lorcan	Computer Science and Informatics	1 - Realtime Analytics at Scale
Coyle, Lorcan	Computer Science and Informatics	2 - Fraudulent patterns of interest
Coyle, Lorcan	Computer Science and Informatics	3 - Social network analytics data representation
Coyle, Lorcan	Computer Science and Informatics	4 - Integration tools for EgoNav
Cummins, Enda	Biosystems Engineering	Antimicrobial surfaces via block copolymer template nanodots
Cummins, Fred	Computer Science and Informatics	Spell checker
Cunningham, Pdraig	Computer Science and Informatics	Interpretable toolkit for document clustering
Curran, Kathleen	Medicine and Medical Science	PreTRACT
Curran, Paul	Electrical, Electronic and Communications Engineering	Flow Control Router
Curran, Tom	Biosystems Engineering	Water flow recording system
Curran, Tom	Biosystems Engineering	Carotene combined bleaching (CCB) test kit
Dalton, Damian	Computer Science and Informatics	Universal Time Mechanism for Mixed-Level Timing Simulation
Dalton, Damian	Computer Science and Informatics	A System Level Power Evaluation Method
Darcy, Rafe	Chemistry and Chemical Biology	Polypolar Macrocyclic Oligosaccharides and their analogues which form molecular layers
Darcy, Rafe	Chemistry and Chemical Biology	Process for selective modification of cyclodextrin
Dawson, Kenneth	Chemistry and Chemical Biology	Nanoparticle-based protein harvesting from complex mixtures
Dawson, Kenneth	Chemistry and Chemical Biology	Nanoparticle-based visualisation of cell-trafficking
Dawson, Kenneth	Chemistry and Chemical Biology	A new combinatorial approach to nanoparticle-based scaffolds
Dawson, Kenneth	Chemistry and Chemical Biology	HCA platform for nanosafety assessment
Dawson, Kenneth	Chemistry and Chemical Biology	Synthetic minimal biological fluids for safety assessment of nanomaterials
Dobson, Simon	Computer Science and Informatics	Nirvana software tool for programming languages
Dobson, Simon	Computer Science and Informatics	Glow Tags
Docherty, Jim	Medicine and Medical Science	Treatment to prevent adhesion formation following surgery
Donnelly, Seamas	Medicine and Medical Science	MIF inhibitor
Donnelly, Seamas	Medicine and Medical Science	Generic encrypted electronic diary of when an inhaler was used
Donnelly, Seamas	Medicine and Medical Science	TLR3 mutation
Donnelly, Seamas	Medicine and Medical Science	Novel small molecular weight anti-inflammatory inhibitors in disease
Donnelly, Seamas	Medicine and Medical Science	Event recordal device for medicinal dispensers
Donnelly, Seamas	Medicine and Medical Science	Idiopathic Pulmonary Fibrosis
Doohan, Fiona	Biological and Environmental Science	A novel eukaryotic gene that confers stress tolerance to plants and yeast
Doohan, Fiona	Biological and Environmental Science	Biological control agents

Lead Inventor	UCD School of	Title of Invention Disclosure
Doohan, Fiona	Biological and Environmental Science	Novel use of Chitosan
Doohan, Fiona	Biological and Environmental Science	Novel Bacterial Strains
Doohan, Fiona	Biological and Environmental Science	Novel method for plant transformation using Ensifer bacteria
Doohan, Fiona	Biological and Environmental Science	Fungal glucosamine production as a byproduct of bioethanol production with the strains of the fungus Fusarium Oxysporum
Doran, Peter	Biomolecular and Biomedical Science	EBV induction of pulmonary fibrosis
Doran, Peter	Biomolecular and Biomedical Science	Net1 mediated tumour cell invasion
Dowling, Denis	Mechanical and Materials Engineering	Acrylic Acid nano-layer for recyclable PET packaging
Dowling, Denis	Mechanical and Materials Engineering	Microwave plasma sintering of metal powders [Nanogrind]
Dowling, Denis	Mechanical and Materials Engineering	Use of atmospheric plasma treatments to enhance thermosealing bond strength
Dowling, Denis	Mechanical and Materials Engineering	Deposition of drug release coatings using an atmospheric plasma jet sys
Dowling, Denis	Mechanical and Materials Engineering	Combination of CoBLAST and microwave proocesses for the energy efficient application of coatings
Dowling, Denis	Mechanical and Materials Engineering	Method for deposition of metal oxide coatings for use in photovoltaic cells
Dowling, Denis	Mechanical and Materials Engineering	Method of depositing functional coatings using microwave plasma sintering
Dowling, Denis	Mechanical and Materials Engineering	Method for the deposition of CitroX coatings
Dowling, Denis	Mechanical and Materials Engineering	Method for the deposition of natural bioactive coatings
Dowling, Denis	Mechanical and Materials Engineering	Microwave plasma technique for the doping of solar cell electrodes
Dowling, Denis	Mechanical and Materials Engineering	Monitoring of surface damage during cold atmospheric plasma treatment using optical emission spectroscopy
Dowling, Denis	Mechanical and Materials Engineering	I-Application method for silane precursors for the improvement of paint-composite adhesion
Dowling, Denis	Mechanical and Materials Engineering	Method of enhancing the surface activity of metal oxides during the fabrication of DSSC cells
Dowling, Denis	Mechanical and Materials Engineering	Microwave plasma technique for the doping of solar cell electrodes
Elia, Giuliano	Biomolecular and Biomedical Science	A triple quadrupole mass spectrometer with electron transfer dissociation (ETD) source
English, Niall	Chemical and Bioprocess Engineering	Algorithmic improvements for electrostatics in classical molecular simulations
English, Niall	Chemical and Bioprocess Engineering	Algorithmic improvements for electrostatics in classical molecular simulations mapped onto novel hardware platforms
English, Niall	Chemical and Bioprocess Engineering	Algorithmic improvements for ab initio computational treatment of colorimetry
English, Niall	Chemical and Bioprocess Engineering	Separation of chiral liquids via time-dependent circularly polarised electric fields
Evans, Alex	Agriculture and Food Science	FIPB - Fibroblast Growth Factor Intracellular Binding Protein
Evans, Alex	Agriculture and Food Science	Novel genes as a target for manipulating ovarian follicle development
Fair, Trudee	Agriculture and Food Science	Biomarkers of bovine oocyte developmental potential
Fitzpatrick, David	Computer Science and Informatics	Method and Software for the Predictive Modelling of Scholiotic Deformity and Implant Design for Curve Correction
Fitzpatrick, David	Mechanical and Materials Engineering	Wearable Sensing and Control System (Intelligent vest) for Musculoskeletal Monitoring and Correction/Treatment
Fitzpatrick, David	Mechanical and Materials Engineering	Swift Mobility Aid
Fitzpatrick, John	Computer Science and Informatics	IPTV Monitoring
Flanagan, Mark	Electrical, Electronic and Communications Engineering	An encoding scheme and a decoding scheme using a series of LDPC codes based on finite inversive spaces
Forde, Niamh	Agriculture and Food Science	Pregnancy markers based on uterine gene expression associated with early pregnancy status
Gallagher, Helen	Medicine and Medical Science	DevTox Assay
Gallagher, William	Biomolecular and Biomedical Science	Multiple markers for melanoma progression regulated by DNA methylation
Gallagher, William	Biomolecular and Biomedical Science	Isolation and identification of 3 proteins, cystatin C, PBPP and beta-2-microglbulin, as diagnostic markers for apoptosis and tumour growth

