

Irish Chemical News

A Journal of the Institute of Chemistry of Ireland

COVID-19

Rapid Response

Research & Innovation Funding

COLLATING INFORMATION

PROBLEM CURATION

FINANCIAL SUPPORT

MAKE CONNECTIONS

COLLABORATIVE ENGAGEMENT





Rialtas na hÉireann
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Institiúid Ceimice na hÉireann **The Institute of Chemistry of Ireland**

ICI Centenary 1922-2022

Patron: Michael D. Higgins, President of Ireland

The Professional Body Representing Chemists in Ireland

Ravensdale Road, Dublin D03 CY66.

Web: www.instituteofchemistry.org

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Note: Opinions expressed in this Journal are those of the authors and not necessarily those of the Institute.

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IRISH CHEMICAL NEWS ISSUE NO.1 MARCH 2020



A Message from the President

Dear Fellows, Members, Graduates and Associates,

I hope that you and your families are keeping safe and well during this uncertain and challenging time for us all. It is with incredible sadness that we learn of more deaths each day as well as an increase in those being diagnosed with this dreadful virus. Our thoughts and prayers are with those who have lost loved ones and those who have been affected. I would like to pay a special tribute to all those who are working tirelessly to protect and care for us in the healthcare setting and in our nursing homes and to the many others who are working so hard in the background to support us, especially those who are most vulnerable. We owe them an enormous debt of gratitude. It is incumbent on us all to heed the public health advice of government in a community-wide attempt to 'flatten the curve' and to reduce the impact of COVID-19 on our health and society.

I know that many of you are working incredibly hard on maintaining 'business as usual' within the constraints of remote working. This undoubtedly requires a shift in our mindsets as our working week takes on a new rhythm. I do hope that you are getting the support that you need. It is particularly challenging for our students, especially final year degree students, leaving and junior certificate students and PhD students coming close to the end of their scholarships. Lecturers, teachers and PhD supervisors are to be commended for all that they are doing during these challenging times. It is wonderful to see our higher education institutions stepping up to the mark by donating personal protective equipment from their teaching and research laboratories to local hospitals. Some Chemistry and Pharmacology departments are also to be congratulated for developing sanitisers and buffer solutions for distribution to hospitals and COVID-19 test centres. Our thoughts and gratitude also go out to those who continue to work in trying to develop vaccines and anti-viral agents as well as all those in the pharma industry who continue to work each day to make drugs for other diseases. A special acknowledgement also to funding agencies who are putting out calls for COVID-19 related research projects.

May I thank Patrick Hobbs on publishing yet another excellent edition of the Irish Chemical News. The Institute, as you know, is a voluntary organisation. Putting each issue together takes considerable time and energy. May I encourage you please to submit articles of interest or indeed notifications that you feel may be of interest to our members for inclusion in future editions. I know that Hobbs would be delighted to receive them.

As you know, we had to postpone the ICI Annual General Meeting and the ICI annual award ceremony, which were due to take place in RCSI on Thursday, 16th April, 2020. May I however take this opportunity to congratulate the worthy recipients on receiving their awards. First, our heartfelt congratulations to Professor A. P. De Silva from Queen's University Belfast who is the 2020 recipient of the Boyle Higgins Gold Medal and Lecture Award. This is one of the most prestigious honours that can only be bestowed on a member of the Institute. It recognises a chemist who has made an outstanding and internationally recognised research contribution to the advancement of chemistry. All nominations were sent out for external review to three independent, international experts.

Our warmest congratulations also to Professor Declan McCormack from Technological University Dublin

on being the most recent recipient of the ICI Annual Award for Chemistry (Eva Philbin Public Lecture Series). This is an award presented to a practicing chemist, who has made a significant contribution to the advancement of chemistry and who is also an excellent science communicator. Again, all nominations for this award were sent out for external review.

The ICI Postgraduate Award is a relative new award of the Institute. It recognises a registered PhD student in any Chemistry discipline working in an Irish Higher Education Institution. Our warmest congratulations to Ms Saoirse Dervin (Sligo IT), the most recent recipient of this award, and to her supervisor, Professor Suresh Pillai. It is a testament to the calibre of this award that both the 2018 recipient (Dr Adele Gabba, NUIG, working under the supervision of Professor Paul Murphy) and the current recipient, Saoirse, obtained highly competitive Marie Skłodowska-Curie fellowships. Sincerest congratulations to both Saoirse and Adele on being wonderful ambassadors for Irish postgraduate research. Having a postgraduate award from the national professional body that represents all chemists in Ireland is highly prestigious. Our postgraduate students, many of whom will pursue postdoctoral research, are coming under more and more pressure to find ways in which to distinguish themselves from their competitors when pursuing new and exciting research opportunities upon completion of their PhD studies. I would encourage supervisors to avail of this wonderful opportunity by nominating their students for this wonderful award going forward.

The ICI Second Level Education Award recognises a student who has achieved the highest grade in Ireland in their Leaving Certificate Honours Chemistry course. These students are presented with an ICI medal and their respective schools and teachers are provided with a Certificate from the Institute. Warmest congratulations to Mr. Óran O'Suillivan (Coláiste Choilm, Ballincollig, Co. Cork) and to Mr. Brian Durkan (St. Muredach's College, Ballina, Co. Mayo) on being the 2019 recipients and to their schools and teachers. Wishing Óran and Brian continued success in their future endeavours.

A special word of congratulations to Dr Peter Childs and his editorial team as they celebrate the 40th anniversary year of 'Chemistry in Action'. The ICI is honoured to have had such a long association with this journal since its official launch in 1980 during the ICI Annual Congress which was hosted by Sligo IT. 'Chemistry in Action' has become an invaluable and pivotal Chemistry resource for Chemistry teachers working in second level education in Ireland and beyond since then. We very much look forward to reading the special edition commemorating this wonderful milestone.

The Institute of Chemistry of Ireland, as you know, is a member Society of the European Chemistry Society (EuChemS). The Institute pays a subscription each year to EuChemS. As such, members of our Institute can avail of certain benefits provided by EuChemS e.g. awards and fellowships, membership on its Executive Board, Divisions, Working Parties and the European Young Chemists Network (EYCN) and so on. Please check out their website for further details (<https://www.euchems.eu/>).

Dr Mark Kelada, ICI Council member, is our representative on the EuChemS European Young Chemists Network. May I take this opportunity to thank Dr Kelada for taking time out of his busy schedule to represent and promote the Institute at the recent 15th Delegates' Assembly of the EYCN in Spain. Mark delivered an excellent presentation on the activities of our Institute. He also had the opportunity to network on our behalf as well as to promote the EuChemS Congress that we will be hosting in Dublin in 2022. There were key members from EuChemS in attendance at this assembly. His report from this event will be included in the next Issue of ICN coming soon.

As a member Society of EuChemS, we were also asked to nominate speakers and convenors for the forthcoming EuChemS Congress, due to take place in Lisbon, Portugal from 30th Aug - 3rd Sept, 2020 (<https://www.euchems2020.org/>). I contacted all Heads of Schools and Departments of Chemistry and received a number of outstanding nominations which were forwarded to the Congress organisers. I am delighted to hear that a number of our nominees have since been invited to present at the Congress which is wonderful.

As you know, the Institute will be hosting the EuChemS Congress in Dublin in 2022. This will be a wonderful opportunity for the Institute to showcase all that is best about Irish research. Planning is already underway. Professor Thorri Gunnlaugsson (TCD and chair of the EuChemS Congress 2022 Local Organising Committee), Mr Noel Mitchell (Keynote PCO) and I had a very fruitful meeting with members of the EuChemS Executive Board (Dr Nineta Hrastelj, Professor Eckart Ruehl, Professor Floris Rutjes) and the Royal Society of Chemistry (Dr Sarah Thomas and Ms Rachel Thompson) in London recently where we finalised our contract with EuChemS.



Pictured from left: Professor Eckart Ruehl, Dr Noel Mitchell, Dr Sarah Thomas, Dr Nineta Hrastelj, Prof Celine Marmion, Prof Thorri Gunnlaugsson, Ms Rachel Thompson. Prof Floris Rutjes attended by VC.

Furthermore, the Department of Communications, Climate Action and Environment was also in touch with the Institute requesting nominations for their Environmental Protection Agency Advisory Committee. I am pleased to report that the Institute put forward a number of nominations for this position.

I hope that you will get a sense from the above that the Institute is working hard on your behalf to promote all that is best about Chemistry in Ireland. As we approach Easter, may I take this opportunity, on behalf of Council, to wish you and your families every good health and blessing during these most challenging of times.

Yours sincerely,

Celine Marmion

Professor Celine J. Marmion FICI
President, Institute of Chemistry of Ireland
3rd April, 2020



Editorial

First I hope you are all well and following the safety guidelines for the Covid-19 virus from the HSE. Stay safe.

I would like to pay tribute to all the chemists, biochemists, scientists and technicians working in the health services and test laboratories as well as those in the pharmaceutical industry and research institutions working to find vaccines, antibodies, new and repurposed medicines to protect people from the virus.

SFI have issued an e-alert for Rapid Response Funding Calls and a 5 point plan <https://www.sfi.ie/covid-19/> See page 8 with links.

A big concern is the number of conferences having to be cancelled. I have content about the 8th EuChemS European Chemistry Congress in Lisbon 30th August to 3rd September. Hopefully it won't need to be cancelled but please do support the efforts of the organisers by planning to attend.

You may have noticed that there were only two issues of ICN in 2019. This was due to my being out of the country for long periods at Nanjing Tech University, commitments in the UK and holidays. You might like to know I had left China before the Wuhan virus outbreak.

In this issue I have an article by distinguished Professor Eric V. Anslyn, from The World Leading Researcher Professor Initiative at Queen's University Belfast.

A short report on the 71st Irish Universities Chemistry Research Colloquium June 20th/21st 2019 hosted by TU Dublin & RCSI is included.

On page 10 the winners of our three most prestigious awards are announced.

The Irish Biological Inorganic Chemistry Society (IBICS) had their most recent symposium, at RCSI on the 29th November 2019 and a report is included.

In addition to reports from SFI, IDA and EI, I have introduced a new section with permission from Silicon Republic with links to significant research reports with chemistry content.

One of the difficulties with producing a journal is getting content on time. I would appreciate you sending me reports of seminars, and notices of events relating to chemistry so I can inform a wider audience of chemists and those interested in chemistry.

Comments and Responses are welcome and can be sent to:- info@instituteofchemistry.org

Patrick Hobbs MSc, FICI, CChem, CSci, MRSC.
Editor

COVID-19 Rapid Response Funding Calls

Research and Innovation, in health, academia and industry, have a significant role to play in the national and global response to COVID-19. Consequently, the Government's main research and innovation agencies have developed a coordinated Rapid Response Research and Innovation programme to help mitigate and manage the COVID-19 pandemic by unlocking the potential of Irish based researchers and innovators to join the global efforts.

This coordinated response is comprised of two complementary strands. Having two focus areas allows for sufficient specialisation and coordination while optimising available resources.

The first focus area targets **medical countermeasures, health service readiness, and social and policy countermeasures to COVID-19**. This is led by The Health Research Board and the Irish Research Council. [Details of the call can be found here.](#)

The second focus area is an agile and adaptive initiative to combine the capabilities of industry and academia in the development of **innovative solutions that can have a rapid demonstrable impact** on the current COVID-19 crisis in Ireland. This is led by Science Foundation Ireland, Enterprise Ireland and IDA Ireland and [details of the call can be found here.](#)

The agencies will work in partnership to coordinate applications and ensure a seamless and agile review and funding process, with the progress and results from each stream shared broadly. As the calls operate under a single programme, applications will be aligned by the agencies to the most appropriate call.

In dealing with the COVID-19 crisis, pace is critical and research funders around the globe have mobilised rapidly to provide a range of opportunities for researchers and innovative companies. The Rapid Response Research and Innovation funding proposal is an invitation to researchers and innovators in Ireland to support the efforts to reduce the impact of COVID-19.

Details of SFI's **Five Point Plan** which represents SFI's contribution to the Irish Government's National Action Plan in response to Covid-19, can be found [on our website.](#)

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www.sfi.ie

The **Institute** has been asked to circulate information from the **Editor of European Pharmaceutical Review** re Covid-19:

To promote scientific collaboration and openness during these unprecedented times, *European Pharmaceutical Review's* sister title *Drug Target Review* has launched a [COVID-19 research hub](#).

Including news, articles and a forum for discussion, the hub allows you to discover and share your thoughts on the latest pre-clinical coronavirus treatment and vaccine developments.

The hub is also a platform to share COVID-19 drug discovery findings; you can use our submission box to send in any coronavirus-related research you would like to publish:

[SHARE YOUR RESEARCH](#)

I look forward to reading your thoughts and research.

Kind regards,

Nikki Withers

Editor | European Pharmaceutical Review **European Pharmaceutical Review**



Website: <https://www.europeanpharmaceuticalreview.com>

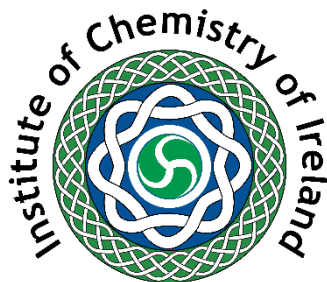
European Pharmaceutical Review is the leading publication for up-to-the-minute information on all aspects of drug analysis, formulation, delivery, manufacturing and regulation. Published bi-monthly, each issue delivers high-level technical and business contributions from the world's leading pharmaceutical scientists and business experts, coupled with a variety of features including interviews, updates and profiles.



Website: <https://drugtargetreview.com>

From the industry experts and publishing team behind [European Pharmaceutical Review](#), Drug Target Review provides a voice for the drug discovery industry, promoting the latest research and developments, funding projects, and cutting-edge technological developments.

Drug Target Review's quarterly journal, website and annual events programme provides high quality content with peer-written articles that are submitted exclusively by the world's most respected scientists in their field. 88% of our readers would recommend Drug Target Review to a friend or colleague.



The Institute of Chemistry of Ireland Awards

The ICI Boyle Higgins Gold Medal and Lecture Award The ICI Annual Award for Chemistry (Eva Philbin Public Lecture Series) The ICI Postgraduate Award

The Boyle Higgins Gold Medal and Lecture Award

The Boyle Higgins Gold Medal and Lecture Award, instituted in 1985, is an award for research work carried out in chemistry under the headings: (a) Pure Chemistry, (b) Applied and Industrial Chemistry or (c) Chemical Education. The award recognizes a chemist **of any nationality working in Ireland or a chemist who is an Irish citizen working overseas** who has made **an outstanding and internationally recognised research contribution to the advancement of chemistry**. A person nominated for this award must be a member of the Institute at the time of nomination or upon receipt of the award.

Nomination process: The nominator shall indicate in writing to the President of the Institute the category which applies to their nominee and they shall submit by email one electronic copy which will include a brief statement outlining the reasons for the nomination, together with a CV (maximum 3 pages) of the nominee. Nominations will be externally reviewed by two independent referees, who are recognised experts in the category and who are not nominators.

The ICI Annual Award for Chemistry (Eva Philbin Public Lecture Series)

This award is for a practising chemist, who has made a significant contribution to the advancement of chemistry and has considerably raised the profile of chemistry through both the excellence of their work and their ability to communicate in an effective and lucid manner. **The recipient, who may be an Irish or international chemist of repute**, will present lectures in three locations in Ireland (including Dublin), which will be open to the public. A person nominated for this award must be a member of the Institute at the time of nomination or upon receipt of the award.

Nomination process: The nominator shall send one electronic copy of their nomination by email to the President of the Institute, which will include a cover letter providing a brief statement outlining the reasons for the nomination, together with a CV (maximum 3 pages) of the nominee. Nominations for this award will be externally reviewed.

The ICI Postgraduate Award

The nominee must be a **registered PhD student in any Chemistry discipline working in an Irish Higher Education Institution**. They must have demonstrated excellence in research through publications. They must also have demonstrated a commitment to supporting and promoting Chemistry within their Institution (e.g. through active participation in public engagement initiatives). A person nominated for this award must be a member of the Institute at the time of nomination or upon receipt of the award.

Nomination Process: The nominator, who must be the student's PhD supervisor, shall send one electronic copy of their nomination by email to the President of the Institute, which will include a cover letter providing a brief resume of the reasons for the nomination, together with a CV (maximum 2 pages) of the nominee.

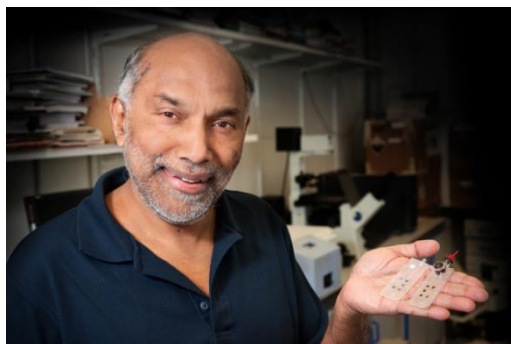
ICI website: <http://www.chemistryireland.org>

Nominations to be sent to the ICI President at: president@instituteofchemistry.org

[Details in relation to other ICI Awards are available on the ICI website](#)

ICI Award Winners 2020

Boyle Higgins Gold Medal Lecture Award 2020



Professor A.P. De Silva, QUB

The ICI Annual Award for Chemistry (Eva Philbin Public Lecture Series) 2020



Professor Declan McCormack from TU Dublin

The ICI Postgraduate Award 2019



Ms Saoirse Dervin (Sligo IT).



EuChemS

Chemistry Congress

**30 August to 3 September
2020 • LISBON.PT**

INVITATION TO THE 8th EuChemS Congress

The Portuguese Chemical Society (SPQ), with the support of the Portuguese Electrochemical Society (SPE), has the great pleasure of inviting you to the 8th EuChemS Chemistry Congress (8ECC), to be held in Lisbon, Portugal, from August 30 to September 3, 2020.

The 8ECC will be built under the unifying theme of Chemistry the Central Science, providing an exciting scientific program led by world class experts, and will focus on the central role of chemistry at the interfaces with biology, material and environmental sciences, both for the progress of humankind and for the solution of fundamental problems of modern societies.

This will be an excellent opportunity to enjoy Lisbon, a historic capital full of charm, with more than 800 years of culture blended with modern lifestyle.

The Lisbon Conference Centre, facing the Tagus river, is the perfect place to hold a unique event that will showcase the most recent advances of chemical sciences in Europe and around the world, and will allow fruitful discussions in every area of chemistry.



9th EuChemS European Chemistry Congress to be held in Dublin, Ireland, in 2022

<http://www.euchems.eu>

At the recent meeting of its Executive Council, The European Chemical Society (EuChemS) awarded the 9th EuChemS European Chemistry Congress to Dublin. This prestigious congress is held every two years and brings together the leading researchers and industry partners in all chemistry disciplines from across Europe and the wider international arena.



Ireland Section

The organisers expect over 1,500 delegates from around the globe to attend the event in The Convention Centre Dublin, in 2022. The five-day programme will consist of plenary and parallel lectures, poster sessions, symposia, networking events, and an industrial exhibition, and will also be part of a wider programme of events in 2022 celebrating the centenary of the Institute of Chemistry of Ireland.

The European Chemical Society, was official announced at ECC7 in Liverpool, August 2018. Formerly (2004–2018) the European Association for Chemical and Molecular Sciences (EuCheMS) and before that (1970–2004) the Federation of European Chemical Societies (FECS).

The European Chemical Society (EuChemS) coordinates the work of almost all the European Chemical Societies. As an organization, it provides an independent and authoritative voice on all matters relating to chemistry, and places chemistry at the heart of policy in Europe. Furthermore, EuChemS seeks to develop its members through various activities, workshops and awards.

Under the new EuChemS the next Congress, ECC8 will be hosted by **The Portuguese Chemical Society** (SPQ), with the support of the **Portuguese Electrochemical Society** (SPE), invites you to attend this must go to series of European chemistry conferences, the 8th EuChemS Chemistry Congress (8ECC), to be held in Lisbon, Portugal, from August 30 to September 3, 2020.



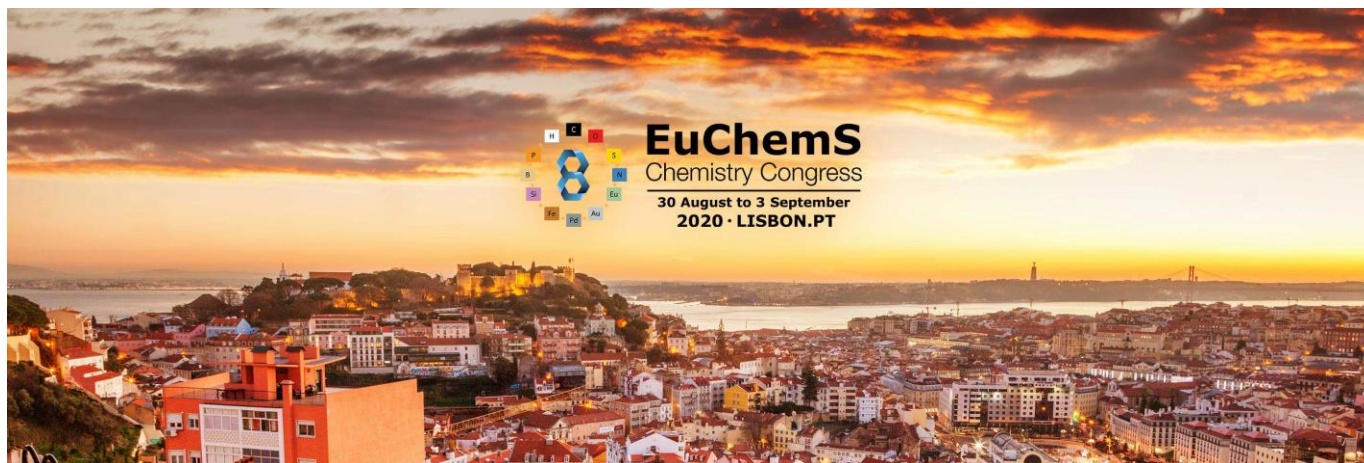
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Letter from Luisa de Cola, President of the Scientific Committee & Artur Silva, President of the Portuguese Chemical Society

To:

EuChemS Member Societies

EuChemS Divisions, Working Parties and EYCN

EuChemS Executive Board

Dear Colleague,

8th EuChemS Chemistry Congress, 30th August to 3rd September 2020, Lisbon, Portugal

We are writing to you in your capacity as a representative of a EuChemS Division or Working Party, the European Younger Chemists' Network, or a EuChemS Member Society to update you on our continued progress with the organization of the 8th EuChemS Chemistry Congress (**ECC8**).