Lead Inventor	UCD School of	Title of Invention Disclosure
Gallagher, William	Biomolecular and Biomedical Science	Novel image analysis algorithms for quantifying expression of nuclear proteins assessed by immunohistochemistry
Gallagher, William	Biomolecular and Biomedical Science	Novel image analysis algorithms for quantifying expression of nuclear proteins assessed by immunohistochemistry
Gallagher, William	Biomolecular and Biomedical Science	Generation and the use of mice bearing tissue-specific expression of luciferase for advanced bioluminescence-based imaging in transgenic tumour models
Gallagher, William	Biomolecular and Biomedical Science	The Cocaine and Amphetamine Regulated Transcript (CART) as a prognostic marker in lymph node-negative breast cancer
Gallagher, William	Biomolecular and Biomedical Science	MiR-187: A prognostic marker in Estrogen Receptor positive breast cancer patients
Gavin, Kenneth	Civil, Structural and Environmental Engineering	Hybrid Accelerated Raft-Pile (HARP) foundation solution for the offshore wind energy industry
Gilchrist, Michael	Mechanical and Materials Engineering	Functionally graded foams for improving impact performance of safety helmets
Gilchrist, Michael	Mechanical and Materials Engineering	Impact absorption mechanism
Gilchrist, Michael	Mechanical and Materials Engineering	A clothes dryer
Gilheany, Declan	Chemistry and Chemical Biology	Novel method of preparation of unsymmetrical salen ligands/complexes, via in-situ reduction/oxidation
Gilheany, Declan	Chemistry and Chemical Biology	Conversion of phosphines and phosphine oxides to phosphine boranes using either chlorinating or alkylating agents in combination with sodium borohydride
Gladyshev, Pavel	Computer Science and Informatics	An algorithm (YD Algorithm) for forensic analysis of changed entries between two snapshots of MRU key
Gladyshev, Pavel	Computer Science and Informatics	ShellBag forensics
Gladyshev, Pavel	Computer Science and Informatics	Digital Investigation Process Support and Task Automation Method and Apparatus
Glennon, Brian	Chemical and Bioprocess Engineering	Continuous crysatllization platform
Godson, Catherine	Medicine and Medical Science	Anti-MATA-I, a novel antifibrotic bio therapeutic
Greene, Barry	Public Health, Physiotherapy and Population Science	Detection of neonatal seizures
Greene, Derek	Computer Science and Informatics	System for tracking the evolution of communities in dynamic social networks
Greene, Derek	Computer Science and Informatics	System for Twitter User List Curation
Greene, Derek	Computer Science and Informatics	System for event detection on Twitter
Greene, Derek	Computer Science and Informatics	Term recommendation system based on co-occurrence in curated user lists
Greene, Derek	Computer Science and Informatics	Facebook advertising campaign setup, analysis and optimisation
Greferath, Marcus	Mathematical Sciences	Low-Power Excitation for Magnetic Resonance
Guiry, Pat	Chemistry and Chemical Biology	Lipoxiodine
Guiry, Pat	Chemistry and Chemical Biology	Anti inflammatory marine compound
Gutierrez, Jorge	Veterinary Medicine	Multiplex diagnostic real time PCR test for ovine abortions
Hanlon, Lorraine	Physics	Gamma Ray Optics
Harden, Theo	Languages and Literatures	Online tool for computer-aided indirect codes feedback on written compositions
Harrigan, Martin	Computer Science and Informatics	EgoNav: Exploring networks through egocentric spatializations
Harrigan, Martin	Computer Science and Informatics	EgoNav: Prototype written in Ruby and Java SE
Harrigan, Martin	Computer Science and Informatics	EgoNav: Stormbytes
Heneghan, Conor	Electrical, Electronic and Communications Engineering	Methods and Apparatus for Monitoring Sleep
Heneghan, Conor	Electrical, Electronic and Communications Engineering	OFDM signal saturation for either increased transmitted signal power, or reduced energy consumption of the transmitter
Heneghan, Conor	Electrical, Electronic and Communications Engineering	Clipped OFDM signal scaling in the receiver for optimum detection or reduced SER convergence level
Hill, Emmeline	Agriculture and Food Science	mRNA and equine performance

Lead Inventor	UCD School of	Title of Invention Disclosure
Hill, Emmeline	Agriculture and Food Science	SNPs and equine racing
Hill, Emmeline	Agriculture and Food Science	Thoroughbred Athletic Performance
Hill, Emmeline	Agriculture and Food Science	SNP in HIF1A
Hill, Emmeline	Agriculture and Food Science	An autosomal DNA-based test for male fertility in horses
Hill, Emmeline	Agriculture and Food Science	A genetic test for bull fertility
Hill, Emmeline	Agriculture and Food Science	MSTN polymorphism - MSTN insertion/discovery - thoroughbred
Hurley, Neil	Computer Science and Informatics	Spatial Sampling Grid Recovery
Hurley, Neil	Computer Science and Informatics	Diversity Optimizer
Hurley, Neil	Computer Science and Informatics	MOSES: Detecting highly overlapping communities with Model-based Overlapping Seed Expansion
Hussey, Martin	Electrical, Electronic and Mechanical Engineering	Sharpness index
Ivankovic, Alojz	Mechanical and Materials Engineering	Surrogate lung material for trauma studies
Ivankovic, Alojz	Mechanical and Materials Engineering	Improvement of the flexural strength of superhard materials by heat treatment
Jacque, Jean-Marc	Medicine and Medical Science	Specific killing of lentivirus-infected cells by short bioactive peptides and use thereof
Jacquier, Jean-Christophe	Agriculture and Food Science	Dry cross-linked protein as encapsulation matrix for heat sensitive bioactives
Jenner, Florian	Veterinary Medicine	Induced articular connective tissue progenitor cells
Jenner, Florian	Veterinary Medicine	Induced articular chondrocyte progenitor cells
Jurdak, Raja	Computer Science and Informatics	Scalable and Unified Management and Control of Large Scale Sensor Networks
Kavanagh, David	Biomolecular and Biomedical Science	Scrazzl.com
Kelly, Daniel	Public Health, Physiotherapy and Population Science	Algorithm to automatically detect tackles in rugby
Kennedy, Breandan	Biomolecular and Biomedical Science	Novel Anti-angiogenic drugs
Kennedy, Breandan	Biomolecular and Biomedical Science	1-Novel anti-angiogenic drug (11B)
Khan, Mojibur	Biological and Environmental Science	Fusarium oxysporum strain 11 C-mediated 4-ethylguaiacol production from wheat straw and bran
Kilinc, Devrim	Chemistry and Chemical Biology	A cell-benign microfluidic culture platform to study cell migration and signalling in response to complex concentration gradients
Kinsella, Therese	Biomolecular and Biomedical Science	Regulation of the human TXA2 gene by Sp1, Egr1, NF-E2, GATA-1 and Ets-1 in Megakaryocytes
Kinsella, Therese	Biomolecular and Biomedical Science	WT1 acts as a key transcriptional repressor of the human TXA2 receptor gene in megakaryocytes
Kinsella, Therese	Biomolecular and Biomedical Science	Induction of human TXA2 expression during megakaryocytic differentiation
Kinsella, Therese	Biomolecular and Biomedical Science	Regulation of the Human Prostacyclin Receptor by Intestinal and Kidney-enriched PDZ protein (IKEPP)
Kinsella, Therese	Biomolecular and Biomedical Science	Regulation of the InaD-like (Drosophila) Protein (INADL).
Kinsella, Therese	Biomolecular and Biomedical Science	Regulation of the Multi-PDZ domain protein 1 (MUPPI).
Kinsella, Therese	Biomolecular and Biomedical Science	Regulation of the Human Prostacyclin Receptor by PDZ Domain Containing Protein 1 (PDZK1).
Kinsella, Therese	Biomolecular and Biomedical Science	Interaction between the Human Thromboxane A2 Receptor and Anglo-Associated Migratory Cell Protein
Kinsella, Therese	Biomolecular and Biomedical Science	Identification of novel bio-active peptide sequences within the human prostacyclin receptor and Rab11.
Kinsella, Therese	Biomolecular and Biomedical Science	Development of novel antagonists to selectively target the TP-alpha and TP-beta isoforms of the human thromboxane A2 receptor
Kinsella, Therese	Biomolecular and Biomedical Science	A new small molecule for use as an anti-influenza, general anti-viral and bio-defence drug
Kinsella, Therese	Biomolecular and Biomedical Science	Discovery of the efficacy of a new anti-cancer drug in a preclinical mouse model of experimental cancer metastasis
Kinsella, Therese	Biomolecular and Biomedical Science	A new small molecule for use as an anti-restenosis and anti-thrombotic drug coating on stents and balloons for use in percutaneous cardiovascular interventions