We are very grateful for the continued support that we have received from the EuChemS community and in particular for all the suggestions for sub themes, conveners and keynote speakers provided as part of our last consultation. Since then some decisions have been

taken in order to develop the scientific programme. Taking into consideration the great many suggestions received, the scientific committee have agreed the programme of themes and sub themes, and the group of conveners.

You will understand that we cannot provide detailed feedback about each suggestion we received, but we sincerely hope that everyone will see elements of their ideas reflected in the programme (Details are on the ECC8 website <http://www.euchems2020.org/>).

The goal for ECC8 is that it should be a scientifically excellent European chemistry meeting. The scientific committee and we will work to ensure that the ECC8 programme reflects the outstanding research being done in Europe as well as their role in the international scientific community. I am also deeply committed to ensuring that diversity in chemistry is reflected in all its forms from career stage to gender to nationality. We can still accept suggestions to develop additional events such as stand-alone symposia, panel discussions, exhibitions and other activities to complement the core scientific programme.

The registrations are open since some time (<http://www.euchems2020.org/?id=registration>), and we would like ask you to disseminate this information among the members of your EuChemS Division or Working Party, European Younger Chemists' Network, or EuChemS Member Society. Together we must contribute to show the strength of the EuChemS community and also of the quality of the Chemistry we are carrying out.

Yours sincerely

Luisa de Cola, President of the Scientific Committee

Artur Silva, President of the Portuguese Chemical Society

TU Dublin & RCSI host 71st Irish Universities Chemistry Research Colloquium

June 20th/21st 2019

The School of Chemical and Pharmaceutical Sciences in association with the **Department of Chemistry of the Royal College of Surgeons in Ireland (RCSI)** hosted the **71st Irish Universities Chemistry Research Colloquium**. The theme was **Sustainability**, and the event took place on Thursday 20th and Friday 21st June. Schedule and Colloquium booklet available at: <https://chemistrycolloquium2019.wordpress.com>

Report on Colloquium June 20, 21st 2019.

There were just over 170 registered attendees at the Colloquium. There were two plenary speakers and both delivered presentations on the topic.



Prof. Luuk van der Wielen, Director, Bernal Institute and Chair of Biosystems Engineering & Design, University of Limerick, Distinguished Professor for Biobased Economy, TU Delft, The Netherlands (www.tudelft.nl) and President, BE-Basic Foundation, The Netherlands (www.be-basic.org) gave a plenary lecture on day one in TU Dublin which will focus on the area of recycling.



Dr. Francesca Paradisi, Professor in Pharmaceutical and Bioorganic Chemistry, University of Bern delivered the plenary lecture in RCSI on the second day of the colloquium, on the topic of biocatalysis and flow chemistry, both of which have roles in delivering sustainable reactions.

There was a round table discussion at 2 pm on Thursday in Room 4068 (Aungier St.). The panel was comprised of industrial and academic mentors namely: Brian Glennon (APC), Brenda Moore, (TE Laboratories), Bernie Capraro (Intel), and Amanda Daly (SFI).

There were 23 full undergraduate talks, 22 flash talks and 52 posters presented at the colloquium.

Sustainable aspects were that:-

There was no bottled water

The teas/ coffees were in recyclable containers.

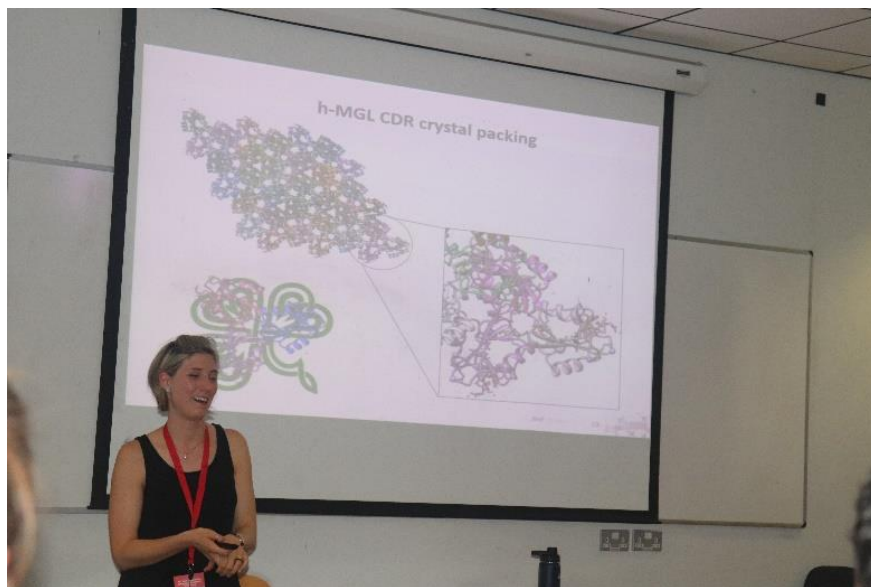
The book of abstracts was on line and not printed.

Exhibitors demonstrated sustainable laboratory apparatus (air condensers etc.)

Attendees were encouraged to use public transport.

Postgraduate Award Winner (2018)

Ms Adele Gabba (NUIG), inaugural Postgraduate Award Winner (2018) delivered an outstanding award lecture at the 71st Irish Universities Chemistry Research Colloquium. Adele also kindly agreed to represent the ICI as its **Postgraduate Ambassador**.



Ms Adele Gabba (NUIG), Inaugural Postgraduate Award Winner (2018) during her Award Lecture



Professor Celine Marmion, Adele Gabba, Professor John Cassidy (Immediate Past President)



President of the Institute of Chemistry of Ireland Professor Celine Marmion introducing proceedings



Professor Declan McCormack TU Dublin speaking at the opening



Plenary Speaker: Prof. Luuk van der Wielen, Director, Bernal Institute and Chair of Biosystems Engineering & Design, University of Limerick (photo by Claire McDonnell, TU Dublin)

Selection of photos of speakers at the Colloquium by John Keegan, Institute Treasurer



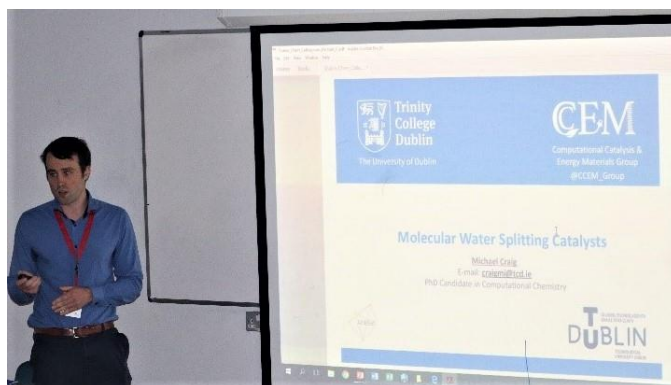
Thanih Balbaied (UCC)



Kevin McGuire (Maynooth University)



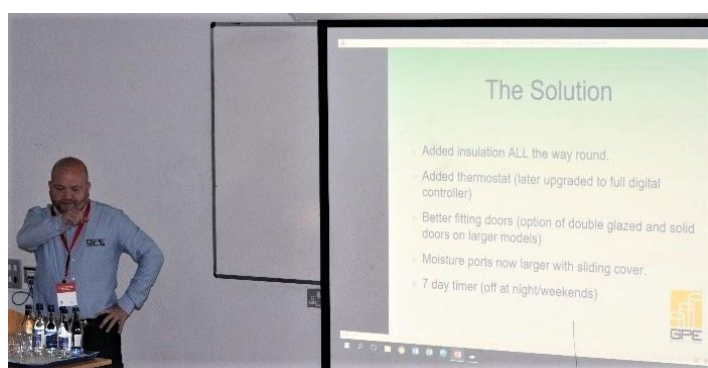
C Cioffi (RCSI)



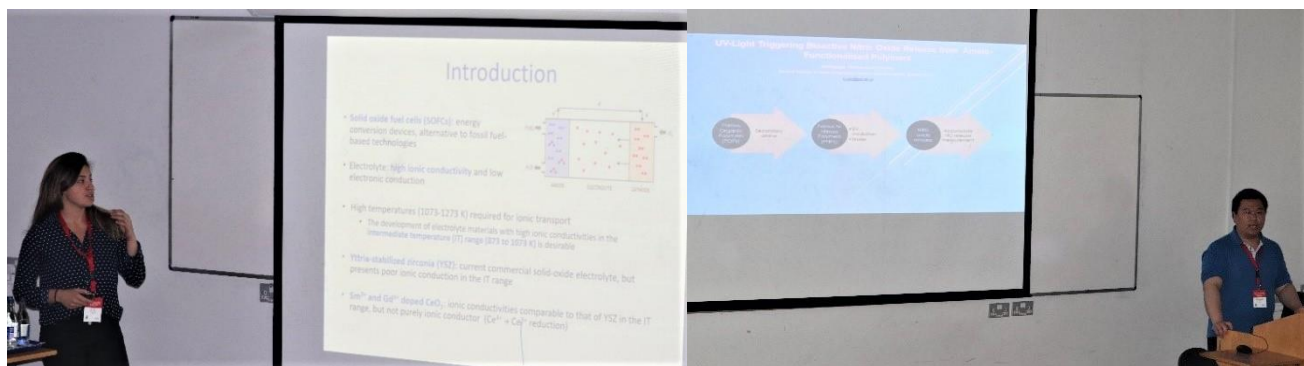
M Craig (TCD)



P Sidambaram (TU Dublin, City Campus)



Barry Reid (GPE Scientific)

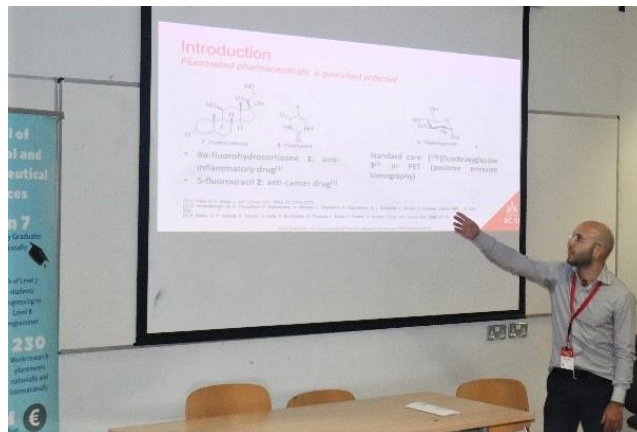


J Savioli (TCD)

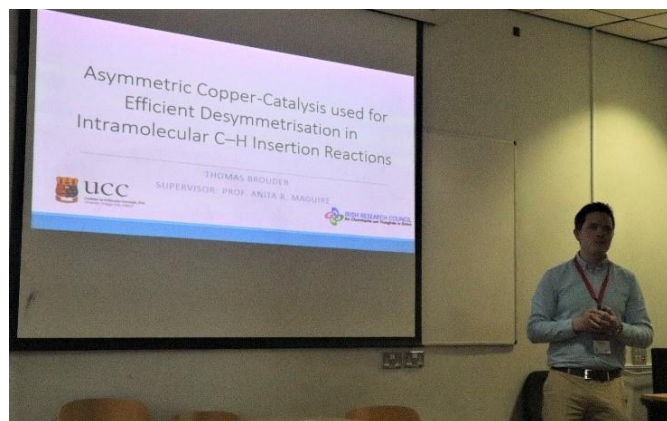
Tianchao Xie (QUB)



Prof John Cassidy introduces Tatenda Mareya (PMBrc)



Francesco Alletto (RCSI)



T Brouder (UCC)



I Osman (DCU)

Round Table Discussion

The panel will be comprised of industrial and academic mentors namely: Brian Glennon (APC), Eoin Murray, (TE Laboratories), Bernie Capraro (Intel), and Amanda Daly (SFI). The topic for discussion is career and funding opportunities for early career researchers.



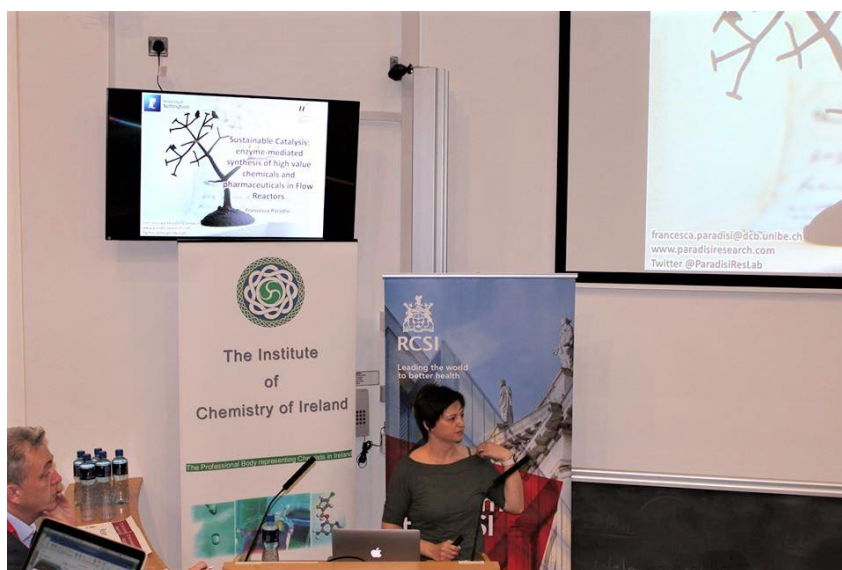
Bernie Capraro (Intel), Eoin Murray (TE laboratories), Brian Glennon (APC), Amanda Daly (SFI)

Some photos from the prize winners being presented by Prof John Cassidy: Photos Editor





Prof Donal O'Shea RCSI introducing the session at RCSI on 2nd day (photo by Claire McDonnell, TU Dublin).



Dr. Francesca Paradisi, Professor in Pharmaceutical and Bioorganic Chemistry, University of Bern delivered the plenary lecture in RCSI (photo by Claire McDonnell, TU Dublin)

More photos taken by Claire McDonnell are on Facebook at

https://www.facebook.com/pg/TUDubChemPharm/photos/?tab=album&album_id=10156114325592038



EYCA
EUROPEAN YOUNG CHEMIST AWARD

Application open until 15 May, 2020.

<https://www.euchems.eu/awards/european-young-chemists-award/>

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Please discuss with your colleagues and considering nominating outstanding young chemists and circulate this information as much as you can.

Editorial: Prof Dr Floris Rutjes, EuChemS President-Elect



Did you know that you are part of EuChemS? Through the membership of a national chemistry association, you are also part of the European Chemical Society, which represents 51 member societies and organisations and 160,000 individual chemists. Although in size comparable to the American Chemical Society, EuChemS is less well-known among its members. This is something I would like to change.

Since the beginning of this year, I have the honour to serve as President-Elect of the European Chemical Society. It marks the start of a six-year term in the EuChemS Executive Board and I very much looking forward to be a member of this team. I see clear opportunities to increase the impact of EuChemS and contribute to improving the visibility of the chemical societies in Europe.....

To read the rest of the Newsletter editorial follow the link:

<https://www.euchems.eu/newsletters/chemistry-in-europe-2020-1>



The World Leading Researcher Professor Initiative at Queen's University Belfast: Eric V. Anslyn.

The Experience of the School of Chemistry and Chemical Engineering



Welch Regents Chair University Distinguished Teaching Professor, The University of Texas at Austin, Department of Chemistry and Biochemistry.

<http://anslyn.cm.utexas.edu/research/index.html>

UNDERSTANDING MOLECULAR INTERACTIONS USING BIOORGANIC AND SUPRAMOLECULAR CHEMISTRY

My research group is interested in the physical and bioorganic chemistry of synthetic and natural receptors and molecular recognition. Using a combination of synthesis, combinatorial techniques, NMR, kinetics, computer modelling, and optical signalling, we design and implement studies oriented at the development of receptors for numerous real world applications. In specific, we focus upon receptors for diols, catechols, carbohydrates, enolates, and enantiomeric excess using single and multi-analyte sensing ensembles.

To this end, our group works on synthetic and designed receptors for the analysis of complex analytes in real-life settings by mimicking the mammalian senses of taste and smell. As a means of developing sensors, we are pursuing the formation of combinatorial libraries of peptidic and non-peptidic structures augmented with elements of rational chemical design. We have used receptors designed this way to generate fingerprints that differentiate between the individual members of a targeted class of molecules. These types of receptors can be used to determine the identify of mixtures, enantiomeric excess of a reaction, or identify analytes in a mixture.

Finally, we are also pursuing the use of polymers and other large molecules for the creation of multicomponent assemblies that can be used in multianalyte sensing applications. Different portions of the assembly impart the differential behaviour and cross-reactivity, as well as bias toward the central recognition element for the target class of molecules. While our group works in many different areas, each of our projects relies upon the principles of supramolecular, organic, and biological chemistry, to unite them together.

I am the luckiest dog on the block. I get to visit Belfast City Northern Ireland 2 to 3 times a year to converse about chemistry and hob-nob with faculty and old/new friends. Coming to Queen's University Belfast (QUB) as a World Leading Researcher Professor to interact with the staff, students, and post-docs, is a dream come true. I can date such a dream all the way back to an organised tour of Ireland, England, and Scotland I took at the age of 16 with my parents. During this tour I fell in love with Ireland and the United Kingdom, their landscapes, castles, food, and particularly the cask beer. Starting from this time forward, I've been an avid reader of Irish and British history (Tudor, Jacobian, Victorian eras), admirer of common TV shows (The Thunderbirds and Downton Abbey being tied for my favourites), and a practitioner of Irish and British cooking (particularly stews, pasties, colcannon, and kedgerree). Thus, all things associated with this part of the world are truly a passion for me.

So, what do I get to do when visiting QUB? First and foremost is visit with Professors at all ranks to discuss science and exchange ideas. This has led to a series of fruitful collaborations, many of which are coming to fruition for an anticipated 4 to 5 publications in 2020. In collaboration with Froso Themistou we are devising triggered degradable star-branched polymers, with AP de Silva we are generating switchable cyclophanes for release of redox active species, with Stuart James we are creating new synthetic approaches to novel polymeric materials, and my group in Texas has synthesised precursors for a handful of other QUB faculty for their various projects. While work occurs primarily at QUB, experiments are also on-going at UT Austin, my home institution. In fact, two students: Chaoyi Yao and Hannah Crory from the de Silva group, will spend some time in Austin TX with my group in early 2020. I have become a de facto co-supervisor of these two QUB graduate students.

Being "senior faculty" (a title that I'm aghast to don), I help with grant and manuscript writing for the younger faculty via reading/editing and give advice as deemed appropriate when asked. I routinely read papers before they are submitted, and we discuss publishing from an editor's perspective, the entire life-cycle of papers, and the peer-review process. In several cases of grant reviewing, I've caught topics that need more introduction for a general chemistry audience, thereby hopefully facilitating the ultimate review of these applications. My goal has been to further build upon an already strong research culture, supporting the chemistry and chemical engineering staff at all levels, with an aim toward improving QUB's results in the 2020 REF exercise.

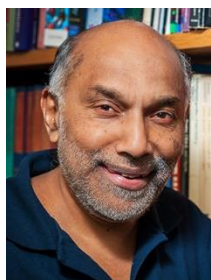
In addition, I've delivered a series of seminars, at least 4 in total thus far, as well as one class, and am looking forward to teaching many more classes in the future. We are currently discussing a series of physical organic workshops for me to lead in spring 2020. The department has a delightful program referred to as Sustainability and Well-Being Lectures, and during a passing conversation with Trevor Sewell (Technical Manager, now retired), the idea arose for an out-of-the ordinary presentation, which I entitled "Fun Facts About the 'Wizard of Oz', and the Life of Judy Garland". Generating and delivering this talk was totally a labour of love, and I was delighted that the attendance on the day of presentation was nearly 80 folks.

The bottom-line is – I'm loving this appointment and I hope it is of benefit to Chemistry and Chemical Engineering at QUB.

Eric V. Anslyn

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Professor Amilra De Silva, School of Chemistry and Chemical Engineering, Material and Advanced Technologies for Healthcare
Sensors

<https://pure.qub.ac.uk/en/persons/amilra-de-silva>

There is more than one contender for the luckiest dog in this story. Other contenders are the School of Chemistry and Chemical Engineering (CCE) at QUB and me. When QUB announced the launch of the World Leading Researcher Professor scheme to raise its international profile in time for the next Research Excellence Framework (REF) exercise, the then Head of CCE, Peter Robertson, and the current Head, Steven Bell, both suggested that I approach my long-time friend and well-known chemist Eric Anslyn. This received backing from Mark Price, Pro-Vice Chancellor for the Faculty of Engineering and Physical Sciences. Besides Eric's powerful research record, his prior editorial expertise at the flagship *Journal of the American Chemical Society (JACS)*, as well as his co-authorship with Dennis Dougherty of the popular textbook 'Modern Physical Organic Chemistry', could serve to start interactions with CCE staff at various levels. Having Eric with us for extended and regular visits has meant that all staff could learn the inner workings of the chemical research publication system, especially those at the higher-impact end of the spectrum. Younger staff could gain tips on work-life balance and also gain entry into worldwide networks in their areas of research. Postdoctoral and postgraduate students could receive masterclasses in physical organic chemistry and supramolecular chemistry. It also meant that there were opportunities to develop meaningful research collaborations with several groups in the school. Indeed, a couple of lucky students will visit the Anslyn laboratories in Texas to learn how world leading research is done there, and to participate in the programs running in Texas. Those in management roles could compare notes on the US, UK, and European university systems. This is what has happened, to the benefit of all.