Lead Inventor	UCD School of	Title of Invention Disclosure
Kolch, Walter	Biomolecular and Biomedical Science	MST2-RAFI protein interaction inhibitors
Laefer, Debra	Civil, Structural and Environmental Engineering	Insulator plate to minimize transport-induced vibration impacts on existing buildings
Laefer, Debra	Civil, Structural and Environmental Engineering	Enablement of three-dimensional hosting, indexing, analysing and querying structures for spatial systems
Laefer, Debra	Civil, Structural and Environmental Engineering	Automated Building Boundary and Feature Detection
Laefer, Debra	Civil, Structural and Environmental Engineering	Automated boundary and aperture detection in pixelized datasets through voxel characterisation and clustering
Lee, Gil	Chemistry and Chemical Biology	F-NLM: Non-linear Magnetophoretic Transport under Continuous Flow for Separation of Magnetic Particles
Lee, Gil	Chemistry and Chemical Biology	Bacteriophages as molecular recognition system for biodetection, affinity separation and purification processes
Lee, Gil	Chemistry and Chemical Biology	Peptide, multimeric peptide and polypeptides probes against the soybean-derived Bowman Birk Inhibitor
Lee, Gil	Chemistry and Chemical Biology	Hollow / porous Superparamagnetic Microspheres
Lee, Gil	Chemistry and Chemical Biology	Controlled aggregation of nanorods for detection of analytes
Lee, Gil	Chemistry and Chemical Biology	Superparamagnetic microparticles with dimpled and crumpled morphologies
Lee, Gil	Chemistry and Chemical Biology	Couette type shear device with separate inlets for continuous and dispersed phases
Lee, Gil	Chemistry and Chemical Biology	Peptide probes for HSV detection
Loneragan, Pat	Agriculture and Food Science	Genes as targets for manipulating embryo development in cattle
Loneragan, Pat	Agriculture and Food Science	Six endometrial genes as markers of or as targets to manipulate embryo development in cattle
Lu, Jian Ping	Medicine and Medical Science	Automated A & C Platform Technology
Lyng, James	Agriculture and Food Science	Ohmic heating applicator for semi-continuous ohmic heating of meat and meat products
Lyng, James	Agriculture and Food Science	Ohmic heating device
MacHugh, David	Agriculture and Food Science	A genetic test for growth and feed efficiency in bulls
MacHugh, David	Agriculture and Food Science	Circulating microRNAs as diagnostic biomarkers for bovine tuberculosis
Mallon, Patrick	Medicine and Medical Science	Monocyte Intracellular Cholesterol Assay
Marques-Silva, Jorge	Computer Science and Informatics	New Model for SAT-based ATPG
Martin, Finian	Biomolecular and Biomedical Science	IHG- I
McCann, Amanda	Medicine and Medical Science	MAD2 (Mitotic Arrest/Assembly Deficiency) protein 2 as a predictor of chemosresponse and patient outcome
McCarthy, Kevin	Computer Science and Informatics	SimpleFlow: Gesture prediction, abbreviation and autocompletion
McCarthy, Kevin	Computer Science and Informatics	Aficionado - I
McCormack, Tom	Physics	Soft X-Ray microscope
McCormick, Aiden	Medicine and Medical Science	Treatment to prevent adhesion formation following surgery
McDonnell, Susan	Chemical and Bioprocess Engineering	Cell line as model for invasive breast cancer
McGinty, Lorraine	Computer Science and Informatics	iCARE - Intelligent Customer Assistance For Recommending Eyewear
McGuire, Gary	Mathematical Sciences	4 Torsion Points
McLaughlin, David	Biomolecular and Biomedical Science	Methods of treating Neurodegenerative diseases by modification of cell types from amniotic fluid
McLaughlin, David	Biomolecular and Biomedical Science	Cholinergic neurotransmitter phenotype derived from AFCs
McLaughlin, David	Biomolecular and Biomedical Science	Multineurotransmitter phenotype derived from AFCs for use in High Throughput Screening
McLaughlin, David	Biomolecular and Biomedical Science	Serotonergic neurotransmitter phenotype derived from AFCs
McLaughlin, David	Biomolecular and Biomedical Science	Skin AFC

Lead Inventor	UCD School of	Title of Invention Disclosure
McLaughlin, David	Biomolecular and Biomedical Science	Derviation of mesenchymal stem cells from amniotic fluid - for use in NEURONAL: cell therapy
McMahon, Hilary	Biomolecular and Biomedical Science	Cyclodextrins for use as anti-prion compounds
McMahon, Hilary	Biomolecular and Biomedical Science	Antiprion action of new cyclodextrins analogues
McMahon, Hilary	Biomolecular and Biomedical Science	A novel protease for restricting the spread of prion relating diseases
Merino,Alejandro	Biomolecular and Biomedical Science	Methods for the use of reversible and irreversible affinity reagents to target fusion proteins
Merino,Alejandro	Biomolecular and Biomedical Science	Applications of ligand-induced interactions
Merino,Alejandro	Biomolecular and Biomedical Science	Methods for the use of domains or subdomains for immobilisation of fusion proteins [Split-tag]
Morgan, Grace	Chemistry and Chemical Biology	Preparation of nanowires of spin transition complexes in an ordered perpendicular orientation for surface deposition
Moynagh, Paul	Biomolecular and Biomedical Science	Inhibitor of Endotoxin
Mulcahy, Grace	Veterinary Medicine	Development of a vaccine against sea lice of salmon using recombinant proteins
Murphy, Barbara	Veterinary Medicine	Equilume light mask for horses
Murphy, Cormac	Biomolecular and Biomedical Science	Streptomyces globosus IMD 2703: a novel strain that produces an anti-MRSA antibiotic
Murphy, Cormac	Biomolecular and Biomedical Science	Rumbrin derivatives with improved anti-tumour properties
Murphy, Cormac	Biomolecular and Biomedical Science	Immobilised fungal biocatalyst for drub metabolite production
Murphy, Keith	Biomolecular and Biomedical Science	Novel treatment for Multiple Sclerosis with the nootropic agent Nefiracetam
Murphy, Liam	Computer Science and Informatics	Association Routing Table for Multi-Homed Communication
Murphy, Liam	Computer Science and Informatics	LACAM : Link Adaptation Codec Adaptation Mechanism
Murphy, Liam	Computer Science and Informatics	Low Latency roaming support in wireless multi-hop mesh networks
Murphy, Liam	Computer Science and Informatics	Inter-gateway roaming support in wireless multi-hop mesh networks
Murphy, Liam	Computer Science and Informatics	VidAs - Reliable multi-source streaming
Murphy, Paul	Chemistry and Chemical Biology	Novel synthesis of 1-deoxynojirimycin and castanospermine from L-sorbose
Murphy, Paul	Chemistry and Chemical Biology	N-(Alkynylphenoxy)alkyl-1-deoxynojirimycin derivatives as inhibitors of agiogenesis dependent disease
Murphy, Paul	Chemical and Bioprocess Engineering	Design and synthesis of peptidomimetics based on salicylic acid lactone scaffolds
Murphy, Sean	Computer Science and Informatics	Bluebook - providing integration of social networks with short range radio technology
Murphy, Sean	Computer Science and Informatics	Voice over IP audioconference bridge
Murphy, Sean	Computer Science and Informatics	LocalSocial - social proximity framework
Murphy,William	Medicine and Medical Science	A device to measure the gap between the capillary and venous haemoglobin levels in real time
Murphy,William	Medicine and Medical Science	A class of drugs to modulate the gap between the capillary and venous/arteriolar haemoglobin levels
Nafaa,Abdelhamid	Computer Science and Informatics	1 - Advanced stream-control mechanisms for a two-tiered multi-homed networking architecture
Nafaa,Abdelhamid	Computer Science and Informatics	2 - A two-tiered multi-homing architecture for seamless mobile data traffic offloading
Nafaa,Abdelhamid	Computer Science and Informatics	3 - Advanced stream-control mechanisms for a two-tiered multi-homed networking architecture
Nafaa,Abdelhamid	Computer Science and Informatics	4 - Method and apparatus to enable endpoint centric NAT traversal for multi-homed protocols
Nafaa,Abdelhamid	Computer Science and Informatics	5 - A two-tiered multihoming architecture for seamless mobile data traffic offloading to 3rd party wireless networks
Nally, Jarlath	Veterinary Medicine	Diagnostic antigens for Chlamydia abortus
Nally, Jarlath	Veterinary Medicine	Real time PCR detection of pathogenic Leptospira genomes
Ng, Carl	Biological and Environmental Science	A polycistronic, inducible system for guard cell specific gene expression in plants