A.P. de Silva
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A Report from the Irish Biological Inorganic Chemistry Society (IBICS)

The Irish Biological Inorganic Chemistry Society (IBICS) which was established in May 2017 is a learned Society engaging and fostering a multi-disciplinary community of scientists seeking to advance research that crosses the interface between medicinal inorganic chemistry and biology in Ireland.

The Society's mission is to develop, foster and promote a strong national network of scientists collaborating in research areas such as biology, chemistry, physics and medicine with an interest in biological inorganic chemistry.

The IBICS committee, currently comprises Celine Marmion (President), Michael Devereux (Vice-President), Orla Howe (secretary and treasurer), Bernadette Creaven, Deirdre Fitzgerald-Hughes, Kevin Kavanagh, Diego Montagner, Orla Ni Dhubhghaill, Luca Ronconi and Prabhakar Sidambaram.

The Society membership has been rapidly expanding since its establishment in 2017. The Society received charity status in 2019. It also launched its logo in 2019 which can be seen in the programme overview shown below. A website is under development and will be launched shortly.

To date the Society has hosted three successful symposia; the first jointly delivered by MU and TU Dublin (then DIT Kevin St) in November 2017, the second by NUIG in November 2018 and the third, most recent symposium, by RCSI on the 29th November 2019. A key feature of all IBICS symposia is the inclusion of two plenary lectures delivered by international speakers (within the bioinorganic chemistry and biology fields). The symposia also include lectures by established Irish researchers as well as early stage researchers and PhD students.

As stated, the IBICS-3 symposium was held in RCSI in November 2019. The local organising committee comprised Celine Marmion (chair), Darren Griffith, Deirdre Fitzgerald-Hughes, Ziga Ude and Aisling Ryan. The symposium programme is provided below. Prof Sigridur Suman from the University of Iceland and Prof Graeme Walker from Abertay University in Dundee, Scotland delivered outstanding plenary lectures. In addition to these lectures, there were 5 keynotes, 3 oral presentations, 6 flash presentations and 22 posters. In total, there were 8 female and 9 male speakers. The Society was enormously grateful to its sponsors; the Institute of Chemistry of Ireland, the Royal Society of Chemistry, Dalton Division, AnaLab, Apex Scientific, Gilson, VWR, Lennox, and RCSI without whose support it would not have been able to host the symposium at no additional cost to its members and delegates.

In 2019, the Society launched its inaugural IBICS Postgraduate Gold Medal Award. *This award recognizes a PhD student who has distinguished themselves across a range of criteria throughout their PhD with a focus on research performance, achievements and impact in the field of medicinal and biological inorganic chemistry within the island of Ireland.* There was an open call to the IBICS community for nominations in 2019. Nominated were reviewed by three independent reviewers. A particular highlight of the IBICS-3 symposium in RCSI was the presentation of this award to Muhib Ahmed from Maynooth University. Muhib

is working under the joint supervision of Dr Denise Rooney and Dr Malachy McCann. He delivered an outstanding award lecture entitled ‘Transition Metal Complexes of Novel Phenanthroline Derivatives and their Antibacterial Activity’ during the symposium. Three other nominees for this award, namely Meghan Winterlich (NUIG), Hollie Jenkins (TU Dublin) and Anna Banasiak (TU Dublin) received a ‘Highly Commended’ Certificate during the IBICS-3 symposium. Their supervisors are Dr Constantina Papatriantafyllopoulou (NUIG), Dr Bernadette Creaven (TU Dublin) and Dr. John Colleran (TU Dublin) respectively. There was also a prize for best oral presentation which was presented to Megan O’Shaughnassy (TU Dublin; supervisors Prof. Orla Howe and Prof. Michael Devereux) and two poster prizes which were presented to Meghan Winterlich (NUIG; supervisor Dr. Constantina Papatriantafyllopoulou) and Lorna Doyle (TCD; supervisor Prof. Aidan McDonald)

The IBICS-3 symposium was followed by the AGM which was open to all Society members.

For those who may be interested in joining the Irish Biological Inorganic Chemistry Society (IBICS), please contact Professor Orla Howe by email at orla.howe@TUDublin.ie

Note membership fees are as follows:

Academic or Emeritus: €30; Postdoctoral researcher or researcher: €20; Postgraduate or undergraduate student: €10



Pictured above are the delegates who attended the IBICS-3 symposium in RCSI, November 2019



Pictured above is the local organizing committee.

From l to r: Aisling Ryan, Ziga Ude, Celine Marmion, Darren Griffith, Deirdre Fitzgerald-Hughes



Pictured above is Muhib Ahmed from Maynooth University, recipient of the IBICS Postgraduate Gold Medal Award



Pictured above from l to r:

Kevin Kavanagh, Orla Howe, Pia Walker, Sigridur Suman, Celine Marmion, Graeme Walker





IBICS-3 PROGRAMME

10:00-10:45 Registration

10:45-11:00 Opening – **Chairperson: Celine Marmion**

SESSION 1 **Chairperson: Kevin Kavanagh**

11:00-11:45 **Graeme Walker**, University of Abertay, Scotland
'Role of metals in yeast physiology' (Apex-Gilson PL1)

11:45-12:00 **Tadhg O'Leary**, Technological University Dublin
'Evidence for reactive oxygen species dependent RNA degradation as a mechanism of action of novel cytotoxic copper and manganese Phenanthroline based developmental therapeutics' (OP1)

12:00-12:25 **Matthias Take**, University College Dublin
'Targeted versus Non-Targeted Anticancer Drugs – Is a Golden Age Approaching?' (KL1)

12:30-14:00 Lunch and Poster Session

SESSION 2 **Chairperson: Bernadette Creaven**

14:00-14:45 **Sigríður Suman**, University of Iceland
'Catalytic Cyanide Detoxification Route by a Molybdenum Complex; Reaction Mechanism and Biological Studies' (PL2)

14:45-15:10 **Andrew Kellett**, Dublin City University
'Polynuclear Metallodrug-DNA Interactions: New Therapeutic and Gene-Directed Applications' (KL2)

15:10-15:35 **Deirdre Fitzgerald Hughes**, Royal College of Surgeons in Ireland
'Organometallic Chemistry Meets Clinical Microbiology: Novel therapeutics for Diabetic Foot Infections' (KL3)

SESSION 3 **Chairperson: Ziga Ude**

15:35-15:40 **Meghan Winterlich**, National University of Ireland Galway
'Synthesis and Characterization of a Novel Mixed Metal Organic Framework Used as a Non-Toxic Drug Carrier' (FP1)

15:40-15:45 **Stephen Barrett**, National University of Ireland Maynooth
'Estrogen-Copper(II) complexes as targeted anticancer metal-based drugs' (FP2)

15:45-15:50 **Dorottya Krizsa**, University College Dublin
'Spectroscopic Study of the Binding Interactions of Non-Canonical DNA by a New Ruthenium Polypyridyl Probe' (FP3)

15:50-15:55 **Lorna Doyle**, Trinity College Dublin
'Biomimetic Dimanganese Complexes and Their Reaction with Superoxide' (FP4)

15:55-16:00 **Mark Stitch**, University College Dublin
'Ultrafast Dynamics of a Ruthenium Polypyridyl Vibrational Stark Probe in Solution and Bound to DNA sequences' (FP5)

16:00-16:05 **Neville Murphy**, National University of Ireland Galway
'Metallacarboranes as TNBC therapeutics' (FP6)

16:05-16:30 Coffee Break

SESSION 4 **Chairperson: Darren Griffith**

16:30-16:55 **Aidan McDonald**, Trinity College Dublin
'Mimicking class Ib dimanganese ribonucleotide reductase' (KL4)

16:55-17:10 **Megan O'Shaughnessy**, Technological University Dublin
'The potential of metal complexes with 1,10-phenanthroline and dicarboxylate ligands as anti-biofilm agents against *Pseudomonas aeruginosa* isolated from Irish Cystic Fibrosis patients' (OP2)

17:10-17:25 **Hollie Jenkins**, Technological University Dublin
'Synthesis of Copper(II) Complexes of Coumarin Derived Schiff Bases: Stability and Cytotoxicity studies' (OP3)

17:25-17:50 **Tia Keyes**, Dublin City University
'Strategies for cell permeation and targeting of metal complexes as luminescent probes for imaging and phototherapeutics' (KL5)

SESSION 5 **Chairperson: Orla Howe**

17:50-18:10 Presentation of the IBICS Postgraduate Award 2019 and Award Lecture

SESSION 6 **Chairperson: Celine Marmion**

18:10-18:20 Award Ceremony and Closing

18:20-19:00 AGM

19:00-20:00 Wine Reception

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Appointment of Prof Mark Ferguson to the post of Chair of the EIC Advisory Board

27 June 2019 The appointment of Professor Mark Ferguson, Director General of Science Foundation Ireland, to the post of Chair of the [new European Innovation Council Advisory Board](#), was announced today.

Other Irish appointments to the board include:

- Dermot Diamond, Principal Investigator at INSIGHT SFI Research Centre for Data Analytics, Dublin City University.
- Valeria Nicolosi, Chair of Nanomaterials and Advanced Microscopy at Trinity College Dublin and researcher at AMBER SFI Research Centre for Advanced Materials and BioEngineering.

"I am pleased to have been appointed as Chair of the European Innovation Council (EIC) Advisory Board, which will provide strategic leadership to the EIC. I look forward to working with my fellow Advisory Board members and with the EIC."

- said Professor Mark Ferguson, Director General Science Foundation Ireland and Chief Scientific Adviser to the Government of Ireland.

Eight innovative Irish SMEs to receive European Innovation Council funding

Eight innovative Irish SMEs (from Dublin, Cork, Galway and Limerick) are to receive European Innovation Council funding. The announcement was also made today by the European Commissioner for Research and Innovation.

The European Innovation Council (EIC) was set up by the European Commission to turn science into new business and accelerate the scale-up of innovative companies. Currently in its pilot phase, the European Innovation Council will become a full-fledged reality from 2021 under the next EU research and innovation programme Horizon Europe with a proposed € 10 billion budget.

Seven of the Irish SMEs will receive EIC Accelerator funding (€1.5 to €2.5 million) while one will receive EIC Pathfinder Pilot funding.

EIC Accelerator funding

The seven Irish SMEs who are to receive EIC (European Innovation Council) Accelerator pilot grants (previously known as the SME Instrument Phase 2) are:

- Coroflo Limited (Dublin) which is developing a revolutionary product to support breastfeeding with 21st century technology;

- CroiValve (Dublin) which is developing a non-surgical treatment to restore heart valve function
- Bluedrop Medical (Galway) for its project to use AI (Artificial Intelligence) to manage patients at risk of diabetic foot ulcer - a remote monitoring system that uses computer vision and machine learning to predict and prevent diabetic foot ulcers (DFUs).
- Perfuze Limited (Galway) which is developing a simple, repeatable way to completely remove a clot from the brain in one pass
- Vetex Medical (Galway) for an early stage medical device that will enable the drug-free removal of clots
- Votchnik (Limerick) which is developing a fully automated LCD recycling technology for the global market.
- Beats Medical or Beats Therapeutics (Sandyford) which is developing tailored digital therapeutics for neurological and brain disorders

EIC Accelerator funding is awarded to SMEs and start-ups that are developing potentially game changing innovations, such as: next generation of safe and environmentally-friendly light aircrafts; anti-bacterial textile for hospitals; 3D audio software; motion planning technology for autonomous driving; and a superbots for audio calls.

In total, the Commission announced €149 million funding in EIC Accelerator Pilot grants (previously known as the SME Instrument Phase 2) for 83 SMEs and start-ups around Europe. The full list of the companies from 17 countries across the EU and from countries associated to Horizon 2020 is available [here](#).

EIC Pathfinder Pilot

One Irish SME is to receive funding under the EIC Pathfinder Pilot (previously FET OPEN): Helixworks Technologies (Cork), which is a partner in the OLIGOARCHIVE project.

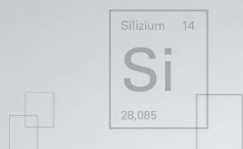
The EIC Pathfinder Pilot offers grants of up to €4 million for bottom-up high-risk, high-impact research ideas (previously known as FET Open). Projects include; metal-free MRI contrast agents; treatment to replace antibiotics in lung infection diseases; custom-crafted graphene nanostructures; precise measuring and monitoring of highly penetrating particles in deep space; artificial proteins for biological light-emitting diodes; and many other ideas. In total, the Commission today announced €164m to 53 new EIC Pathfinder pilot grants around Europe. The full list can be found [here](#).

For more information on all announcements see the [European Commission website](#)

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Science Foundation Ireland's 2018 Annual Report highlights 43% increase in research funding from industry to €46 million

July 2019

- SFI supports 39,823 jobs in Ireland – an increase of almost 30%
- 2,715 international research collaborations in 74 countries reported in 2018

Dublin, 22nd July 2019 – Science Foundation Ireland (SFI) has today launched its 2018 annual report, reflecting on a significant year of collaboration and achievement. The national foundation for investment in research in the areas of science, technology, engineering, and mathematics (STEM) in Ireland, SFI has significantly increased the economic return it generates from public funding, delivering an increase of almost 30% in the number of jobs it supports and a 20% increase in researcher engagement with the public. For every €1 invested by the State in SFI Research Centres, €5 was returned to the economy.

In 2018, SFI invested €188 million from the Department of Business, Enterprise and Innovation into supporting Irish research and generating new industry and international collaborations, which generated a further €230 million in non-government funding (an increase of 31%), including €98 million competitively won from the EU. Funding from industry increased by 43% to €46 million.

Minister for Business, Enterprise and Innovation, Heather Humphreys TD, welcomed the report saying, *“2018 was a significant year for investment in science and research in Ireland. I was delighted to welcome the opening of five new SFI Research Centres, CONFIRM, VistaMilk, I-Form, BEACON and FutureNero, further growing this important network which has been at the forefront of driving scientific advancement and impactful industry collaboration in Ireland. Investment in these Centres reflect the efforts made by Government to maintain and improve Ireland’s global reputation for research excellence and innovation. As part of our planning and preparation for Brexit, I’m delighted to see that SFI has further grown its global footprint in 2018, with 2,715 international research collaborations taking place between its funded researchers and their collaborators in 74 countries. SFI’s first overseas post in California will also support more US-Ireland research collaborations. Such progress clearly signals the far-reaching and positive impacts of Irish science on our future economy.”*

The five new SFI Research Centres launched in 2018 represent an investment of €90 million. These are CONFIRM, the SFI Research Centre for Smart Manufacturing led by University Limerick; BEACON Bioeconomy SFI Research Centre at the National Bioeconomy Campus in Lisheen; FutureNeuro, the SFI Research Centre for Chronic and Rare Neurological Diseases led by Royal College of Surgeons in Ireland; I-Form, the SFI Research Centre for Advanced Manufacturing led by University College Dublin; and VistaMilk SFI Research Centre, jointly funded by the Department of Agriculture, Food and the Marine.

SFI also promotes and supports STEM education and engagement to improve awareness and understanding of the value of STEM to society and to support the STEM careers pipeline. In 2018, SFI-funded researcher activities to engage and educate the public increased by 20%. Commenting on the

report, **John Halligan TD, Minister of State for Training, Skills, Innovation, Research and Development** said, *“2018 was a very positive year for Science Foundation Ireland. Its investment of €13.7 million in the next generation of STEM talent through SFI Career Development Awards, and the launch of 41 diverse initiatives through the SFI Discover Programme to promote STEM to young people and harder to reach audiences, will help to futureproof our talent pipeline. With 897 regional industry collaborations across both multinational corporations and SME businesses, SFI is growing opportunities across the regions, as well as now moving into the area of challenge-based funding programmes to drive innovation in solving some of our greatest and most pressing societal challenges.”*

Additional highlights from the 2018 Science Foundation Ireland Annual Report

- SFI-funded researchers competitively won €230 million from several diverse sources (up by 31%). Six European Research Council awards were won by SFI researchers.
- SFI supported 39,823 jobs in Ireland (up by 28%), including 4,924 people working on SFI-supported projects.
- Across the portfolio, SFI-funded researchers were involved in 12 spin-out companies, 51 patent awards and 174 invention disclosures.
- 72% of academic-academic collaborations are international (2,715 research collaborations spanning 74 countries). This includes eight new awards as part of a programme between SFI and the National Natural Science Foundation of China.
- SFI continued to develop partnerships with the National Science Foundation in the US by establishing its first overseas post to identify and facilitate research collaboration opportunities. This is further evidenced by the 454 US-Ireland research collaborations and the €75 million invested across 45 successful partnerships to-date.
- 2018 saw 897 regional industry collaborations, 504 of which were with multinational companies and 393 with SMEs.



<https://youtu.be/g0X9pMWHx4Q>

Prof Mark Ferguson, Director General of Science Foundation Ireland and Chief Scientific Adviser to the Government of Ireland, said, *“In 2018, we increased our efforts to support significant research capacity in areas of strategic national importance, such as climate, marine and renewable energy, agri-tech, bio-economy and smart manufacturing, delivering on Science Foundation Ireland’s strategy, Agenda 2020, and important Government strategies, Future Jobs Ireland and Global Ireland 2025. The new SFI*

Centres for Research Training Programme, representing an investment of over €100 million, will deliver on Project 2040's objective of building a strong economy by expanding Ireland's research capacity to meet industry skills needs, and providing training for over 700 postgraduate students. At the end of 2018, 45% of SFI-funded original and review articles were open access, bringing us closer to our goal of achieving full and immediate open access for all SFI-funded research publications by 2021. This increased access allows the societal and economic benefits of our funded research to go further. As we build on this continued growth and look to 2019 and beyond, Science Foundation Ireland's new strategy for 2020-2025 will aim to empower our research community, focusing on the areas where we can bring the most value."

Looking forward

During the first six months of 2019, SFI has launched several successful initiatives including:

- The launch of the successful SFI Frontiers Programme through a highly competitive process, with strong application numbers and positive engagement across the community.
- Six finalists selected as part of the SFI Future Innovators Programme which aims to cultivate challenge-based funding in Ireland. Finalists compete for a prize award of €1 million with the opportunity to develop and lead an innovative solution with the potential to impact Irish society.
- An investment of €230 million in renewed funding for six SFI Research Centres as part of Project Ireland 2040, which will directly benefit 850 researchers, while also supporting the Government's Future Jobs Ireland initiative. The investment is buoyed by industry support from 170 industry partners, committing to investing over €230 million in cash and in-kind contributions over the next six years.

Download full report here: [https://www.sfi.ie/research-news/publications/annual-reports/sfi-AR-18-\(web\)-NEW-\(3\).pdf](https://www.sfi.ie/research-news/publications/annual-reports/sfi-AR-18-(web)-NEW-(3).pdf)

Science Foundation Ireland summary: <https://www.sfi.ie/research-news/news/2018-annual-report>

Government here: <https://dbei.gov.ie/en/News-And-Events/Department-News/2019/July/22072019.html>

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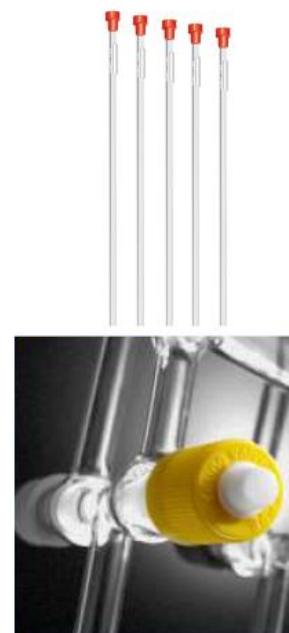
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Company Information:

GPE Scientific Ltd was established in 1962 and is a leading distributor and manufacturer of laboratory equipment, glass blowing products and specialised glass components for the industrial, laboratory and research markets. There are many reasons to choose GPE Scientific above our competitors; we pride ourselves in stocking thousands of products from leading suppliers providing you with the best selection of laboratory equipment on the market. This includes being the exclusive distributors for Chemglass Life Sciences and Chemical Reactors, Norell NMR Tubes and Accessories and the portable Nanalysis NMReady Benchtop Spectrometer.



SFI funded researchers are exploring ways to tackle climate change and plan for more sustainable futures. SFI has launched a new research feature showcasing just some of the Climate Research happening in Ireland.

Climate change is one of the most critical crises facing humanity today. Climate disruption is already having diverse and wide-ranging impacts on Ireland's environment, society, economic and natural resources. It is changing where people, plants and animals can safely live, and the recent media and policy focus on climate emergency and action is to be welcomed.

But how can we understand climate change? How can we capture data that will help us predict how our atmosphere and planet will change in the near future? How can we plan for those changes, and alter our policies and behaviours around the energy we use and the actions we take?

This is where research comes in. Science and technology can help meet climate change challenges through innovation, and by creating products, processes and services that aim to reduce the severe impacts of man-made activities on natural ecosystems and quality of life. Research in this area mainly serves to better understand the impact of climate change and to reduce or eliminate greenhouse gas emissions. Around Ireland, SFI-funded researchers are analysing climate - its inputs, its changes and its effects - and exploring ways to tackle climate change and plan for more sustainable futures.