Lead Inventor	UCD School of	Title of Invention Disclosure
Ng, Carl	Biological and Environmental Science	Pollen-specific promoter from Arabidopsis
Nielsen, Jens	Biomolecular and Biomedical Science	PEAT_SA
Nielsen, Jens	Biomolecular and Biomedical Science	PEAT_DataBase
Nieuwenhuis, Maarten	Agriculture and Food Science	PractiSFM: A multi-resource inventory and decision support system for sustainable forest management
Nixon, Paddy	Computer Science and Informatics	Construct – platform for constructing context aware and autonomic systems
Nixon, Paddy	Computer Science and Informatics	Building bridges: a communication device for the elderly
Nixon, Paddy	Computer Science and Informatics	System and method to objectively assess walking and turning during the Timed Up and Go test
Nixon, Paddy	Computer Science and Informatics	Handheld GSR Biofeedback device
O'Brien, Bill	Electrical, Electronic and Mechanical Engineering	Sparse delay vector calculation
O'Connell, David	Medicine and Medical Science	EF hand affinity tag system
O'Connor, Kevin	Biomolecular and Biomedical Science	Directed evolution of styrene monooxygenase from Pseudomonas putida CA-3: generation of an improved biocatalyst
O'Connor, Kevin	Biomolecular and Biomedical Science	Expression of recombinant p-hydroxyphenylacetic acid (PHPA) hydroxylase genes (hpaBC) in Escherichia coli BL21
O'Connor, Kevin	Biomolecular and Biomedical Science	The conversion of a mixture BTEX compounds by defined mixed cultures to medium chain length polyhydroxyalkanoate
O'Connor, Kevin	Biomolecular and Biomedical Science	Conversion of waste polyethylene terephthalate (PET) to polyhydroxyalkanoate (PHA) a biodegradable polymer, via a chemobiotechnological process
O'Connor, Kevin	Biomolecular and Biomedical Science	1-Hydroxyalkanoate-peptide as an anti-cancer agent
O'Connor, Kevin	Biomolecular and Biomedical Science	2-Hydroxyalkanoate-peptide as an anti-cancer agent (2012)
O'Connor, Kevin	Biomolecular and Biomedical Science	Conversion of cellulose material to polyhydroxyalkanoate
O'Connor, Kevin	Biomolecular and Biomedical Science	Upcycling of post consumer PE to a biodegradable plastic
O'Connor, William	Mechanical and Materials Engineering	Motion control strategies for flexible mechanical systems
O'Doherty, John	Agriculture and Food Science	Laminarin and fucoidan compositions to ameliorate the effects of PCV2 in pigs
O'Doherty, John	Agriculture and Food Science	Supplementing the maternal diet with a combination of laminarin and fucoidan and fish oil will improve gastrointestinal health and performance
O'Doherty, John	Agriculture and Food Science	The application of Lactobacillus plantarum in pig diets to alter distal gastrointestinal pig tract composition
O'Farrelly, Cliona	Medicine and Medical Science	Synthetic antimicrobial peptides with optimised activity against target pathogens
O'Farrelly, Cliona	Medicine and Medical Science	Novel bovine Antimicrobial peptides
O'Hare, Greg	Computer Science and Informatics	Cluster Aggregation Point Reassignment for Load Balancing in Sensor Networks
O'Hare, Greg	Computer Science and Informatics	Adaptive Low Power Sleeping Modes of Wireless Nodes in Sensor Networks
O'Mongain, Eon	Physics	Newly applied technology for an above water spectral reflectometer system for water monitoring
O'Mullane, Brian	Electrical, Electronic and Mechanical Engineering	RAPID: Radio Broadcast Audio Processing for Indexing, Segmentation, Databasing and Archiving
O'Mullane, Brian	Electrical, Electronic and Mechanical Engineering	Advertisement spotting for quality control and competitor analysis
O'Mullane, Brian	Electrical, Electronic and Mechanical Engineering	Physio Egg Trainer
O'Neill, Michael	Computer Science and Informatics	A technique for detecting and characterizing coverage gaps within a femtocell group
O'Reilly, Fergal	Physics	High Power EUV Lamp System
O'Reilly, Fergal	Physics	Method of Coating a thin Liquid Metal Film onto a Solid Substrate
O'Reilly, Fergal	Physics	Narrowband X-ray filter for high contrast diagnostic imaging at a lower dose

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O'Reilly, Fergal	Physics	Method of removing an oxide layer from a rotating Liquid Metal optic
O'Reilly, Fergal	Physics	Nanoscale spatial resolution, nanosecond time resolution detector for soft x-ray and optical microscopy at various wavelengths
O'Reilly, Fergal	Physics	Plasma shutter
O'Reilly, Fergal	Physics	Self healing window
O'Reilly, Fergal	Physics	Nanoparticle drug delivery method
O'Riordan, Dolores	Agriculture and Food Science	High fibre crispy cheesy snack
O'Riordan, Dolores	Agriculture and Food Science	Cheese snack modification
O'Riordan, Dolores	Agriculture and Food Science	Production of a functional beverage with anti-inflammatory properties using extracts from medicinal herbs
O'Shea, Donal F.	Chemistry and Chemical Biology	Near Infrared Fluorochromes
O'Shea, Donal F.	Chemistry and Chemical Biology	Silicon based reagents as radically improved alternative for general use in all fine chemical manufacture
O'Shea, Donal	Medicine and Medical Science	Use of liraglutide in treatment of psoriasis
O'Sullivan, Jacintha	Medicine and Medical Science	Use of human colonic tumour tissue to test response to chemotherapy
O'Sullivan, Conall	Business	Option Pricing under Explicit Finite Difference Super Time Stepping and Split Diffusion schemes
O'Sullivan, Gerard	Physics	High Power Extreme Ultraviolet Lamp Power Supply
Paradisi, Francesca	Chemistry and Chemical Biology	Method for synthesis of alpha-keto acids
Pennington, Steve	Biomolecular and Biomedical Science	A method comprising a serum biomarker signature for predicting extracapsular extension in prostate cancer
Perry, Phillip	Computer Science and Informatics	A system and method for monitoring stream quality in packet switched networks
Phillips, Andrew	Chemistry and Chemical Biology	Rapid Catalytic Dihydrogen Decoupling using beta-Diketiminato-Ruthenium Complexes
Phillips, Andrew	Chemistry and Chemical Biology	Silverscudo - Low toxicity Broad Spectrum Silver-Phosphine Antibiotic
Phillips, Andrew	Chemistry and Chemical Biology	Dehydrogenation catalyst
Pollastri, Gianluca	Computer Science and Informatics	Porter Software
Pollastri, Gianluca	Computer Science and Informatics	PaleAle
Quigley, Aaron	Computer Science and Informatics	SenseTiles: a readily-deployable sensor platform for smart buildings
Quigley, Aaron	Computer Science and Informatics	Meetspace: Personalised environmental advertisements
Regan, Ciaran	Biomolecular and Biomedical Science	Meparfynol
Regan, Ciaran	Biomolecular and Biomedical Science	Captodiamine
Regan, Ciaran	Biomolecular and Biomedical Science	Midkine
Regan, Ciaran	Biomolecular and Biomedical Science	Schizo TxP
Regan, Ciaran	Biomolecular and Biomedical Science	USAG-BMP
Regan, Ciaran	Biomolecular and Biomedical Science	BACE
Regan, Ciaran	Biomolecular and Biomedical Science	Cognition TxP
Regan, Ciaran	Biomolecular and Biomedical Science	Interferon
Regan, Ciaran	Biomolecular and Biomedical Science	NPY Y2
Regan, Ciaran	Biomolecular and Biomedical Science	Transthyretin
Regan, Ciaran	Biomolecular and Biomedical Science	Predictive assay for in vivo detection of cognition-enhancing drugs
Regan, Ciaran	Biomolecular and Biomedical Science	Series of novel compounds with a chemical similarity to (+/-)-n,n-dimethyl-n-(2-[[[4-(n-butylthio) henyl] - (phenyl) methyl] -thio}ethyl) amine
Regan, Ciaran	Biomolecular and Biomedical Science	A series of novel compounds with a chemical similarity to 3-methylpent-1-3-ol (Meparfynol)

Lead Inventor	UCD School of	Title of Invention Disclosure
Reilly, Richard	Electrical, Electronic and Mechanical Engineering	A System For Maintaining Vigilance And Attention
Reilly, Richard	Electrical, Electronic and Mechanical Engineering	A System For Maintaining Vigilance And Attention
Reilly, Richard	Electrical, Electronic and Mechanical Engineering	Remote Assessment of a User
Reilly, Richard	Electrical, Electronic and Mechanical Engineering	Automatic classification of shoeprints for use in forensic science based on image processing
Reilly, Richard	Electrical, Electronic and Mechanical Engineering	Combination of ECG and EEG for Detection of Neonatal Seizures
Reilly, Richard	Electrical, Electronic and Mechanical Engineering	Spread spectrum stimulation for rapid estimation of a visual evoked potential
Reilly, Richard	Electrical, Electronic and Mechanical Engineering	Assessment of schizophrenia based on speech analysis
Reilly, Richard	Electrical, Electronic and Mechanical Engineering	Remote monitoring device for respiratory measurements
Reynaud, Emmanuel	Biological and Environmental Science	A multi-view imaging device
Rice, James	Physics	Chemical mapping on the Nanoscale
Rickard, Scott	Electrical, Electronic and Communications Engineering	A Method and Apparatus for Blind Source Separation
Rickard, Scott	Electrical, Electronic and Communications Engineering	D-WE: Dual-Window optimized audio Equalization
Rickard, Scott	Electrical, Electronic and Communications Engineering	Historical-Relative Amplitude Turbulence Estimator (H-RATE)
Roche, Helen	Public Health, Physiotherapy and Population Science	II - IRA Potential anti-diabetic agent
Rubagotti, Enrico	Information and Library Studies	CryptoSpeech
Ruzzelli, Antonio	Computer Science and Informatics	REAR: Recognition of Electrical Appliance Activity in Real-time
Ruzzelli, Antonio	Computer Science and Informatics	LoCon: A method for splitting utility bills based on user location and energy consumption
Ruzzelli, Antonio	Computer Science and Informatics	1 - Equipment activity monitoring via centralised profiling and load processing
Ruzzelli, Antonio	Computer Science and Informatics	2 - Networked Equipment activity monitoring via VLAN auditing
Ruzzelli, Antonio	Computer Science and Informatics	3 - Framework for robust load disaggregation
Sheridan, John	Electrical, Electronic and Communications Engineering	LED based Solar Simulator and lighting control
Shields, Denis	Biomolecular and Biomedical Science	Occludin
Shields, Denis	Medicine and Medical Science	Searching chemical compound libraries
Shields, Denis	Medicine and Medical Science	Prediction of bioactive peptides in milk proteins
Shields, Denis	Medicine and Medical Science	Discovering small molecule inhibitors of protein-protein interactions through computational docking
Shuhaibar, Maher	Medicine and Medical Science	Easy Seal
Smolenski, Albert	Medicine and Medical Science	Use of phosphorylation site specific antibody against phosphorylated serine 7 of Rap1GAP2 protein
Smyth, Barry	Computer Science and Informatics	A Meta Search Engine
Smyth, Barry	Computer Science and Informatics	Collaborative Web Search for Social Networking Services
Smyth, Barry	Computer Science and Informatics	HeyStaks: Web Search, Shared
Smyth, Barry	Computer Science and Informatics	Real-time information filter for news
Smyth, Barry	Computer Science and Informatics	Location-based photographic assistance
Smyth, Barry	Computer Science and Informatics	Real time feeds for product recommendation
Smyth, Barry	Computer Science and Informatics	Search and discovery engine for real-time web content and hyperlinks, shared via human sharing activities
Smyth, Barry	Computer Science and Informatics	Skillpages/Veedle - Innovation Partnership documented know-how
Smyth, Barry	Computer Science and Informatics	Clarity: Profiling of Twitter users for topic-based recommendation