Why is Ireland a useful place to carry out climate research?

Ireland's position offers a unique opportunity to monitor air quality and atmospheric changes at the boundary of Europe and the North Atlantic. Ireland is also a relatively small country, and so can be a useful testbed for evaluating how effective new approaches and technologies are to address climate change. With this unique geography, industry base and research ecosystem, Ireland is exceptionally positioned to play a strong role in addressing the global challenges of climate change.

How does SFI support climate research?

SFI funds a number of research projects that are focused on driving discovery and technological innovation that will enable society to mitigate and adapt to climate change. This research is carried out by large-scale, world-leading SFI Research Centres, and by individual researchers leading smaller teams.

From monitoring the impact of climate change on coasts, oceans and pollinators, to carbon capture and reuse, to reducing methane emissions in grazing dairy cows, SFI funds research that aims to better understand the changes that are happening to our world and climate.

Watch this video by Dr Brian Kelleher: <https://youtu.be/S0xRYSS5HMY>

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Minister Humphreys announces €25m for six projects through the SFI Research Infrastructure Programme

Funding to support research infrastructure across autonomous technologies; flow cytometry and gene analysis; medical imaging; cleanroom processing and metrology; ocean observing; and molecular analysis.

21 October 2019: Minister for Business, Enterprise and Innovation, Heather Humphreys, today announced a €25m Government investment through the Science Foundation Ireland Research Infrastructure Programme as part of Future Jobs Ireland. The funding will be distributed among six research infrastructure projects and will enhance high quality research activities and innovation in areas of strategic priority across a variety of disciplines.

Announcing the awards, **Minister Humphreys**, said: “I am delighted to announce this significant investment under Future Jobs Ireland. The quality of research being undertaken in Ireland today is testament to our world-class research community. This talent combined with the support provided through programmes like this one maintains our reputation as a great place to do business and work. The successful projects are at the cutting edge of innovation and are helping us to achieve our goal of preparing now for tomorrow’s world.”

The SFI Research Infrastructure Programme provides research groups with cutting edge infrastructure for the performance of high quality, impactful and innovative research. The programme ensures Irish researchers have the capacity to apply for international funding opportunities including the Horizon 2020 funding calls. Additionally, the programme facilitates inter-institutional sharing of national research infrastructure, especially for Institutes of Technology, as well as effective research partnership with industry through collaborative initiatives.

The six research projects that will be supported are:

- **Dr Timothy McCarthy, Maynooth University** - National Autonomous Technologies Data Platform (NATDaP) will provide valuable open Autonomous Technology data (including driverless vehicles, A.I., robotics and drones) from collaborating Higher Education Institutes across Ireland, which can be accessed by a much wider community, including researchers and industry collaborators.
- **Prof Kingston Mills, Trinity College Dublin** - Next generation flow cytometry and single cell gene analysis – this cutting-edge infrastructure, the only of its kind in a biomedical research Institute or a hospital site in Ireland, will significantly enhance Trinity College Dublin’s cytometry suite capability, enabling rapid analysis for clinical samples.
- **Prof Mani Ramaswami, Trinity College Dublin** - Ultra Low Noise Digital 3T MRI which will enable new programmes of research at three SFI Research Centres and permit participation in

international consortia including Horizon 2020. This new MRI scanner will allow Ireland to lead in neurodevelopmental research on infants and children, and in the areas of ADHD, depression, psychosis and Alzheimer's disease.

- **Dr Graeme Maxwell, Tyndall National Institute** - Tyndall 200mm FlexiFab - core (national) infrastructure upgrade which will enhance equipment to enable processing on 200mm (8 inch) wafers, a unique asset needed to drive future innovation in ICT research and industry in Ireland.
- **Mr. Michael Gillooly, Marine Institute** - EirOOS Irish Ocean Observing System: A component of the European Ocean Observing System (EOOS) will further scientific and technical research capacity in key areas such as sea level science, ocean circulation and carbon sequestration allowing us to understand the connection between Ireland and the Atlantic. This infrastructure will also increase opportunities to participate in European funded initiatives under Horizon 2020 and more.
- **Prof Walter Kolch, University College Dublin** - A national platform for comprehensive molecular analysis (CMAP) underpinning chemistry, the bioeconomy, and precision oncology research: from molecules to microorganisms and humans. CMAP will not only enhance Ireland's competitiveness to participate in and lead international research, it will also support research in five national priority areas, contributing to a more sustainable environment, better healthcare, and the creation of high-quality jobs.

Commenting on the investment, **Dr Ciarán Seoighe, Deputy Director Science Foundation Ireland** said: *"The SFI Research Infrastructure Programme was developed to support excellent research in Ireland. To allow researchers to meet the evolving challenges both globally and domestically we must ensure that they have the cutting-edge infrastructure required for their research to positively impact our economy, society and environment. Science Foundation Ireland is delighted to support researchers by providing them with facilities and equipment which enable them to keep exploring the frontiers of STEM research, and to progress their discoveries towards practical implementation."*

Welcoming the investment, **Dr Paul Connolly, CEO, Marine Institute** said: *'Sustainably managing our oceans and understanding the impacts of ocean and climate change, requires increased observations on and within the ocean. These observations underpin research and advice to support policy makers in sustainably managing our oceans and also in developing adaptation and mitigation plans for climate change impacts. The investment in the EirOOS infrastructures will enable enhanced ocean observation and underpin forecasting and modelling in the marine area.'*

Dr Timothy McCarthy, Maynooth University commented: *"Autonomous technologies offer huge societal and economic opportunities to Ireland. We are only beginning to see the practical applications this technology can provide. This investment will mean that not only can we create very real national capacity in this field but that we can ensure the opportunities have a much broader impact. Investments like this will ensure that Ireland can continue to compete at a global level working in partnership with the leaders in industry and securing funding from programmes such as Horizon 2020."*

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Science Foundation Ireland Open Access policy update

Science Foundation Ireland (SFI) is committed to ensuring that all outputs arising from SFI-funded research are openly available. To this end, SFI is a signatory of [Plan S](#) and [cOAlition S](#) member, an initiative to make full and immediate Open Access to research publications a reality. In line with the principles espoused by Plan S and those of the National Framework on the Transition to an Open Research Environment arising, [SFI's Open Access policy](#) has been updated. This update will support Ireland in achieving its goal of ensuring that the outputs of all publicly-funded research are openly available.

Dr Marion Boland, Head of Research Policy at SFI, commented: *“Policy mandates can often be powerful drivers of change, for the good. Open Research practices encourage collaboration, support the integrity and reproducibility of research, and importantly, ensure that maximum impact can be realised from research findings. We look forward to working with all national Stakeholders to ensure that the spirit of this policy can be fully realised.”*

Earlier this year, SFI became a signatory of the [San Francisco Declaration of Research Assessment \(DORA\)](#) which is often seen as a complementary initiative to Open Research. Together, DORA and Plan S will help change the way research is produced, accessed and utilised, for the better, supporting the emergence of different types of collaboration and more cross-disciplinary research to more effectively address societal needs.

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Science Foundation Ireland 2019 Science Awards recognise key leaders in the Irish Research Community

Athlone, 7th November 2019: The winners of the prestigious 2019 Science Foundation Ireland (SFI) Awards were revealed today at the annual SFI Science Summit. Over 300 leading members of Ireland's research community came together to celebrate the significant contributions made over the past year to Science, Technology, Engineering and Maths (STEM) in Ireland. This year a new award for Mentorship was introduced to celebrate the important role mentors play in providing guidance, motivation and emotional support in our research system.

Acknowledging the award winners, **Minister for Training, Skills, Innovation and Research and Development, John Halligan TD**, said: "The Science Foundation Ireland Awards recognise the breadth and depth that research encompasses from industry collaborations to public engagement and the innovative breakthroughs that are leading research globally in the areas of Immunology, Biomaterials, Cancer research and much more. I would like to congratulate each awardee on their achievements, which illustrate the invaluable knowledge and resource that Ireland's research community offers. I am also pleased to see mentorship amongst the awards this year, highlighting the importance of supporting the next generation of researchers and enriching our growing research community."

Professor Mark Ferguson, Director General of Science Foundation Ireland and Chief Scientific Adviser to the Government of Ireland, also congratulated the award winners, saying: "On behalf of Science Foundation Ireland, I would like to congratulate the award winners on their success and recognise their dedication in realising their ambitions and in doing so, building Ireland's reputation as a global research leader. We are very proud of the excellent quality of research that our funding enables, and the SFI Awards are an important acknowledgement of the collective achievements of the Irish research community, which continue to be impactful, inspirational and world-leading."

This year there are eight categories in total, with ten award winners as follows:

SFI Researcher of the Year 2019

The SFI Researcher of the Year Award recognises the accomplishments of an SFI funded researcher who has contributed significantly to the Irish research community in the year of the award and/or throughout their career. The successful researcher has achieved exceptional scientific and engineering research outputs combined with a clear demonstration of the ability to communicate their research.

Recipient: **Professor Kevin O'Connor, Director of the BEACON SFI Bioeconomy Research Centre, University College Dublin**

Commenting on receiving the Award Professor Kevin O'Connor stated: "I am delighted and honoured to receive this prestigious SFI award. It is a recognition of the dedication of the many researchers and industry partners with whom I work and collaborate with, across multiple scientific fields and sectors, at UCD, across Ireland and internationally. Through these collaborations we are creating knowledge and

translating this knowledge into innovative technological solutions to address global and societal bioeconomy challenges. I would especially like to acknowledge and thank SFI for their funding, and UCD, BEACON centre members and my wife and family for all their support.”

SFI Early Career Researcher of the Year

The SFI Early Career Researcher Award recognises outstanding early career research talent and in recognition of the high calibre of nominations in 2019, there are two individual recipients of the Early Career Researcher of the Year Award:

Recipient: **Associate Professor Lydia Lynch, Trinity College Dublin**

Recipient: **Dr Orla O’Sullivan, APC Microbiome Ireland SFI Research Centre and Vistamilk SFI Research Centre, Teagasc**

SFI Industry Partnership Award

The SFI Industry Partnership Award celebrates a collaboration between an SFI-funded academic research group and industry.

Recipient: **Professor Danny Kelly, AMBER SFI Research Centre for Advanced Materials and BioEngineering Research, Trinity College Dublin**, for collaboration with Johnson & Johnson Services, Inc.

SFI Best International Engagement Award

This award recognises the accomplishments of a Science Foundation Ireland-funded researcher/group specifically in the context of their international activities.

Recipient: **Professor Abhay Pandit, Scientific Director, CÚRAM SFI Research Centre for Medical Devices, NUI Galway**

SFI Entrepreneurship Award

The SFI Entrepreneurship Award celebrates an entrepreneurial achievement by SFI supported researchers.

Recipient: **Professor William Gallagher, University College Dublin**

SFI Outstanding Contribution to STEM Communication

This award recognises an outstanding contribution to the popularisation of science and recognises an individual who raises public awareness of the value of science to human progress. This year as the calibre of nominations was so high there are two individual awardees in this category.

Recipient: **Associate Professor Eilish McLoughlin, Dublin City University**

Recipient: **Dr Muriel Grenon, NUI Galway**

SFI Mentorship Award

This inaugural award recognises outstanding mentorship provided by a researcher funded by Science Foundation Ireland.

Recipient: **Dr Fatima Gunning, IPIC SFI Research Centre and Tyndall National Institute**

SFI Research Image of the Year

The Research Image competition celebrates images captured by Science Foundation Ireland funded researchers during the course of their research.

Recipient: **Dr Han Shao, Postdoctoral Researcher, Tyndall National Institute**

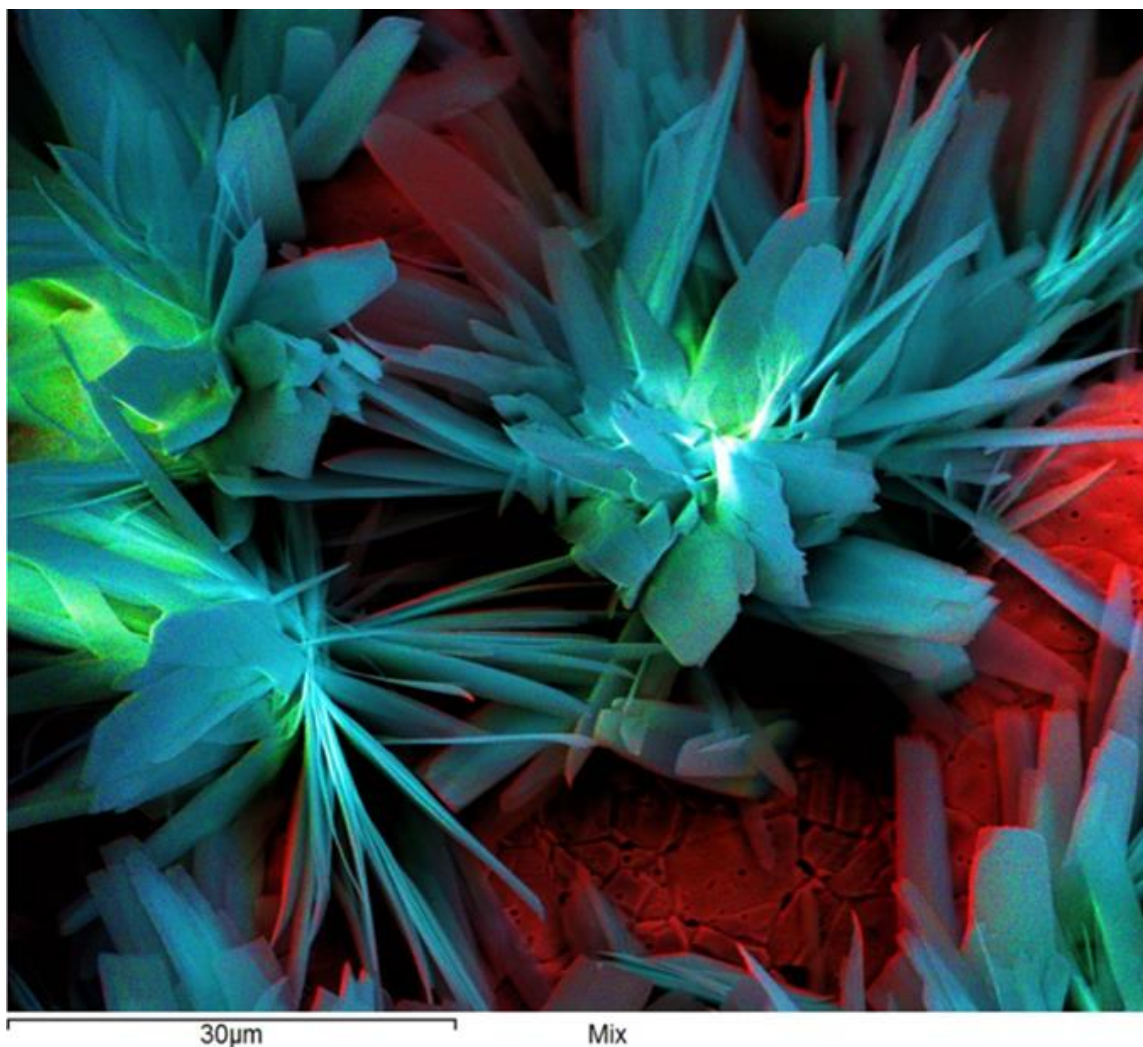


Image title: Synthesised Nanoflowers

This nickel foam supported cobalt phosphate nanoflake structure was synthesised via a simple hydrothermal method. The EDX image (without further doctoring) shows the distribution of different elements (red-Ni, purple-Co, blue-O, green-P) of cobalt phosphate microstructure. The nanoflake grew outward in different directions, forming a flower-like microstructure, which helps to enhance energy storage performance. With superior storage capacity and long life, the cobalt phosphate-based device can be employed in next-generation artificial cardiac pacemakers as a rechargeable energy source that will last for more than 15 years.

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€11.9 million SFI research collaboration targets precision oncology

Irish Charity, Industry and University sector combine forces to improve cancer patient outcomes

26 November: Minister for Business, Enterprise and Innovation, Heather Humphreys TD, today announced an €11.9 million research collaboration in the field of precision oncology, which is supported by the SFI Strategic Partnership Programme.

Precision Oncology Ireland is a consortium of five Irish universities, six Irish cancer research charities, and ten companies aiming to develop new diagnostics and therapeutics for the personalised treatment of cancer.

Precision (or ‘personalised’) medicine uses data about a person’s genes (genomics), along with additional information on their cancer, to understand the unique pathways of a disease or treatment response in that person. With this new science, doctors can prescribe the right treatment in a timely fashion, saving the wasted resources and time our current ‘trial and error’ method incurs, while greatly improving response rates.

Cancer survivor and patient advocate **Ramon Whelan** spoke of the importance of this game-changing research for patient’s lives, saying: *“I’m delighted to see researchers, charities and industry coming together in Ireland to focus as a group on the problems in cancer treatments. Cancer patients want to become more involved in their own treatment decisions, and more personalised diagnostics and treatments are essential for this to happen.”*

The initiative is supported by a €5 million Government investment through the SFI Strategic Partnership Programme, matched by a €6.9 million investment from the charity and industry partners making up the Precision Oncology Ireland Consortium - the first time that researchers, charities and industry have combined forces in this way.

Speaking at the launch, the Director of Precision Oncology Ireland, **Professor Walter Kolch** said: *“Precision Oncology Ireland is a vision come true. It unites the top cancer research experts in Ireland, the leading cancer charities, and companies at the cutting edge of diagnostics and drug discovery. We believe that this unique consortium lays out the blueprint for how cancer research and cancer care will look in Ireland in the 21st century. In Precision Oncology Ireland, we will use cutting-edge technologies to generate unique genetic and molecular profiles for each patient’s cancer. Our key competitive advantage lies in the innovative computational methods we use to make sense of these profiles, and decipher what drives each individual cancer. The results of this programme will be better diagnostics, personalised cancer treatment, and faster drug discovery and development.”*

The Deputy Director of the programme, **Professor William Gallagher**, hopes that this programme will allow cancer patients to benefit from research advances at an earlier stage, saying: *“We believe that Precision Oncology Ireland will accelerate the development of new diagnostics and therapies for cancer, and allow these advances to reach cancer patients in Ireland earlier. We will also involve patients in this work from the beginning, to ensure that their voice is heard in determining the most relevant research priorities.”*

Making the announcement at UCD, the lead academic partner in the consortium, **Minister Heather Humphreys TD** said: *“I am delighted to announce this significant step forward for cancer research in Ireland. This innovative programme has the potential to make a real difference to future treatment options available for cancer patients in this country. Precision Oncology Ireland is a significant investment, not only from Government, but also from the charity and industry partners in the programme, which is, without a doubt, a testament to their conviction that this initiative will lead to the development of new cancer treatments. I look forward to seeing the impact that this research programme will have for patients and our healthcare system in the future.”*

In Ireland, more than 40,000 people are diagnosed with cancer each year. Precision approaches to oncology give hope of improving cancer patients response rates and survival, reducing side-effects from therapy, and shortening hospital stays, balancing out any increased cost to the healthcare system. The National Cancer Strategy (2017-2026) called for the introduction of precision diagnostics and therapeutics into frontline cancer care.

Welcoming the initiative, **Professor Mark Ferguson**, Director General, Science Foundation Ireland and Chief Scientific Adviser to the Government of Ireland, said: *“SFI’s Strategic Partnership Programme aims to foster partnerships across academia, industry and charity to address key research questions and enhance the competitiveness of our economy. Ireland has unique and world-leading expertise in precision oncology. This transformative research programme will harness that expertise to enable real progress in personalised medicine for cancer patients, allowing us to take a leadership position in this important area of healthcare.”*

Professor Kolch added: *“A significant proportion of our funding is down to the generosity of the Irish public in donating and fundraising, via the participation of six of the leading cancer charities in Ireland, the first time they have come together to support a programme of this scale. We want to ensure that their hard work delivers results for cancer patients in Ireland.”*

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SFI Artificial Intelligence for Societal Good Challenge and Zero Emissions Challenge Teams Announced

24 teams have been selected to compete in SFI's [AI for Societal Good Challenge](#) and [Zero Emissions Challenge](#). These challenges are run under the SFI Future Innovator Prize Programme.

The 24 teams come from a diverse range of backgrounds and are competing to develop novel, potentially disruptive solutions that address key societal concerns. A central feature of these challenges is their solution focus which means these interdisciplinary teams will work collaboratively with societal stakeholders and technology end-users to co-create solutions. The societal challenges being tackled are relevant to national priorities but also have global relevance and align with the UN Sustainable Development Goals (SDGs).

Dr Ruth Freeman, Director of Science for Society, Science Foundation Ireland said: “We are delighted to be funding 24 new teams under the SFI Future Innovator Prize. They are tackling important challenges under the themes Artificial Intelligence for Societal Good and Zero Emissions. These teams have been selected from Ireland’s best and brightest, and their projects span health and well-being, transportation, the circular economy, greenhouse gases, agriculture and advanced manufacturing, amongst others. We look forward to following the teams on their journey and benefiting from the solutions they develop.”

This year SFI have partnered with the Department of Foreign Affairs and Trade (DFAT) to co-fund four of the 24 projects with the goals of incentivising researchers in Ireland to address global challenges and facilitating collaboration and exchange between communities of innovators in Ireland and key partner countries in receipt of Irish Overseas Development Assistance (Ethiopia, Malawi, Zambia, Mozambique, Uganda, Tanzania, Sierra Leone, Liberia, Vietnam, South Africa).