Lead Inventor	UCD School of	Title of Invention Disclosure
Smyth, Barry	Computer Science and Informatics	Clarity: Reviewer's assistant
Smyth, Barry	Computer Science and Informatics	Analysis of product reviews
Stanton, Kenneth	Mechanical and Materials Engineering	CeraTool
Stanton, Kenneth	Mechanical and Materials Engineering	1 - StellarWhite optical control coating for spacecraft
Stanton, Kenneth	Mechanical and Materials Engineering	2 - Hybrid glass/glass-ceramic (HGGC) material for use in spacecraft coatings
Stowe, John	Medicine and Medical Science	IMage Predictive Artefact Correction Technique (IMPACT)
Sullivan, James	Chemistry and Chemical Biology	The coupling of a CO2 extraction and delivery system to a CO2 reduction catalyst
Sullivan, Matt	Biomolecular and Biomedical Science	Overwinter
Tacke, Matthias	Chemistry and Chemical Biology	Titanocene C
Tacke, Matthias	Chemistry and Chemical Biology	Titanocene Y
Tacke, Matthias	Chemistry and Chemical Biology	Achiral Indole-substituted Metallocene anti-cancer drugs
Tacke, Matthias	Chemistry and Chemical Biology	Achiral non-cationic aminobenzyl-substituted Titanocene anti-cancer drugs
Thampi, Ravi	Chemical and Bioprocess Engineering	A new design for dye or quantum Dot Sensitised Solar Cell
Thampi, Ravi	Chemical and Bioprocess Engineering	Method for oxidative removal of organic binder materials and residues from printed layers and sintering of semiconductor compounds
Thampi, Ravi	Chemical and Bioprocess Engineering	Enhancement of thermal stability and recoverable performance of dye sensitized solar cells (DSSC) treated with ultra-thin ZnO coatings
Thampi, Ravi	Chemical and Bioprocess Engineering	Perovskite [LSCO} based electrolyte for dye sensitized solar cells
Timoney, David	Electrical, Electronic and Mechanical Engineering	Diesel Engine NOX Emission Estimator
Tubridy, Niall	Medicine and Medical Science	Stroke buster
Veale, Tony	Computer Science and Informatics	A Radial Thesaurus based on principles of Semantic Distance and Analogical Similarity
Vohnsen, Brian	Physics	Ultrasmall spot-size scanning laser ophthalmoscope (USLO)
Vohnsen, Brian	Physics	Intraocular lens with spectral correction of the Stiles-Crawford effect for improved chromatic performance
Walsh, Eamonn	Business	Automated Generation of Accounting Problems
Ward, Shane	Biosystems Engineering	CyberBar: an integrated anti-tamper food traceability system based on dot matrix branding and cybernetics
Watson, Chris	Medicine and Medical Science	Methylation inhibitors for the treatment of hypertrophy and fibrosis
Worrall, Margaret	Biomolecular and Biomedical Science	The use of a heparin - serpin combination therapy for inhibition of cancer metastasis.
Zerulla, Dominic	Physics	Novel, Tuneable Molecular Sensor for Biosciences and Diagnostics
Zerulla, Dominic	Physics	Plasmonic enhancement of thin film solar cells
Zerulla, Dominic	Physics	Plasmonic enhanced dye sensitised solar cells via chemical functionalisation of gold nanoparticles
Zerulla, Dominic	Physics	Plasmonics enhanced solar cells
Zhu, Anding	Electrical, Electronic and Communications Engineering	Hardware implementation of digital predistorter for RF power amplifiers based on dynamic truncated Volterra series
Zhu, Anding	Electrical, Electronic and Communications Engineering	A single envelope modulator-based envelope-tracking structure for multiple-input and multiple-output wireless transmitters
Zhu, Xiangming	Chemistry and Chemical Biology	Novel Potent Immunostimulant



# NovaUCD's Impact 2003 - 2013

*"Great things are not done by impulse,  
but by a series of small things brought together."*

Vincent van Gogh (1853-90)



**€91,000,000**  
EQUITY FUNDING RAISED



**€87,700,000**  
TOTAL ECONOMIC VALUE  
EXPECTED BY 2016



**2,527**  
TOTAL JOBS  
SUPPORTED BY 2016



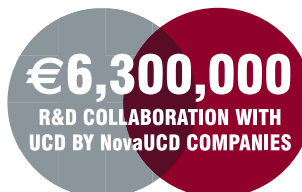
**1,341**  
JOBS SUPPORTED  
CURRENTLY



**1,186**  
NEW JOBS  
TO BE  
SUPPORTED  
BY 2016



**€71,200,000**  
ANNUAL TURNOVER OF  
NovaUCD COMPANIES



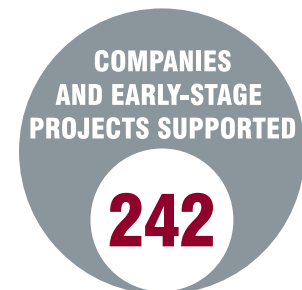
**€5,200,000**  
COMMERCIALISATION  
INCOME TO UCD



**UCD SPIN-OUT  
COMPANIES  
INCORPORATED**



**€36,600,000**  
CURRENT ECONOMIC VALUE  
TO THE IRISH ECONOMY



**445**  
INVENTIONS  
DISCLOSED



**318**  
PATENTS FILED



**81**  
LICENCE  
AGREEMENTS  
CONCLUDED



**10**  
YEARS SINCE NovaUCD  
OFFICIALLY OPENED



**€11,100,000**  
CURRENT ECONOMIC VALUE TO  
THE INTERNATIONAL ECONOMY





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