The nature of these challenge programmes is highly competitive which means that after an initial period of 3 months, approximately half of the teams will be selected to progress to the next phase, an intense period of technical development, at the end of which the winning team in each challenge will be selected by a panel of international experts. The AI for Societal Good Challenge and Zero Emissions Challenge each have prizes of €2 million. The Zero Emissions Challenge has an additional bonus prize of €1 million for a team that develops a negative emissions technology, that is a technology that reduces levels of carbon dioxide (CO₂) in the atmosphere.

The awards will be used by the winning teams to further develop their solutions. Each team is led by two academic researchers and a Societal Impact Champion. The Societal Impact Champion is intended to bring non-technical leadership to the team and can come from a range of relevant sectors e.g. government, industry, civil society. The Societal Impact Champion is key to supporting stakeholder engagement and solution co-creation which is critical for the successful deployment of these solutions.

The Teams are:

SFI Artificial Intelligence for Societal Good Challenge Teams

Team Name: GreenWatch

Challenge: Enhancing United Nation Sustainable Development Goal (SDG) progress measurement

Team: Andreas Hoepner (UCD), Georgiana Ifrim (UCD), Pat Cox (Sustainable Nation Ireland)

This team is co-funded under a partnership with the Department of Foreign Affairs and Trade

Team Name: TAPAS

Challenge: Enabling developing countries to track climate change adaptation in their agri-food sectors

Team: Aaron Golden (NUIG), Charles Spillane (NUIG), Andy Jarvis (International Center for Tropical Agriculture (CIAT))

This team is co-funded under a partnership with the Department of Foreign Affairs and Trade

Team Name: Digital Diabetes

Challenge: Reducing the Burden of Diabetes Through Earlier Diagnosis

Team: Derek O'Keeffe (NUIG), Andrew Simpkin (NUIG), Fidelma Dunne (NUIG)

Team Name: 3D3P

Challenge: Empower and promote the social, economic and political inclusion of people with full or partial limb loss

Team: Pdraig Cunningham (UCD), Andrew Dickson (UCD), Breda Clancy (Atlantic Prosthetic Orthotic Services Ltd)

Team Name: VideoForce

Challenge: Enabling remote sports injury assessment

Team: Ciaran Simms (TCD), Aljosa Smolic (TCD), Garreth Farrell (Leinster Rugby)

Team Name: REEP

Challenge: Reduce electronic waste generation by empowering people to repair, reuse and refurbish electrical and electronic equipment

Team: Mathieu d'Aquin (NUIG), Umair Ul Hassan (NUIG), Vincent Carragher (Galway Waste Coop)

Team Name: Fair AI

Challenge: Supporting social justice and equality by eliminating bias in AI

Team: Eugenia Siapera (UCD), Susan Leavy (UCD), Mary Hearne (LinkedIn)

Team Name: WirelessTouch

Challenge: Supporting independent living for people with epilepsy

Team: Lina Xu (UCD), Quan Le (UCD), Edel Curran (Epilepsy Ireland)

Team Name: Cailín

Challenge: Reducing the Impact of Endometriosis Through Timely Diagnosis

Team: Siobhan Kelleher (NUIG), John Breslin (NUIG), Kathleen King (Endometriosis Association of Ireland)

Team Name: AI-4-Life

Challenge: Reducing neonatal morbidity and mortality

Team: Liam Marnane (UCC), Geraldine Boylan (UCC), Mairead O'Riordan (Cork University Maternity Hospital)

Team Name: pCCare

Challenge: Palliative care that meets the needs of an aging society

Team: Ciara Heavin (UCC), Armagan Tarim (UCC), Fiona Kiely (Marymount Hospice Cork)

Team Name: UCD SPHERE

Challenge: Reducing the burden of preeclampsia through development of AI-enabled diagnostic and predictive tools

Team: Patricia Maguire (UCD), Fionnuala Ní Áinle (UCD), Mary Higgins (National Maternity Hospital, Holles Street)

Team Name: SmartAblate

Challenge: Surgery-free therapy for lung cancer

Team: Martin O'Halloran (NUIG), Giuseppe Ruvio (NUIG), Anne-Marie Baird (TCD)

SFI Zero Emissions Challenge Teams

Team Name: LiCoRICE

Challenge: Bringing lithium cobalt batteries into the circular economy

Team: Tony Keene (UCD), Steven Ferguson (UCD), Conor Leonard (WEEE Ireland)

This team is co-funded under a partnership with the Department of Foreign Affairs and Trade

Team Name: SolarCool

Challenge: Improving Solar Panel Performance in Arid Climate Conditions

Team: David McCloskey (TCD), Séamus O'Shaughnessy (TCD), Connell Foley (Concern Worldwide)

This team is co-funded under a partnership with the Department of Foreign Affairs and Trade

Team Name: MESSO

Challenge: Minimising the environmental impact of additive manufacturing

Team: Andrew Cashman (CIT), Michael D Murphy (CIT), Donal Og Cusack (Depuy Synthes)

Team Name: SMILE

Challenge: Reducing transport emissions through smart mobility

Team: Sam Cromie (TCD), Brain Caulfield (TCD), Shane Dunny (AECOM)

Team Name: HyBioSol

Challenge: Making the energy and waste management sector sustainable

Team: Paolo Dessi (NUIG), Pau Farras Costa (NUIG), Kieran Cunnane (Galway Waste Coop)

Team Name: EcoMAG

Challenge: Creating Eco-Friendly and Cost-Effective Super Magnets for Electric Vehicles

Team: Ansar Masood (Tyndall), Paul McCloskey (Tyndall), Wassim Derguech (Jaguar Landrover)

Team Name: EFACE

Challenge: Increasing the efficiency of renewable electricity using bioenergy

Team: Jerry Murphy (UCC), David Wall (Tyndall), Ian O'Flynn (Gas Networks Ireland)

Team Name: Farm Zero C

Challenge: Creating a carbon-neutral resilient dairy farm

Team: Kevin O'Connor (UCD), Fionnuala Murphy (UCD), Enda Buckley (Carbery)

Team Name: NAPSS2030

Challenge: Making sustainable transport available to everyone

Team: Yuansong Qiao (Athlone IT), Leo Creedon (IT Sligo), Michael Newham (Call-A-Pod)

Team Name: Carbon-Impact

Challenge: Developing sustainable and scalable atmospheric CO₂ capture technologies

Team: Wolfgang Schmitt (TCD), Sebastien Vaesen (TCD), John Gibbons (MedMedia Group)

Team Name: C-MINUS

Challenge: To enable low-energy carbon-capture technologies

Team: Michael Zaworotko (UL), David Styles (NUIG), Loenard Barbour (Stellenbosch University)

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Science Foundation Ireland publishes Annual Plan for 2020.

Continued investment in challenge-led funding, Individual-led research and enterprise partnerships

Dublin, 9th January 2020 - Science Foundation Ireland (SFI) today published its Annual Plan for 2020. Key priorities are: a continued focus on individual-led research programmes, challenge-based funding initiatives including programmes to address climate action, international engagement through partnerships with funding agencies, public engagement programmes to drive public interest and participation in STEM, partnerships with enterprise and supporting Ireland's world class SFI Research Centres. The plan also includes specific funding of €1.5 million to help ensure that border area businesses have additional support in mitigating the impact of Brexit.

Commenting on Science Foundation Ireland's 2020 Plan, **Minister for Business, Enterprise and Innovation, Heather Humphreys TD**, said, *"In an evolving and increasingly competitive global environment, scientific research continues to be crucial to Ireland's future economy. That's why it forms a key part of Future Jobs Ireland, the whole-of-Government plan to prepare our businesses and workers for the future. I look forward to seeing SFI implementing its extensive suite of programmes in the coming year, which support both individual researchers and those involved in academia, as well as industry partnerships to underpin our enterprise competitiveness."*

Minister of State for Training, Skills, Innovation, Research and Development, John Halligan TD, said: *"Research and innovation continue to play a key role in our society and our economy, so I am pleased today to welcome the publication of SFI's plan for 2020. Supporting excellent talent in our STEM sector continues to be a focus for 2020 through the SFI Centres for Research Training, SFI Frontiers for the Future Programme for excellent individual researchers, the challenge-based funding opportunities and the SFI Research Professorship Programme."*

Publishing details of the 2020 Plan, **Prof Mark Ferguson, Director General of Science Foundation Ireland and Chief Scientific Adviser to the Government of Ireland** said, *"In 2019 Science Foundation Ireland delivered on its planned commitments including the launch of the SFI Frontiers for the Future Programme, the SFI Public Service Fellowship, continued growth of the SFI Research Centres and a number of highly successful engagement programmes throughout Ireland. In the current environment of increased public awareness and concern for issues including climate action and ethical use of data, STEM has a huge role to play. As we prepare to launch SFI's new strategy 2020-2025 and in our programme for 2020, we seek to address these challenges and continue our commitment to supporting excellent and impactful research to address relevant problems in responsible ways."*

Key focus of activities are as follows:

The SFI Science for Society plan for 2020 includes:

- **Individual-led research programmes** including the announcement of the first awards and launch of the second call for the **SFI Frontiers for the Future** programme in early 2020 and the **SFI Research Professorship Programme**, which is key to attracting outstanding international talent to Ireland in strategic priority research areas.
- **International partnerships** – which focus on stimulating collaboration with UK and US funding agencies (SFI-Royal Society partnership, SFI-HRB-Wellcome Trust, SFI-EPSC co-funding partnership, SFI-NSF I-Corps@SFI entrepreneurial training programme etc). Through these partnerships and its broader engagement programme, SFI will support the Government's plans to build Ireland's global footprint.
- **Challenge-based funding** – along with the launch of a new **SFI Future Innovator Prize** call in 2020, SFI also plans to design and implement a number of top-down challenge calls in 2020 with awards available for both planning grants and seed funding. This will initially focus on challenges that align with the Climate Action Plan.
- **SFI Public Service Fellowship** - launched in 2019, this pilot programme seeks to place researchers in government departments, agencies and local authorities to promote a culture of innovation in public service. These awards will be made in early 2020.
- **Education and Public Engagement** – will continue to be a focus for SFI through the continuation and growth of the **SFI Discover Programme** and the **SFI Discover Science Week Festivals Programme**.

As part of its **Science for the Economy** plan SFI will focus on:

- **SFI Research Centres** – in addition to the continued support of the 16 world-class large-scale SFI Research Centres, SFI will focus on the **SFI Research Centres Spokes Programme** which enables the addition of new industrial and academic partners and provides the opportunity for different SFI Research Centres to work together to deliver excellent basic and applied research results and discoveries.
- The **SFI Strategic Partnerships Programme** will continue to leverage resources for excellent research in partnership with the private sector including industry, philanthropy and charitable organisations. The **SFI Industry Fellowship Programme** will run with two calls in 2020. A novel fellowship call in partnership with Venture Capital companies will be launched which will provide a compelling training opportunity for academic researchers.
- Under the new economic Stimulus Package for the Border Region, €1.5 million in funding will enable researchers to take up placements in industry bringing new energy and specialist expertise to businesses in the Border region, to help ensure that businesses have additional support in mitigating the impact of Brexit.

Science Foundation Ireland's Annual Plan 2020 is available to download [here](#).

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Cross-sector collaboration is vital in meeting UN Sustainable Development Goals by 2030

Seattle, WA, 15th February 2020 Meeting the UN Sustainable Development Goals by 2030 will require innovative partnerships and collaborations between government, academia, non-profit organisations and industry. That's according to Prof Mark Ferguson, Director General of Science Foundation Ireland (SFI) and Chief Scientific Adviser to the Government of Ireland, speaking today at the American Association for the Advancement of Science Annual Meeting in Seattle, Washington, USA.

Addressing delegates at the Climate Future series, **Prof Ferguson** said: "Ireland has a large network of world-leading SFI Research Centres, many of whom deal with aspects of global climate change adaptation and mitigation. iCRAG, which specialises in applied geoscience research, is a prime example of how Ireland's structured research funding mechanisms are ensuring vital government-industry collaboration to address these global challenges."

Dr Mary Robinson, former President of Ireland and Chair of The Elders, speaking at the Climate Future series, said: "We have already seen the devastation to lives crippled by global warming, which is deeply impacting some of the most vulnerable communities across the globe. It is critical that we work together across all sectors, to give voices to the disempowered, and to find and implement long lasting solutions."

Chairing the session, **Prof Murray Hitzman**, Director of iCRAG, the SFI Research Centre for Applied Geosciences, said, "Decarbonisation will involve a profound social adjustment and changes in how societies operate. At iCRAG, the sustainable sourcing of materials, minerals and metals needed to enable the transition to a low carbon economy is central to our research mission. It is only through the effective research cooperation of academia, industry and NGOs that we will achieve many of the energy and resource-related UN Sustainable Development Goals in the next 10 years."

Also taking part in the session, Susan Dio, Chairman and President of BP America, highlighted how R&D in industrial energy can aid in providing affordable and sustainable energy to the world's most vulnerable people.

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Are you a champion of science engagement?

Calling champions of science engagement! If you're working independently in the science sector and are passionate about sharing your knowledge and discoveries with the public, if you're inspiring future generations, or if you are a postgrad student of science, then it might be your lucky day.

You could be in with a chance of winning a free place to the upcoming EUSEA (European Science Engagement Association) Conference 2020, which takes place at Cork Institute of Technology's (CIT) renowned Cork School of Music from April 16-17, in association with Blackrock Castle Observatory.

In partnership with Science Foundation Ireland (SFI), organisers have just announced 30 bursary awards for the Conference, open to freelancers, self-employed individuals, institutes and postgrads in a STEM discipline.

The event, which brings the European science communications community together, gives advice and tools to help those working in the sector become better communicators so they can share the wonders of science, or their research, with the public in a comprehensible way.

More than 150 professionals from 15 countries will attend the conference, which will cover everything from Encouraging the Uptake of Careers in STEAM (Science, Technology, Engineering, Arts and Maths), to Educational Robotics, and Celebrity Science.

Keynotes will be given by **Dr. Niall Smith, Head of Research at CIT and Head of CIT Blackrock Castle Observatory, on Art and Astronomy; Margie McCarthy, Head of Education and Engagement at SFI**, on Why Expertise and Impact is Important for Science Communications; and **Prof. Dietram Scheufele, Wisconsin-Madison, USA** on how Dissonance can be good - Why our new inability to disagree makes engagement so difficult.

In total, the interactive, dialogue-oriented event will present 41 sessions with 48 speakers.

Commenting, Dr. Niall Smith said, *"As scientists, we owe it to the world to do a better job communicating science, its unique capacity to provide solutions to problems that previously seemed insurmountable, and the excitement of incredible discoveries being made right now that fundamentally change our view of our cosmos and ourselves. The EUSEA Conference is a fantastic platform that will help us all to become better communicators and to inspire future generations to appreciate the potential for good that comes with understanding how the Universe we live in works. We are very proud to host this prestigious event in Cork this year."*

“We are also delighted to offer 30 bursaries to champions of science. We can all look forward to following the future impacts of their efforts.”

The European Science Engagement Conference annually offers all practitioners in the fields of Science Communication and Public Engagement a Pan-European platform to expand their networks and enhance their skills via inspiring keynotes, interactive sessions and co-creative workshops. The conference shares and discusses relevant topics, funding programs and innovative formats to engage science with society.

The event will be attended by educational authorities, industry, science researchers, policy makers, teachers, third level and post grad students, early career research students and science communicators.

For more details, the full programme and to put yourself forward for the bursary see [https://eusea.info/](https://eusea.info/#EUSEA2020) **#EUSEA2020** and **#euseaevents**

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Boston Scientific Galway expands in to new facility

24 Jun 2019



James Lyons, Vice President, Operations, Boston Scientific Galway, Martin Shanahan, CEO IDA Ireland and Mike Mahoney, CEO & President, Boston Scientific at the official opening of Boston Scientific's new facility at its Ballybrit site.

Boston Scientific Galway has officially opened a new facility at its Ballybrit site. The expansion facilitates increased capacity to support global product demand and also includes an industry-leading Equipment Technology Centre. The new facility is at the site of the former Digital building and the company is investing €60M in this phase of development, with over 250 people expected to be based in the new facility by the end of 2019. Boston Scientific Galway has a workforce of over 3,700 people covering all aspects of product design & manufacturing exporting more than four million life saving medical devices each year.

The company began operating in Ireland in 1994 with less than 30 employees. Today it has a workforce of over 5,700 across three Irish sites, at Clonmel, Cork and Galway. **Mike Mahoney, Chairman and CEO of Boston Scientific** officially opened the new facility and at a special town hall meeting attended by almost 800 employees, he acknowledged the importance of the Galway site to the company by saying "The opening of this new facility reflects our ongoing commitment to Galway and Ireland. Our highly skilled workforce has made a significant contribution to the development of many innovative medical solutions, with our Galway site playing a key role in products in areas such as Interventional Cardiology, Endoscopy and Peripheral Interventions".

Speaking at the event, **IDA Ireland CEO Martin Shanahan** said: "I was delighted to join Mike Mahoney, James Lyons and close to 800 of Boston Scientific's workforce at the special town hall to mark the company's 25th anniversary. Having a company of the stature of Boston Scientific operating in Galway, with a workforce of over 3,700 employees, is of enormous value to the economy of Galway and the wider West Region. Boston Scientific's longevity demonstrates a huge commitment to Galway and

Ireland and this further investment in a new facility to support existing and new business is testament to the company's continued focus on innovation and excellence in medical technology."

The opening of the new facility is part of a programme of celebrations for Boston Scientific's 25th Anniversary in Galway. **James Lyons, Vice President of Operations at Boston Scientific Galway**, believes this is a great opportunity to mark the important contribution of its employees and the wider community in Galway as well as its industry partners.

"Given the scale of our campus and workforce here, the support of the wider community has been especially important. I would like to acknowledge the contribution in turn that our employees have made to the local community, including raising over €2.6m for local charities and organisations since 1994."

James Lyons, Vice President of Operations at Boston Scientific Galway

Founded in 1979 and headquartered in Massachusetts, USA, Boston Scientific employs 32,000 employees worldwide. It is a global leader in the development of medical devices that impact 30 million patients every year. As well as celebrating 25 years in Galway, Boston Scientific is also turning 40 this year and marking 40 years of transforming lives.

About Boston Scientific

Boston Scientific transforms lives through innovative medical solutions that improve the health of patients around the world. As a global medical technology leader for 40 years, we advance science for life by providing a broad range of high performance solutions that address unmet patient needs and reduce the cost of healthcare. For more information, visit www.bostonscientific.com and connect on [Twitter](#) and [Facebook](#).

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SIGMA-ALDRICH®

About Sigma-Aldrich: Sigma-Aldrich is a leading Life Science and High Technology company whose biochemical, organic chemical products, kits and services are used in scientific research, including genomic and proteomic research, biotechnology, pharmaceutical development, the diagnosis of disease and as key components in pharmaceutical, diagnostics and high technology manufacturing.

Sigma-Aldrich customers include more than 1.3 million scientists and technologists in life science companies, university and government institutions, hospitals and industry. The Company operates in 35 countries and has nearly 9,000 employees whose objective is to provide excellent service worldwide.

Sigma-Aldrich is committed to accelerating customer success through innovation and leadership in Life Science and High Technology.

For more information about Sigma-Aldrich, please visit its website at **www.sigma-aldrich.com**

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Takeda Ireland celebrates opening of new innovative manufacturing site in Grange Castle

05 Jul 2019

Takeda Ireland, a subsidiary of Takeda Pharmaceutical Company Ltd, has officially opened a new cutting-edge manufacturing facility at its site at Grange Castle.

Marking the event, **Minister for Employment Affairs and Social Protection, Regina Doherty**, **Takeda Pharmaceutical CEO Christophe Weber**, **H.E. Mrs. Mari Miyoshi**, **Japanese Ambassador to Ireland** and **Mary Buckley**, **Executive Director, IDA Ireland**, joined 200 guests and staff for the opening celebration.

Takeda has created this high containment, state of the art production facility dedicated to the manufacturing of their oncology treatment. Construction of the plant began in June 2017 and was managed by Project Management Group. A total of 40 jobs will be created at the site. The plant is the first Active Pharmaceutical Ingredient (API) manufacturing operation to be located outside of Japan for Takeda and houses all steps of the production process including API, drug product and primary and secondary packaging for supply to global markets. The Takeda Grange Castle plant currently employs over 80 people, all of whom are trained in the latest manufacturing techniques, to ensure operational excellence.

Commenting on the opening event, **Takeda Pharmaceutical CEO Christophe Weber** said:

"I am delighted to be in Ireland for the official opening of our manufacturing site in Grange Castle. We have built up a strong foundation in Ireland over the past 17 years, and this new plant in Grange Castle is an important strategic site for us, as it is not only the first overseas manufacturing centre for APIs outside of Japan, but it houses all the steps of the production process. We are excited to take this next step and continue to deliver our medicines to patients around the world and concentrate our efforts on breakthrough innovations. I would like to thank our employees and stakeholders, as well as the IDA, for their support throughout the entire process."

Commenting on the opening event, **Mary Buckley**, **Executive Director, IDA Ireland** said:

"Manufacturing excellence in pharmaceuticals is a hallmark of Ireland's success in the sector. This innovative manufacturing site not only highlights Takeda's commitment to Ireland, it also showcases how competitive Ireland is for global enterprise and investment. I wish Takeda continued success and on behalf of IDA Ireland offer our ongoing support."

Minister for Employment Affairs and Social Protection, Regina Doherty TD said: "I am delighted to see Takeda expanding in Ireland. I know from their investment in their facility in Dunboyne, in my local constituency, that they are a great employer and a significant player in the global pharmaceutical sector. This state of the art manufacturing facility at Grange Castle is a great vote of confidence in Ireland and a very welcome development."

In honour of the Japanese origins of the company and their continued investment in Ireland, Ambassador of Japan to Ireland, H.E. Mrs. Mari Miyoshi, unveiled a symbolic wooden sun dial at the event. Guests in

attendance also had the opportunity to engage with interactive booths which highlight the innovative technology of Takeda.

In addition to their oncology treatments, Takeda Ireland produces APIs for the treatment of Diabetes, Oncology, Insomnia, Weight loss, Acid related disease, Bipolar disorder and Hypertension. In addition to the grand opening, Takeda also used the opportunity to introduce another project in Grange Castle to the public. The company is investing about 30 million Euro into a regenerative medicine facility at its site in Grange Castle, which will be the first commercial scale cell therapy production facility in Ireland. This innovative facility will cover all steps of the cell therapy production process from receipt of donor material to fill finish, packaging and shipment off site to the patient.

About Takeda Pharmaceutical Company:

Takeda Pharmaceutical Company Limited is a global, research and development-driven pharmaceutical company committed to bringing better health and a brighter future to patients by translating science into life-changing medicines. Takeda focuses its R&D efforts on oncology, gastroenterology and central nervous system therapeutic areas plus vaccines. Takeda conducts R&D both internally and with partners to stay at the leading edge of innovation. New innovative products, especially in oncology and gastroenterology, as well as our presence in Emerging Markets, fuel the growth of Takeda. Approximately 55,000 Takeda employees are committed to improving quality of life for patients, working with our partners in health care in more than 70 countries.

Across Ireland, Takeda has commercial operations, corporate services and three manufacturing facilities in Bray, Dunboyne and Grange Castle.

For more information, visit: <https://www.takeda.com/en-ie>.

Disclaimer

The drug information contained herein is intended to disclose Takeda's corporate information. Nothing contained herein should be considered a solicitation, promotion or indication for any prescription drug including the ones under development.

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30 JUL 2019

New MSD Carlow facility granted full planning permission



The new 13,000 square metre facility, first announced last October, will be constructed on a site adjacent to MSD's existing Carlow plant and will focus on the production of vaccines and biologics. It is scheduled to commence manufacturing operations in 2022 and will employ an additional 170 staff and 100 contractor staff when operational. The build phase will also see approximately 700 tradespeople employed on site.

MSD already employs over 400 people in Carlow and is involved in the manufacture of multiple vaccines and biologics in the MSD product portfolio. The existing site opened in 2008 and was MSD's first vaccines facility outside of the US.

The planning application details the construction of a new production building consisting of two production suites – a syringe filling and inspection suite and a vial filling suite – supporting clean utilities as well as an expansion of warehouse at the site.

Speaking at a ceremony to mark the commencement of the construction phase, Sanat Chattopadhyay, President, MSD Global Manufacturing Division, stated that, "Due to increased global demand for MSD's medicines and vaccines, our company is investing significantly in expanding our manufacturing and supply capabilities. The construction of a second manufacturing facility at the site of our existing operation in Carlow is part of this exciting investment. The decision to further invest in Carlow is a real testament to the talent of the current Carlow team and MSD Ireland's wider employee base. This new investment reinforces MSD's commitment to Ireland, further strengthening our 50-year strong legacy here. Ireland has been a gracious and supportive host for MSD for many years, and we anticipate doing business here for many years in the future."

Martin Shanahan, CEO of IDA Ireland said: "It's great news that this planned expansion by MSD can now progress. This is an important strategic move for the company, positioning it to meet growing demand globally for its products. It is a major investment by this leading health care company and demonstrates a deep commitment to the Carlow site and the South East Region. MSD is a valued employer in Ireland and contributes substantially to the economy. I wish the company continued success."

Karin Shanahan, SVP, Global Biologics & Sterile Operations, MSD said “We are delighted to build this state of the art expansion at our site in Carlow. Carlow is a site that has demonstrated strong performance as they have steadily grown to become a key site in our network. I am confident that Carlow will continue to deliver outstanding performance that will benefit our patients receiving these important medicines and vaccines.”

Ger Brennan, Managing Director, MSD Ireland (Human Health) said, “Over the past 10 years, MSD in Carlow has grown to play a critical role in MSD’s global network of vaccines and biologics facilities – by 2022 this position will have enhanced even further. The continued development of, and investment in, our Irish facilities serves to keep us at the forefront of scientific and medical advancements and helps us achieve our main goal of getting innovative new medicines and vaccines to patients as quickly as possible.”

MSD Ireland has been in operation for over 50 years, and currently employs approximately 2,300 employees across five sites in Carlow, Cork, Dublin and Tipperary. In addition, the company operates substantial Human Health and Animal Businesses.

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Fort Wayne Metals expand with investment of €10M in new facility, creating up to 80 new jobs in Castlebar

23 SEP 2019



Fort Wayne Metals Announcement

An Taoiseach Leo Varadkar TD on Friday last performed the official opening of **Fort Wayne Metals** new 45,000 sq. ft. manufacturing facility which will lead to the creation of up to 80 new jobs over five years.

The project is supported by the Irish Government through IDA Ireland.

Founded in 1970, Fort Wayne Metals is a leading manufacturer of medical materials, producing precision wire and components for all types of medical devices. The company's materials are used in guidewires, stents, embolic filters, pacemaker leads, neurostimulation leads, endoscopy, orthopaedic devices, and more.

Fort Wayne Metals Ireland commenced operations in Castlebar in 2002 and now employs 95 staff. The Company manufactures products for medical device companies in Ireland, Europe and Asia. The parent Company headquartered in Indiana, USA, is a privately held company with twelve manufacturing plants.

Fort Wayne Metals Ireland is the corporation's only manufacturing facility outside the United States. This €10M expansion represents the next stage of growth for the company with its product diversification strategy focused on the manufacture and supply of specialty alloys such as nitinol.

Speaking at the official opening, **An Taoiseach, Leo Varadkar TD** said: "Fort Wayne Metals is very well established in Castlebar, having first set up operations here 17 years ago. This major investment shows the company is committed for the long term. Essential components for medical devices which can improve and save lives are manufactured here and sold around the world. Congratulations to the local staff and management team who will be joined by 80 new employees over the next 5 years. The Government, through IDA Ireland, will continue to work with Fort Wayne as the company expands in the years ahead."

“This expansion is a testament to the hard work and talent of our Irish employees. Their expertise and dedication have been fundamental to the growth of Fort Wayne Metals Ireland, and I have every confidence that they will be successful as they take on the challenges of manufacturing precision nitinol wire for our customers around the world.”

CEO of Fort Wayne Metals, Scott Glaze

Managing Director at the Castlebar plant, Michael O'Donnell thanked the IDA for its continuous support over the years. He applauded MVS Ltd, the local construction company that built the new facility, for their excellence and for completing the project on schedule.

IDA Ireland Executive Director Mary Buckley congratulated the company on its expansion saying: “Fort Wayne Metals is a valued member of the supply ecosystem that is all important in supporting the Med Tech sector. This further expansion by the company is excellent news and demonstrates a strong commitment from the parent company to the Castlebar site. It's also a strong endorsement of Castlebar and the region as a great location for other similar type medical device business. The 80 new jobs being created will have a substantial beneficial impact on the local economy in Mayo and the wider West Region. I wish Scott, Michael and their team continued success in Castlebar.”

About the company

Fort Wayne Metals Research Products Corporation was originally established in Fort Wayne, Indiana in 1970. Today it employs over 1200 personnel and specializes in the transformation of materials including stainless steel, cobalt-chrome, titanium and specialty alloys such as nitinol into fine grade medical wire. The company supplies all of the top OEM medical device manufacturers. Fort Wayne Metals is a privately owned company.

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Janssen Sciences Ireland Officially Opens New Manufacturing Building

07 OCT 2019



Photo from Janssen Sciences twitter: Remo Colarusso Vice President of Janssen Supply Chain at Johnson & Johnson (Far left); Simon Coveney TD, An Tánaiste and Minister for Foreign Affairs & Trade (Second from left); Kathy Wengel, Executive VP and Chief Global Supply Chain Officer at Johnson & Johnson (Centre); Martin Shanahan, CEO of IDA Ireland (Far right)

Janssen Sciences Ireland UC, part of the Johnson & Johnson family of companies, today officially opened its new manufacturing building in Ringaskiddy, Co. Cork. The company has operated a biopharmaceutical supply chain facility on its 40-hectare site in Ringaskiddy since 2005.

The expansion of the biomanufacturing site increases the company's production capacity by an additional 19,100m² and creates 200 new full-time jobs. Approximately 450 people were employed on-site during the two year construction project.

The official opening ceremony for the facility was attended by Simon Coveney TD, An Tánaiste and Minister for Foreign Affairs & Trade, Kathy Wengel, Executive Vice-President and Chief Global Supply Chain Officer, Johnson & Johnson and Martin Shanahan, CEO, IDA Ireland.

Speaking at the event, **An Tánaiste Simon Coveney TD**, said "I'm delighted to attend the official opening of Janssen's new manufacturing building, which marks the company's ongoing commitment to Ireland and patients around the world. The life sciences industry makes a hugely significant contribution to the national economy in terms of jobs and exports. In 2018 alone, 33% of Ireland's total exports were pharmaceutical and medical products, with Johnson & Johnson featuring as one of our single largest exporters. Finally, I would like to extend my congratulations to the team here in completing this exciting

expansion and I wish them continued success in the future.”

Kathy Wengel, Executive Vice President and Chief Global Supply Chain Officer, Johnson & Johnson said “Our manufacturing facilities in Cork are at the cutting-edge of delivering healthcare solutions, which is an important part of our Credo commitment to provide the highest quality products to patients. Our Ringaskiddy facility is an important part of our global manufacturing network and expanding our capabilities here will allow us to pursue innovative solutions that advance how medicines are manufactured so that we can be at the forefront of treating, preventing, intercepting and curing some of the world’s most devastating and complex diseases.”

Martin Shanahan, CEO, IDA Ireland, said “Johnson & Johnson is one of the largest life sciences and R&D investors in Ireland and is part of a thriving Biopharma sector in Cork. With a significant investment in expanding Janssen’s manufacturing capacity here in Ringaskiddy, the positive economic spin-off for the South-West region is considerable. On behalf of IDA Ireland, I would like to congratulate the Janssen team on successfully delivering a new, state-of-the-art manufacturing building in the heart of Cork’s life sciences hub.”

About the Janssen Pharmaceutical Companies of Johnson & Johnson

At Janssen, we’re creating a future where disease is a thing of the past. We’re the Pharmaceutical Companies of Johnson & Johnson, working tirelessly to make that future a reality for patients everywhere by fighting sickness with science, improving access with ingenuity, and healing hopelessness with heart. We focus on areas of medicine where we can make the biggest difference: Cardiovascular & Metabolism, Immunology, Infectious Diseases & Vaccines, Neuroscience, Oncology, and Pulmonary Hypertension.

Learn more at www.janssen.com/ireland. Follow us at www.twitter.com/JanssenIE

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WuXi Vaccines investment to bring 200 additional jobs to Dundalk. (Update - previously reported on in this section.)

22 NOV 2019



Dr Chen, WuXi; Eileen Sharpe, IDA Ireland; Dr Li, WuXi; Minister Heather Humphreys TD; Brendan McGrath, WuXi

November 22nd, 2019 – Dundalk. Minister for Business, Enterprise & Innovation **Heather Humphreys TD** today confirmed that WuXi Vaccines, a subsidiary of WuXi Biologics (stock code: 2269.HK), is planning to build a \$240 million vaccine production facility on the newly established WuXi Biologics Campus in Dundalk, bringing 200 additional new jobs to the town over five years. The new investment, for which a planning application was submitted to Louth County Council last month is being supported by the Irish Government through IDA Ireland will bring total employment on WuXi Biologics' Dundalk Campus to 600 by 2024.

Speaking at this morning's announcement in Dundalk, **Minister Humphreys** said: "I am delighted to announce 200 highly-skilled jobs in WuXi Vaccines, which is in addition to the 400 roles announced last year by WuXi Biologics for Dundalk. Without a doubt, this is a great win for the North-East and a huge vote of confidence in the local workforce. The Government is fully committed to regional development and ensuring that every region benefits from employment gains. Today's announcement demonstrates, once again, that the Border region is a very attractive location in which to invest."

WuXi Vaccines is a joint venture between WuXi Biologics and Hile Bio-pharmaceutical. The company has entered into the strategic partnership with a global vaccine leader under which WuXi Vaccines will build a dedicated facility to supply a commercial product for the global market.

“Vaccine CDMO (Contract Development and Manufacturing Organization) service is one of the next growth areas for WuXi Biologics”, said **Dr. Chris Chen, CEO of WuXi Biologics and Chairman of WuXi Vaccines**. “We believe our ‘co-located’ WuXi Biologics and WuXi Vaccines businesses will work well together and contribute substantially to the further future growth of the WuXi Biologics Campus in Dundalk.

Due to process complexity, extensive analytic testing and rigorous regulatory standards, vaccines are difficult to manufacture, and process and quality control are extremely critical for the quality of the product. This new project to exclusively manufacture a vaccine for the global market is among the first of its kind in the industry and is a further testimony to the technical strengths and premier quality which WuXi Biologics will bring to Dundalk.”

The construction of the WuXi Biologics contract manufacturing facility on the campus, which is scheduled for commercial production in 2022, is underway and it is currently hiring for senior roles. It has been designed to be the world’s largest biologics contract manufacturing facility using single-use and flexible scale-out production technology. The facility will have the capability to run multiple batches simultaneously, in small or large volumes as required to deliver biologics at lower Cost of Goods (COGS) than traditional systems.

The facility will have the capacity to manufacture highly specialised biologics in small or large volumes in compliance with US FDA and EU EMA regulations for global pharma companies bringing exciting new job opportunities to the region. The new WuXi Vaccines facility, subject to planning approval, will be located within the WuXi Biologics Campus adjacent to the WuXi Biologics ‘Factory of the Future’ facility and will manufacture vaccine substance and product for a global partner.

Commenting on the development of the WuXi Biologics Campus in Dundalk, **Brendan McGrath, WuXi Biologics Ireland Site Head and Vice President** said: “Dundalk’s potential to become a global hub for biologics contract manufacturing has moved one step closer to reality. As a leading global open-access biologics technology platform, WuXi Biologics’ global reach and operations currently counts most of the world’s leading biopharma companies as customers.

Reflecting our commitment to breakthrough scientific innovation by ‘Follow-the-Molecule’ and supporting the production of innovative biologics at effective Cost of Goods (COGS), WuXi Biologics is actively pioneering technologies for continuous production processes, laying solid foundations for exciting biopharma innovation in Dundalk.”

Eileen Sharpe, Divisional Manager Growth Markets, Europe and Emerging Business at IDA Ireland welcomed the announcement, saying:

“A second major investment by WuXi Biologics on its Dundalk site is very welcome news. As the first vaccines contract manufacturing facility in Ireland, this planned second project will considerably strengthen our life sciences ecosystem and reinforce Ireland’s strong drug manufacturing capabilities. The additional 200 jobs being created by the WuXi Vaccines project will provide a substantial further boost to the economy of not just County Louth, but the whole North East region.”

About WuXi Biologics

WuXi Biologics (stock code: 2269.HK), a Hong Kong-listed company, is a leading global open-access biologics technology platform offering end-to-end solutions to empower organizations to discover, develop and manufacture biologics from concept to commercial manufacturing. Our company history and achievements demonstrate our commitment to providing a truly ONE-stop service offering and strong

value proposition to our global clients. As of June 30, 2019, there were a total of 224 integrated projects, including 106 projects in pre-clinical development stage, 102 projects in early-phase (phase I and II) clinical development, 15 projects in late-phase (phase III) development and 1 project in commercial manufacturing. With total estimated capacity for biopharmaceutical production planned in China, Ireland, Singapore and US exceeding 280,000 litres by 2022, we will provide our biomanufacturing partners with a robust and premier-quality global supply chain network. For more information on WuXi Biologics, please visit www.wuxibiologics.com.

About WuXi Vaccines

WuXi Vaccines, a joint venture of WuXi Biologics (stock code: 2269.HK) and Hile Bio-pharmaceutical, primarily engaged in human vaccine (e.g. cancer vaccine) Contract Development and Manufacturing Organization (CDMO) business and provision of end-to-end integrated service and solution platform covering the discovery, development and manufacturing of vaccine from concept to commercial manufacturing.

Information Note:

Related Local Information Note on WuXi Biologics Ireland:

WuXi Biologics announced a €325m x 400 jobs contract manufacturing project for Dundalk in April 2018 and the construction of this facility is now well underway for commercial manufacturing in 2022. As of November 2019, some 500+ people are currently working on the construction project with peak fit out and commissioning employment at 2,000 anticipated by autumn 2020.

Commenting on the progress of the WuXi Biologics facility in terms of local interest, Brendan McGrath, WuXi Biologics Ireland Site Head and Vice President added “A green-field biologics campus presents a once-in-a-lifetime opportunity for great talent to join us to develop a full-scale integrated capability to enable global partners to develop and manufacture some of the world’s most innovative biologics.

Looking to WuXi Biologics’ ambition for its Dundalk campus, we are inviting experienced local and international talent to consider if the WuXi Biologics operations in Dundalk, or indeed in China where WuXi Biologics employs over 2,500 scientists, might provide the exciting career opportunities and challenges they may seek at the leading-edge of biologics discovery, development and manufacturing. The Dundalk facility is WuXi Biologics’ first European manufacturing investment and represents a major vote of confidence in Ireland as an international centre of excellence and as a global hub for the fast-growing biotechnology industry.

IDA Ireland

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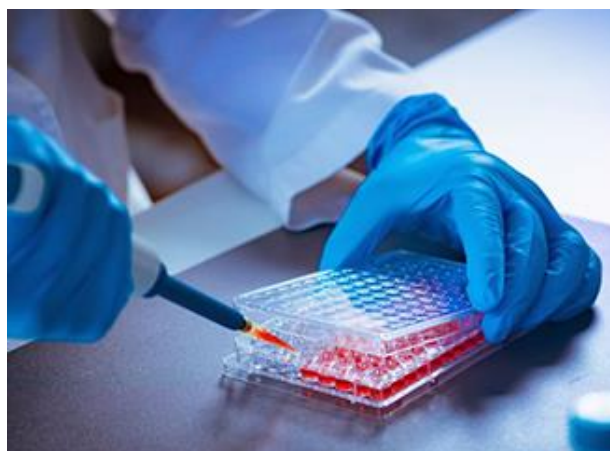
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ARTeSYN Biosolutions Expands Manufacturing Capability in Waterford

08 Nov 2019



Manufacturer of single-use components & systems within the biotech industry to create 50 new jobs and invest €1M in manufacturing & clean room facilities

Friday, 8th November, 2019, Waterford – Minister for Training, Skills, Innovation, Research and Development John Halligan TD announced today that ARTeSYN Biosolutions, the manufacturer of single-use solutions for biopharma processing, is to significantly expand its Waterford operations by adding 50 new roles in Production, Engineering, Customer Service and Research & Development over the next 3 years at its facilities in the Six Cross Roads Business Park, Waterford. The expansion of the site increases the company's consumables and overall production capacity by an additional 2200 ft².

The expansion is supported by the Irish Government through IDA Ireland.

The company which has invested over €1M in its manufacturing & cleanroom facilities currently employs 24 people in Waterford. Due to the increase in demand for its components & systems by global companies in the biopharma sector, ARTeSYN Biosolutions has identified Waterford as a key site from which to supply its growing customer base.

Minister for Training, Skills, Innovation, Research and Development John Halligan TD said: "This significant investment and creation of 50 new jobs by ARTeSYN Biosolutions is great news for the company, its staff and prospective employees and is further evidence that Waterford is a great place in which to invest, work and live. The Government is fully committed to regional development and ensuring every region benefits from employment gains. Today's announcement demonstrates, once again, that the South East is an attractive location with much to offer investors."

Jonathan Downey, Operations Director of ARTeSYN's Waterford Headquarters said "This is a great development for ARTeSYN Biosolutions and marks a significant expansion of our Waterford manufacturing operations which allows us to ensure that we can increasingly support our global biotechnology customers in the development and production of next generation therapies to treat and cure

serious illnesses. Having our Global Headquarters in Waterford illustrates the confidence that companies like ours, with a global footprint, have in Ireland. Our expansion plans, although ambitious, are achievable through the support of the Irish manufacturing ecosystem and we are looking forward to the further development of our manufacturing operations at our Irish and European facilities.”

Michael Gagne, Founder & CXO of ARTeSYN Biosolutions commented "As we expand our global manufacturing capabilities to ensure our increasing ability to enable abundance in medicine, we are pleased to announce the expansion of our Irish facilities. ARTeSYN Biosolutions has been committed to the establishment and development of our Waterford Headquarters and we are excited about our expansion and increasing development of our operations in Ireland and beyond over the coming months and years."

Welcoming the announcement **Eileen Sharpe, Divisional Manager Growth Markets, Europe, Emerging Business & New Forms of Investment at IDA Ireland** said “ARTeSYN’s expansion adds to the significant cluster of Life Science companies in Waterford and the wider South East Region. The company’s investment in its manufacturing facility and its job creation plans are a great endorsement of not only the local management and but also the availability of talent in the region.”

About ARTeSYN Biosolutions:

ARTeSYN Biosolutions, a privately-held company, is a fast-expanding brand providing single-use solutions to the biotechnology & cell and gene therapy market. ARTeSYN has several locations in the US and over the last few years has expanded to Ireland, Estonia & Asia. The global team shares 30+ years of experience in building simple and effective components and systems. Our goal is to enable not 10%, but 10x more efficient manufacturing and ultimately ease access to essential medicines globally. In essence, we have created a series of solutions targeting the voids and expanding the possibilities in the existing single-use space. Our single-use valves, fully disposable valve liners, instruments, flow management technology, and automated process systems, enable creative approaches in their most advanced forms for common industry problems.

For more information about the company, visit: www.artesynbiosolutions.com

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08 Jan 2020



Pictured: Martin Shanahan, CEO, IDA Ireland; Minister for Business, Enterprise & Innovation, Heather Humphreys TD.

PRESS RELEASE - JANUARY 8TH 2020

- **IDA Ireland achieves all targets in ‘*Winning – Foreign Direct Investment 2015-2019*’ Strategy**
- **Numbers directly employed in multinational sector in Ireland at an all time high – 245,096**
- **1,209 investments won over the course of IDA Ireland’s ‘*Winning – Foreign Direct Investment 2015-2019*’ Strategy, creating 112,373 jobs, making it IDA’s most successful period of investment to date**
- **Regional investments increase by 50% over the past five years**
- **In 2019, 21,844 new jobs created in 250 projects in FDI companies. Half of investments were first time investors.**

View Presentation by Martin Shanahan, CEO, IDA Ireland [here](#).

Wednesday, January 8th 2020 – Minister for Business, Enterprise and Innovation, Heather Humphreys and IDA Ireland, the Irish Government agency responsible for attracting foreign direct investment (FDI) to Ireland, today announced that employment levels in its client companies have now reached 245,096 – the highest ever number employed in the multinational sector, exceeding targets set by Government contained in IDA Ireland’s ***Strategy – Winning: Foreign Direct Investment 2015-2019***.

The results announced today show another strong performance in 2019, which saw 250 investments made with 21,844 jobs created in FDI companies in the final year of IDA Ireland’s current strategy. The net gain was 13,867 additional jobs.

Category	Results 2018 (Announced Jan 2019)	Results 2019
Total Employment	229,057	245,096
Job Gains	22,785	21,844
Job Losses	-8,745	-7,977
Net Employment Change	14,040	13,867

Minister for Business, Enterprise & Innovation, Heather Humphreys TD said: “2019 was another very positive year for foreign direct investment in this country. The record level of employment represents a strong vote of confidence in our economy by international investors. It demonstrates too that Ireland’s economic strengths – particularly our first-class workforce and pro-enterprise policy environment – remain highly attractive to multinational companies.”

“The regional impact that FDI is having in Ireland is especially positive. The Government has made regional development an absolute priority and that commitment has produced real results. The ambitious target of an increase of investment in every region of 30%-40% has now been met. We now have more people employed by IDA companies outside Dublin than ever before. Our focus in the coming period will be growing those numbers even further and ensuring that the benefits of FDI continue to be felt right across the country.”

“It is important that we do not take our continuing FDI success for granted. All of the investment projects, which deliver these much-welcomed jobs all over Ireland, are the product of intensive work. The challenge – particularly if international market conditions become more difficult in the years ahead – is to maintain Ireland’s competitiveness and our attractiveness to overseas firms. That’s exactly what the Government is doing through Future Jobs Ireland, the whole of Government plan to prepare our businesses and workers for the future, and we will continue to work hard to ensure that this proves to be the case.”

Martin Shanahan, CEO of IDA Ireland said: “Foreign Direct Investment continues to be a substantive driver of the economy.

The benefit spread to the wider Irish economy can be seen in the expenditure by IDA clients which totalled €21.5 bn[1], an increase of 11%, and is made up of:

- Payroll + 12%: €13.3bn
- Materials +9%; €2.6bn
- Services +12%; €5.6bn

FDI exports increased by 14% to €218.7bn accounting for 68% of national exports.

Capital expenditure increased by 8% in the year to €5.9bn with the majority of that spend in Life Sciences and Technology.

There were 18 first time new R&D investment approvals for IDA client companies in 2019. The R&D staff total stands at 18,834, up 11%. The client spend on in-house R&D was €2.2bn in 2018, up 10% with a further €1.4 bn spent on outsourced R&D.

“Employment growth in 2019 was 6% compared to 2.4% nationally and IDA Ireland clients now account directly for 10.5% of national employment. We have seen employment growth across all regions and sectors. Over the lifetime of our current strategy we have won 1,209 investments in total; 562 of which are new name investments, 400 were expansions by established companies and 247 were RD&I investments, an uplift of 134% on our target and resulting in 112,327 jobs being created. That speaks to a continued confidence in Ireland’s investment proposition as a stable and reliable location for global investors, evidenced by the number of new name companies who invested here in 2019 – 125 of the 250 investments won. 88 investments made last year were expansions by established companies, demonstrating their considerable commitment to Ireland. Indeed longevity, resilience and commitment are the hallmark of multinational companies in Ireland; one third of MNCs have been here for 20 years now, with others operating successfully for 25, 30 and more years. That longevity has been of enormous benefit to the national and regional economies. Fortunately, job losses continue to be historically low and in fact job maintenance is at an all-time high.

On regional investment Martin Shanahan said:

“54,868 jobs were created outside of Dublin over the past five years leading to 33,118 additional direct jobs (net) on the ground in regions at the end of this strategy. 110 investments were won for regions in 2019 with 5,368 net jobs created. Every region hit the five-year strategy targets of a 30% uplift in investment we set out to achieve and three regions - the Mid West, Mid East and South East exceeded 40% of targets. Investments in The Border region increased threefold since the outset of the strategy. This is clear evidence that our deliberate and focused strategy of targeting investment for regions is paying off. That includes our Regional Property Programme which has delivered seven of 11 planned advance building solutions – technological or office buildings – to offer investors attractive turnkey building solutions in regional locations. All seven of the buildings completed are now occupied by businesses, demonstrating the success of this strategy of stepping into the market where we see opportunity and can secure clients when the necessary properties aren’t being provided by the private sector.

IDA Ireland has a deliberate strategy of source market diversification. In 2019, 63% of investment came from the US and while it remains the engine of jobs growth, the amount of investment from other countries grew faster - from 30% in 2014 to 37% in 2019.

On the outlook for FDI Martin Shanahan said: “The FDI performance over the past five years has been

unprecedented. My expectation is that this strong performance will continue into the first half of 2020. As we finalise our strategy for the period 2020-2024, which will be launched soon, we observe significant downside risk in the marketplace over the next five-year period. Those risks emanate from the possibility of an economic correction in key source markets, continued trade tensions, subdued global economic growth and from domestic challenges related to competitiveness and the carrying capacity of the economy. We have developed our new strategy to, as far as possible, withstand the challenges of global political and economic uncertainty. Our value proposition continues to be strong, we are well positioned as a gateway location to Europe and are committed members of the EU. We are business friendly and supportive. Talent continues to be an important asset. Being competitive is more important than ever for our client companies to continue to grow and develop and as Ireland expands its footprint across the globe, seeking out new markets to win investment.”

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Notes to Editors

IDA Ireland’s job creation performance is measured by an annual labour force survey, commissioned independently via the Strategic Policy Division of the Department of Business, Enterprise & Innovation. The results are compiled directly from responses given by IDA client companies on their current headcount numbers. This survey measures people in employment in IDA client companies at the end of the survey period only. The survey does not measure, or count, future employment intentions or future job creation plans issued as part of press announcements.

Brexit

Uncertainties about the outcome of the Brexit process and the unprecedented nature of the UK’s exit can make forecasting economic impacts challenging. Areas of concern include future use of land bridge and EU-UK data flows. Regulatory divergence and resulting non-tariff barriers would be among the biggest contributors to additional trade costs and GDP impacts.

IDA Ireland has had close to 90 individual Brexit-related investments with over 5,500 associated jobs approved since the UK’s EU referendum in June 2016. There are others where it was one of a number of considerations in choosing Ireland as a location to invest.

Post Brexit, Ireland’s economic and political stability, along with a continued commitment to the EU, is a core part of Ireland’s value proposition to foreign investors. As companies seek Brexit solutions that will impose the lowest possible additional costs and the least possible disruption to trade, Ireland offers a base from which to sustain access to the Single Market, to minimise uncertainty and to grow their business.

Dublin remains the most popular choice for financial services firms to relocate post-Brexit according to EY’s most recent Financial Services Brexit Tracker, with 28 firms having committed to relocating staff or operations to the Irish capital since the Referendum. Dublin is closely followed by Frankfurt (21),

Luxembourg (19) and Paris (18). The EY Brexit tracker identified talent, trade, technology and tax as the key themes driving FDI trends in 2018.

IDA Ireland will continue to work to identify and exploit any and all opportunities to win Brexit related investment for Ireland.

IDA Ireland's Regional Property Programme

As part of IDA Ireland's 2015-2019 strategy, IDA's Property Division identified a significant deficit in the availability of quality property outside Dublin. Addressing this shortage has been the focus of a five-year regional capital investment programme to deliver 11 Advance Building Solutions (ABS), either technological or office buildings, on IDA lands in a number of regional locations across Ireland, including Limerick, Sligo, Castlebar, Carlow, Tralee, Waterford, Galway, Athlone and Dundalk. Seven of the nine buildings completed to date are now occupied or at an advanced stage of lease execution. The second phase of the programme is now being rolled out and includes another 11 building projects and a number of medium and large-scale infrastructure projects. Six major building projects are scheduled to commence in 2020. The programme is funded by Government capital funds and IDA property funds.

The competitive nature of the global FDI environment has intensified significantly in recent years. It is internationally proven that a proactive, functional property and infrastructural ecosystem is a key driver and differentiator in winning, sustaining and supporting FDI. In this context, IDA Ireland needs to remain competitive in the global FDI market and therefore, one of the main objectives of the current Property Strategy is to ensure that there are serviced sites with appropriate zoning, planning and required infrastructure to attract and secure FDI investment. IDA Ireland has 36 business and technology parks and 12 strategic sites across the country. The 12 strategic sites are large scale landbanks with high intensity utility infrastructure that were acquired and are developed with the aim of attracting large scale utility intensive investment. IDA's strategy in acquiring and preparing strategic sites for the future aims to ensure our property offering is aligned to IDA Ireland and Enterprise Ireland client needs, organisational objectives and balanced regional development.

IDA Ireland's most recent site acquisition is a c.85.5 Ha site in Newbridge, Co. Kildare. The current property investment programme also includes the delivery of numerous enabling infrastructure projects across the existing portfolio of business and technology parks and strategic sites.

Headline investments won over five-year strategy:

2019

- **Salesforce** – Salesforce announced that it is to create 1,500 jobs over the next five years and expand its investment in Ireland, establishing 'Salesforce Tower', an urban campus of four interconnected buildings located on North Wall Quay within Dublin's vibrant Silicon Docks.
- **Facebook** – Facebook announced plans to hire 1,000 people across 60 teams in Ireland in 2019. The jobs created span the engineering, safety, legal, policy, marketing and sales teams.
- **Johnson & Johnson Vision** – Johnson & Johnson Vision announced the addition of approximately 100 jobs & investment of c.€100M in the expansion of its manufacturing operations at its site in the National Technology Park in Plassey, Co. Limerick.

- **JRI America**, the technology company supporting the Japanese Sumitomo Mitsui Banking Corporation, announced plans to expand its technology centre in Tralee, Co Kerry, creating 100 new jobs over five years.
- **Indeed** – Indeed announced the creation of 600 additional roles at its Dublin-based headquarters for Europe, the Middle East and Africa (EMEA), stemming from its expansion into its new Capital Dock HQ.
- **Allstate Sales Group Inc.** – Allstate Sales Group Inc. announced the establishment of two software development & CAD Support centres in Waterford & Sligo, creating 100 jobs in each location in the company's first investment outside the US.

2018

- **Abbott** – Abbott in Donegal announced the expansion of its existing manufacturing facility in Donegal town, resulting in the creation of c.500 new jobs over the next number of years.
- **Edwards Lifesciences** – Edwards Lifesciences announced plans to establish a manufacturing facility in Limerick, creating 600 jobs when fully operational. The €160M investment is the company's largest manufacturing investment in the EU. The facility is under construction at the National Technology Park in Limerick.
- **MSD** – MSD announced plans to construct a second manufacturing facility at its existing site in Carlow, creating 170 new jobs. The announcement followed the company's announcement in May 2017 that it would create 330 new jobs and invest €280 million in its manufacturing facilities in Carlow and Cork, and in February of 2018 that it would create 350 new jobs as part of a new biotech facility called MSD Biotech in Dublin.
- **VoxPro** – VoxPro announced the expansion of its existing facility in Cork into adjacent new offices, resulting in the creation of c.400 new jobs over the next number of years, growing the company's total number of jobs in Ireland to 3,000.
- **WuXi Biologics** – WuXi Biologics announced plans to invest €325m and create 400 new jobs over five years in a new biologics drug substance manufacturing facility in Dundalk, Co. Louth which is under construction at present. WuXi Vaccines then announced plans in November 2019 to build a €215.5m vaccine production facility on the WuXi Biologics Campus creating a further 200 new jobs over five years.
- **Genesys** – Genesys announced the creation of 200 new technology jobs in Ireland over the following three years at the company's new Galway office.

2017

- **Indeed** – Indeed announced expansion plans for its Dublin-based headquarters for Europe, the Middle East and Africa (EMEA), adding 500 new employees over the next two years.
- **Graebel Companies Inc.** announced the creation of 125 new jobs in a EMEA Financial Shared Services and Operations Centre in **Dundalk, Co Louth**.

- **Microsoft** – Microsoft announced plans to hire 600 people, significantly increasing its commitment to Ireland. Following the selection of Dublin as the location for one of four global Inside Sales Centres, 500 new roles were created with immediate effect, with a further 100 created across its existing operations.
- **Regeneron** – Regeneron announced a further expansion of its Limerick Industrial Operations and Product Supply (IOPS) bioprocessing campus with an additional 300 jobs and investment of €89.8m bringing the total expected employment at the site to 800 people and total investment to €673.5m.
- **YapStone** – YapStone announced it would invest €41 million in an expansion of its operations at its International Headquarters in Drogheda, Co. Louth, creating 200 new jobs.
- **Wasdell Group** – Wasdell Group announced the establishment of a pharmaceutical packaging, testing and distribution facility in Dundalk, creating 300 jobs over five years.

2016

- **HubSpot** – HubSpot announced the opening of their new Dublin office, committing to hiring an additional 320 Dublin-based employees over three years. In order to accommodate that growth, the company officially opened its new office space at One Dockland Central.
- **OPKO Health Inc.** – OPKO Health Expansion announced plans to create 200 highly skilled jobs over five years in an expansion of the EirGen Pharma facility in Westside Business Park in Waterford, establishing a new Product Development Centre in IDA's Advance Technology Building in the Waterford Business and Technology Park.
- **Amazon** – Amazon announced the creation of 500 new jobs in Ireland. The highly-skilled roles included data centre technicians, software engineers and customer support staff among others, to be hired over two years at a number of Dublin facilities.
- **First Data** - First Data announced the establishment of a research and development centre in Nenagh, Co Tipperary that will house up to 300 highly skilled employees to centralize work on a number of the company's leading technology platforms.
- **Wayfair** – one of the world's largest online destinations for home furnishings and décor announced the expansion of its multi-lingual European Operations Centre in Galway creating approximately 160 new jobs
- **Oracle** – Oracle announced 450 new roles and the opening of a new state-of-the-art offices in Dublin to accommodate its growth.

2015

- **Pramerica Systems Ireland** – Pramerica Systems Ireland announced the expansion of its operations in Letterkenny, creating 330 new jobs over three years with potential for further growth in the longer term. The company announced plans to build a new, state-of-the-art, eco-friendly office campus near its current location in Letterkenny, Co. Donegal to accommodate the expansion.

- **Northern Trust** – Northern Trust announced that the company is to expand its operations in Limerick by creating 300 new jobs over three years - the second investment in jobs announced by the company in three years.
- **Apple** – Apple announced the expansion of its campus in Hollyhill, Co. Cork, adding a new building that will provide new office space and room for 1,000 additional employees by mid-2017.
- **Bausch + Lomb** – Bausch + Lomb announced plans to invest €75M in extra manufacturing capacity at its Waterford facility generating an expected 125 additional jobs
- **Workday** - Workday Inc. (NYSE: WDAY), a leader in enterprise cloud applications for finance and human resources announced the opening of its new European headquarters office in Dublin 7, in the heart of the north inner city, as well as plans to create another 200 highly-skilled jobs
- **Agora Publishing** – Agora announced the establishment of a multilingual contact centre in Portlaw in Waterford, adding 100 jobs.

[1] CSO Labour Force Survey for Q3 2019

*This is the final version of the IDA Annual Results press release including a corrected figure on overall regional investment numbers during the five year Winning Strategy of 54,868

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03 FEB 2020

AERIE PHARMACEUTICALS – AN ATHLONE COMPANY HELPING PEOPLE SEE AGAIN



Aerie Pharmaceuticals

One of the newest arrivals to Ireland's thriving life sciences sector is the US company Aerie Pharmaceuticals. It will shortly begin commercial production at a newly constructed state-of-the-art facility in Athlone.

Founded in 2005, Aerie specialises in the discovery, development and commercialisation of novel treatments for glaucoma, the disease that can cause irreversible vision loss, as well as for retinal diseases and other diseases of the eye.

The company's lead product is the Rho kinase inhibitor, netarsudil which is approved and marketed as Rhopressa in the US and recently approved in Europe as Rhokiinsa. It is a once-daily eye drop to reduce elevated intraocular pressure (IOP) in patients with glaucoma or ocular hypertension. In the US, the company also launched a fixed-dose combination of netarsudil and the prostaglandin analogue, latanoprost. (Rocklatan is a once-daily eye drop to reduce IOP in patients with open-angle glaucoma and ocular hypertension).

How it came to be

"The company was founded by a leading ophthalmologist, David L Epstein, and Casey C Kopczynski," said chair and CEO Vicente Anido Jr.

"Epstein was chair of the Department of Ophthalmology at Duke University and had spent his research career looking for better ways to treat glaucoma."

Biotech start-up veteran Kopczynski joined with Epstein to develop a new class of medications to transform the therapeutic area.

"David's idea was that the best way of treating eye disease was to understand the underlying cause and

target that,” Anido added. “He understood that the cause of glaucoma was damage to the trabecular meshwork, which is the primary pathway for fluid to drain from the eye.

“The damage causes the fluid to back up, thereby increasing pressure and ultimately damaging the optic nerve. None of the drugs treating glaucoma at the time were specifically designed to treat this underlying cause.”

Those conventional treatments lowered pressure by either reducing the amount of fluid being produced or increasing the outflow through a secondary drain. None treated the disease mechanism.

“David tried several different compounds and eventually settled on a class of drugs known as rho kinase inhibitors which work at the molecular level to open up the trabecular meshwork and allow fluid to start flowing again,” Anido said.

The next step

Having identified the class of drug, it was then necessary to find one that would work in a once-a-day dose.

“They looked at two candidates and the second one worked better for a longer duration. They identified it in 2013 and it became netarsudil,” Anido said.

“It took eight years before they made all the necessary adjustments to the chemical structure to get to this compound. They spent \$75m and a lot of sleepless nights worrying before they succeeded. It was all about keeping the company afloat up until then.”

Anido joined the company in 2013 at the point when it was setting out on its clinical development and commercialisation journey. It had been decided in 2012 to raise funds through floating the company on the public markets and an expanded board was required.

Anido had extensive industry experience, including as president and CEO of ISTA Pharmaceuticals and president of the Americas Region for Allergan, and joined Aerie as executive chairman in April 2013. Within a few months, there was a decision to restructure the management of the company and Anido took on the CEO’s role as well.

The big break

Clinical trials followed. “We were successful with Rhopressa studies and after a lot of hard work we got it approved in late 2017 and launched in the US in 2018,” said Anido. “In parallel, we had been looking at the fixed-dose combination with latanoprost, providing two drugs in one bottle to address all of the outflow pathways.”

That became Rocklatan. “We got that approved by the US Food and Drug Administration (FDA) in March 2019 and the two drugs are now on the market in the US.”

The decision to expand overseas was taken very early. “Unlike many pharma companies of our size, we chose not to partner outside the US,” Anido noted. “We opened an office in Dublin and moved our intellectual property (IP) to Ireland. Any IP created outside the US is located in Ireland.”

Manufacturing was top-of-mind early on. “We realised demand for our drugs could be quite large and there are not too many contract manufacturers in the ophthalmic space. So, we decided to build our own facility,” he said.

Role of IDA Ireland

And that’s when first contact with IDA Ireland was made. “There was just one line in our 200-page SEC filing document which talked about contract manufacturing organisations and said we were thinking about

building a manufacturing facility somewhere in the world well known for pharma manufacturing, like Ireland”, he recalled.

“Someone in the IDA Ireland research department picked up on that and within 24 hours of filing I got a phone call from them asking if they could come out and see us in California,” he added. “That’s what started the relationship. I told them they should promote that researcher. We have since invested more than \$70m in Ireland.”

Visits to Ireland followed. “The IDA took our manufacturing and finance people around to visit sites to show them what was available. They also introduced them to banks and other service providers and gave us details of the training and other support they could provide. The team came back and said they saw a site in Cork and a site in Athlone that they liked. Athlone had a building which had been constructed by the IDA as a showcase for the industry.”

He continued: “When they told us about that, it was an easy one for me. I had experience of Athlone going back to the 1980s when Elan was just getting started. They were a CMO for a company I worked for in the US. We were their first client. I visited Athlone on a number of occasions and got to know the culture and ecosystem there. It’s a great central location and we decided that was where we were going to plant our flag. We now have more than 70 people working in Athlone and a further seven in the Dublin office.”

Its first Irish hire

Athlone site director Barry Ivin was the company’s first hire for the Irish manufacturing facility. He says the availability of the building was critically important. “This was part of the IDA strategy of building advanced facilities in regional locations to attract technology investments,” Ivin noted. “This allowed us to avoid a greenfield investment and took a lot of the risk away. Athlone is centrally located with a strong industry cluster coupled with a supporting infrastructure of contractors, laboratories, and so on.”

Setting up the facility is a key element of the company’s strategy. “We like to control our own destiny,” Ivin added.

Initial design work for the facility began in March 2017 and progressed at what Ivin describes as an “extraordinary rate”. “We completed the building last year and hope to begin commercial production and supply in early 2020. We have 70 people working here at the moment and that will increase to 90 to 100 at full production.”

Talent availability was another factor in Ireland’s favour. “We are a small organisation with not-quite 400 people in total and we put a huge amount of time and effort into hiring the right people,” Ivin explained.

“Our people have an average of 17 to 18 years’ industry experience and more than 95pc have a third level qualification, with more than 80pc educated at a degree level or higher. Like anything, if you are clear on what you want and work hard enough you will get it.”

“The truth is that there is more pharmaceutical manufacturing talent available here than in the US or northern Europe.

“Good people are hard to find anywhere in the world, but we have worked very hard to put together an attractive proposition to compete with leading companies in the industry. Because of Athlone’s location, we can attract staff from a very broad catchment area. West Dublin is less than one hour from the plant and Galway is within 45 minutes.”

Anido said the Athlone facility is meeting all targets. “We passed our first set of inspections with the

HPRA earlier this year and came through with a clean bill of health.

“We have submitted our prior approval supplement to the US FDA and will be inspected by that agency early next year. With luck we should be supplying product from the facility for the US market by the beginning of 2020. We filed for approval for Rhopressa in Europe in 2018 and received marketing authorisation in November 2019. With that approval, we were able to file Rocklatan with the European authorities in December 2019.”

In Europe, the drugs will be known as Rhokiinsa and Roclanda, respectively.

Ireland’s advantage

Ireland also boasts another advantage which had not been immediately apparent, according to Anido. “Something we found out early on and that other companies don’t realise is that not only is it more advantageous to supply Europe from Ireland, but it is also better to supply Japan from Ireland. This is due to the strength of the work Ireland has put in around the world in agreeing tax treaties. Ireland has a better tax treaty with Japan than the US does. That’s a benefit we hadn’t initially factored into our assumptions.”

He is happy with the relationship with the IDA. “They have been really good at explaining all the benefits to the point that we are already looking at expanding the footprint in Athlone by adding more space. Although we will use some contract manufacturing as a backup, we don’t expect to do our own manufacturing anywhere other than Athlone.”

The future looks bright for Aerie and its Irish facility. “Like any small company starting out, we will have our growing pains,” Anido noted.

“Some pipeline drugs will win out and some will not, but we hope to have enough shots on goal to have a healthy pipeline to fuel the growth of the company. In Europe we are about two to three years behind the US in terms of product releases. We will be able to shorten that gap now that we have our own manufacturing facility in Ireland. A lot of states in the US could benefit from the Irish model in terms of attracting investment and dealing with unemployment. Few other organisations have done this as successfully as the IDA.”

Barry McCall

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28 JAN 2020

ALLERGAN MARKS OPENING OF NEW €160M BIOLOGICS FACILITY IN WESTPORT WITH 63 NEW JOBS

- *Westport cements its position as largest manufacturing campus in global network as investment in Ireland reaches €750m*
- *Expansion to meet continued demand for flagship products and future innovations*

Allergan plc, the global integrated biopharmaceutical leader headquartered in Ireland, today marked the opening of its €160m state-of-the-art Biologics 2 facility at its Westport Campus in Co. Mayo, Ireland. The new facility will create 63 jobs and enhance Ireland's position as a strategic global hub for Allergan's flagship products, including their botulinum toxin brand. This brings Allergan's total investment in Ireland since it began operations in the country to more than €750m.

The global launch event this morning was officiated by Minister Michael Ring, Minister for Rural and Community Development.

The Biologics 2 facility at Allergan Westport will feature new manufacturing suites to meet growing global demand for Allergan's flagship products. As part of a strategic expansion to support the next generation of biologics innovation it will feature a new state-of-the-art microbiology and cell-based laboratory with world-class technology and research and development capabilities to support advances in discovery, development and manufacturing.

Coinciding with the opening of the Biologics 2 facility, Allergan recently marked the shipping of the 100 millionth vial of BOTOX® [1] from the Westport campus as Allergan marked 30 years since the product first received FDA approval[2].

Speaking at the opening, **Minister Michael Ring, Minister for Rural and Community Development** said: *"Allergan's further expansion is a vote of confidence in Mayo and the West. Allergan is a fantastic employer and it's great to see it further cement its presence here in Westport. Speaking as someone from Westport, Allergan has had a remarkably positive impact on the town and on the region. This announcement is further evidence of how the West can provide a wonderful environment for investors and employers. I commend Allergan for putting their trust in the West of Ireland. With the new N5 road project from Turlough to Westport taking shape, our ability to attract investment and jobs into the region will only improve."*

Speaking at the global opening event, **Mr. Wayne Swanton, Executive Vice President of Global Operations at Allergan plc**, said: *"It gives me great pride to mark the global opening of our Biologics 2 facility here in Westport as we embark on the next chapter next chapter of growth and innovation for Allergan's botulinum toxin brand and other biologics products. The sensitivity of biologics in the manufacturing process is like no other. It requires a level of exactness in manufacturing and handling throughout the whole supply chain around the world, which is truly unique. That journey starts here in Westport on the west coast of Ireland with a team of over 1,300 passionate and highly skilled people who have been integral to growing our products to the scale we see today and delivering impact for patients."*

“Throughout our 40 years here in Ireland, we have enjoyed a tremendous relationship with local, regional and national government and the community around us. We continue to believe Ireland is an outstanding country for investment and expansion for all our products that are manufactured here in Westport. Ireland has made education, training and investment in its biopharma workforce a priority. As we look to the future, it is one of the benefits we value tremendously from having such a strong presence here in Ireland.”

Employing over 2,000 across the country, one in ten employees in Allergan’s global workforce are now based in Ireland.

An independent economic assessment by EY DKM conducted in 2019 indicates that Allergan’s €160m capital investment programme in Ireland over the past 3 years contributed €23 million to Ireland’s GDP in 2019 and added €7 million in exchequer revenues. In 2018, Allergan’s significant Irish operations delivered a GDP impact of €308 million, supported 3,485 jobs in Ireland’s economy, and contributed exchequer revenues of €76 million.

Mr. Paul Coffey, Vice President Global Manufacturing (Eyecare & Biologics) and site lead at Allergan Westport, said: *“This €160m investment underpins Allergan’s commitment to advancement in the biologics arena and we are delighted that Ireland is home to this strategic expansion. Our Westport campus is the largest and most complex in Allergan’s global network. Our new biologics facility, added to our existing biologics facility, will allow us to meet continued global demand for Allergan’s flagship products. With the addition of a new microbiology and cell-based laboratory too, the team here in Westport are looking forward to contributing to product innovations that will make a difference to patients’ lives all over the world and maintain our position at the forefront of the global biopharma industry.”*

Mr. Martin Shanahan, CEO of IDA Ireland said:

“This latest €160M expansion by Allergan in Westport is a further, substantial vote of confidence in Ireland by a company that is a global leader in biopharmaceuticals and has already, over its 40-year presence in Ireland, invested almost €600M, growing its operations here from a workforce of just 25 employees in 1977 to become the substantial and valued employer of more than 2,000 people here in Ireland, that it is today. Securing investment for regional locations across Ireland has been, and will remain, a key focus for IDA Ireland and Allergan’s success here and its continued commitment to Mayo and Ireland with this additional investment is a clear endorsement for other companies considering investing in Ireland. I wish Allergan continued success and assure them of our on-going support.”

Allergan plc is headquartered in Ireland and operates four facilities - two manufacturing operations, one at Clonsaugh, Dublin and one in Westport, Co. Mayo - as well as an international supply chain office in Earlsfort Terrace, Dublin and a facility in Galway on foot of the acquisition of Zeltiq in April 2017. Zeltiq is a global leader in proprietary controlled-cooling technology for non-invasive fat reduction. The Westport and Clonsaugh facilities develop and manufacture a range of branded medicines primarily for the export market.

Ends

****Issued by Murray on behalf of Allergan.***

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Allergan plc

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About Allergan Ireland

- Allergan plc (NYSE: AGN), headquartered in Dublin, Ireland, is a global integrated speciality pharmaceutical leader focused on developing, manufacturing and commercializing branded pharmaceutical, device, biologic, surgical and regenerative medicine products for patients around the world.
- Allergan employs c. 2,000 people in Ireland where its roots stem back over 40 years.
- Allergan's operations in Ireland have grown significantly since it first developed and opened its Westport plant on a greenfield IDA site in Westport, Co. Mayo in 1977, with just 25 employees.
- Allergan operates four facilities in Ireland - two manufacturing operations, one at Clonsaugh, Dublin and one in Westport, Co. Mayo - as well as an international supply chain office in Earlsfort Terrace, Dublin and a facility in Galway, on foot of the acquisition of Zeltiq in April 2017. Zeltiq is a global leader in proprietary controlled-cooling technology for non-invasive fat reduction.
- The Westport and Clonsaugh facilities develop and manufacture a range of branded medicines, primarily for the export market.
- Ireland plays a critical role in the manufacturing of Botox®, which is Allergan's leading product globally, in terms of sales. Allergan's Westport facility is a strategic part of the global Allergan network and is responsible for manufacturing the global supply of Botox®.
- Westport is home to the largest and most complex campus in the global Allergan network. It encompasses a pharmaceuticals facility, two biologics plants and an ocular implant facility which manufactures a range of leading eye care products.
- Marking 40 years in Ireland in 2017, Allergan announced a €42 million investment across its Clonsaugh and Westport manufacturing operations to support increased manufacturing capabilities for some of its key current and future products.
- As part of Allergan's 40th anniversary celebrations in 2017, Allergan Ireland also introduced a new €50,000 Allergan Innovation Award Programme, in partnership with six Irish colleges and universities (Trinity, UCD, NUI Galway, IT Sligo, DCU and Galway-Mayo IT) around the country, aimed at encouraging research and innovation in the life sciences field.
- In 2018, Allergan invested a further €50 million in its Irish business. This capital investment facilitated an expansion of its laboratory operations and manufacturing operations, for new products currently in development.
- In late 2019, Allergan completed a €160m investment programme in a new Biologics facility at its Westport plant, cementing its strategic role as the global home to Botox®. The global opening of the Biologics 2 facility took place on 28th January 2020.
- This latest €160m investment programme in Westport brings Allergan's total investment in Ireland to date to over €750m. An independent economic assessment indicated that in 2018, Allergan's significant Irish operations delivered a GDP impact of €308 million, supported 3,485 jobs in Ireland's economy, and contributed exchequer revenues of €76 million.

About Allergan:

Allergan plc (NYSE: AGN), headquartered in Dublin, Ireland, is a global integrated specialty pharmaceutical leader. Allergan is focused on developing, manufacturing and commercializing branded pharmaceutical, device, biologic, surgical and regenerative medicine products for patients around the world.

Allergan is an industry leader in Open Science, a model of research and development, which defines our approach to identifying and developing game-changing ideas and innovation for better patient care. With this approach, Allergan has built one of the broadest development pipelines in the pharmaceutical industry.

Allergan's success is powered by our global colleagues' commitment to being Bold for Life. Together, we build bridges, power ideas, act fast and drive results for our customers and patients around the world by always doing what is right.

With commercial operations in approximately 100 countries, Allergan is committed to working with physicians, healthcare providers and patients to deliver innovative and meaningful treatments that help people around the world live longer, healthier lives every day.

For more information, visit www.Allergan.com.

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Research and Innovate

The application of research and innovation to business challenges is critical to the success of the Irish economy. We provide supports for both companies and researchers in Higher Education Institutes to develop new technologies and processes that will lead to job creation and increased exports. Use this section of the site to learn more about our research and innovation supports for businesses and researchers in Higher Education Institutes.

The Enterprise Ireland web site is rich in content and worth browsing through:-

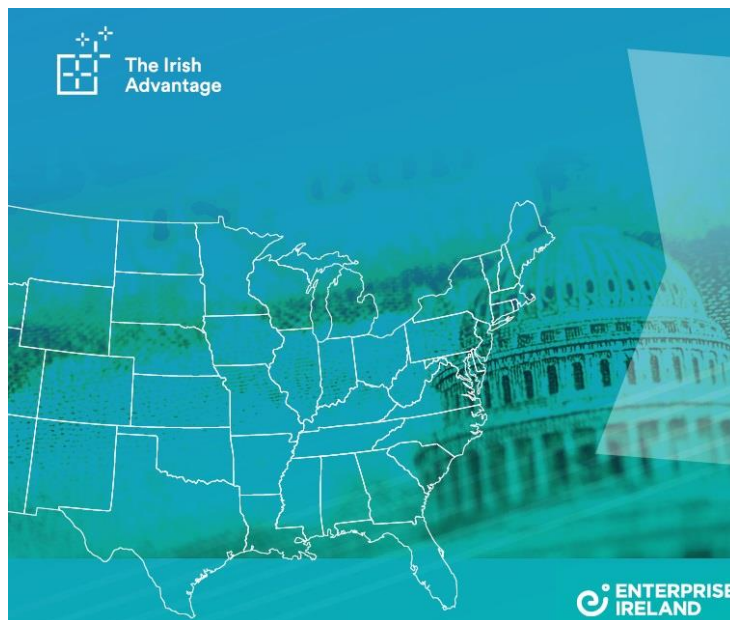
<https://www.enterprise-ireland.com/en/Research-Innovation>



Enterprise End of year statement:-

<https://youtu.be/24UgIhnWHiY>

Ireland is the ninth largest source of foreign direct investment in the United States



Enterprise Ireland leading business roundtable to boost exports

Kerry Group announce \$125m investment in Georgia food plant

Ireland has been confirmed as the ninth largest source of foreign direct investment to the United States. According to the US Bureau of Economic Analysis, Ireland's FDI into the US stands at \$235.7 billion*. Today, over 900 Irish companies operate across all 50 states, employing 110,000 in the US.

The figures have been released ahead of a roundtable discussion on opportunities to advance partnerships between Irish and US businesses. Facilitated by Enterprise Ireland, the meeting will take place later today in Washington DC. Senior executives from Kerry Group, Aerogen, Icon, NovaLeah and Kingspan will participate in the discussion, as well as Irish Ambassador to the United States, Daniel Mulhall, and United States Ambassador to Ireland, Edward F. Crawford.

Enterprise Ireland-supported companies opened 75 new offices in the US in 2019, resulting in a two-year total of 125 new offices. More than 87,000 people are employed by 613 Enterprise Ireland supported companies operating across all 50 states at 954 locations. The companies cover a broad range of industries including construction, education, energy, environmental, medical devices and digital technology.

Enterprise Ireland CEO, Julie Sinnamon, said: *“Enhanced by a strong cultural connection, Ireland has had many decades of an active trade relationship with the United States. This connection, together with Ireland’s entrepreneurial strengths, presents a vibrant market and partnering opportunity for many Irish companies. While many Enterprise Ireland clients are currently active in the US, it is also a key target market for companies who are looking to expand their global footprint. Events such as*

today's roundtable are invaluable in strengthening existing relations, while also giving ambitious Irish companies unparalleled market access."

As part of the event, Kerry Group has announced the investment of \$125m into a new world-class food manufacturing facility in Rome, Georgia. The facility will provide Kerry Group with integrated taste and nutrition solutions to help their customers meet growing consumer demand in the poultry, seafood and alternative protein markets. Gerry Behan, Global President and CEO, at Kerry Taste & Nutrition and Catherine Keogh, Group Vice President - Corporate Affairs and Communications, at Kerry Group will detail the investment at the roundtable.

Commenting on the announcement, Gerry Behan, said: *"North America is our largest market, and as such it is fitting that it is here that we announce our largest ever capital expenditure investment. We already employ nearly 6,000 people in 70 locations across the region and we are looking forward to growing our footprint in the coming years. This new facility will be one of the most advanced and modern food manufacturing facilities in the world which will support our customers as they produce tasty and nutritious food products which will be consumed all across the US and Canada."*

Commenting on the announcement, Julie Sinnamon, continued: *"Kerry Group has been a significant contributor to the Irish-US trading relationship. Employing 6,000 people across the country, today's announcement further exemplifies the innovation, leadership and vision that has driven their success to date."*

In the US, Enterprise Ireland operates from New York, Boston, Austin, Chicago, Seattle, and San Francisco.

Ends

*The United States Bureau of Economic Analysis

About Enterprise Ireland

Enterprise Ireland is the Irish State agency that works with Irish enterprises to help them start, grow, innovate and win export sales in global markets. Enterprise Ireland partners with entrepreneurs, Irish businesses, and the research and investment communities to develop Ireland's international trade, innovation, leadership, and competitiveness. In this way, we support sustainable economic growth and regional development and help create and sustain employment in Ireland. www.enterprise-ireland.com

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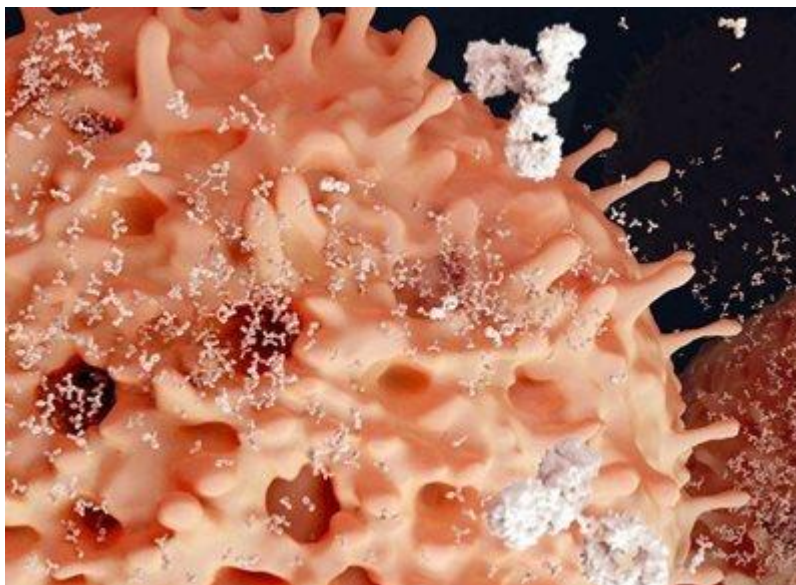
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Irish team excited by promising treatment for deadly blood cancer

By Colm Gorey

27 Jun 2019



Plasma cell illustration. Image: NUI Galway

Blood Cancer Network Ireland (BCNI), led by Prof Michael O'Dwyer of NUI Galway, has completed the first Phase I clinical trial study in Ireland on patients newly diagnosed with multiple myeloma.

The blood cancer arises from a plasma cell – a type of white blood cell – that normally produces antibodies to fight infection. In those diagnosed with multiple myeloma, the plasma cells become cancerous and are thus named myeloma cells.

They impair the production of red blood cells, leading to the development of anaemia and also serious damage to the bones and kidneys. In Ireland, approximately 250 people are diagnosed with the cancer every year and 170 eventually succumb to it.

However, this latest study has returned very promising results that could lead to a new treatment for those newly diagnosed with multiple myeloma. Publishing their findings to Blood Advances, the authors of the study said that these Irish patients were the first in the world to take part in the drug trial.

The full article by Colm Gorey is available at the link below:-

Colm Gorey/Siliconrepublic.com

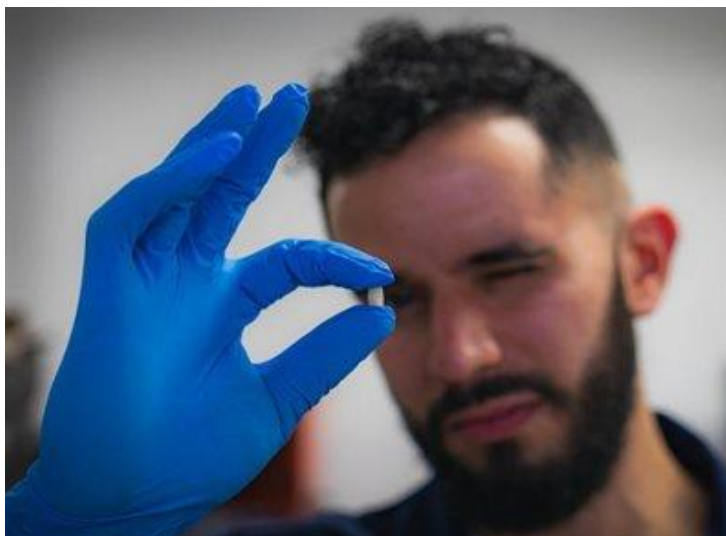
This article first appeared on www.siliconrepublic.com and can be found at:

<https://www.siliconrepublic.com/innovation/promising-treatment-multiple-myeloma-nui-galway>

By Colm Gorey

3D-printed pill forged at pharmacy could deliver drug cocktail in one go

30 Aug 2019



Evert Fuenmayor with his 3D-printed pill. Image: Athlone Institute of Technology

Despite the many marvels that modern medicine can bring, we can often be burdened with a having to take a number of pills, which can sometimes result in incorrect doses due to human error. This regular prescription of multiple medications – referred to as polypharmacy – is now considered one of the leading causes of non-compliance in patients.

In order to better manage this medication cocktail, researchers from the Athlone Institute of Technology's Materials Research Institute have combined the fields of materials science, additive manufacturing and injection moulding to create a rather unique pill. Instead of taking a number of different pills in a given day, this personalised pill could combine the different medications into just one tablet.

Doctoral candidate Evert Fuenmayor and his supervisor Dr Ian Major have developed a blueprint for these customisable pills that could release the drugs in correct quantities over a prolonged period of time. Delivered either orally or sub-dermally implanted, the pill can be tailored to the specific needs of the patient as determined by their genetic profile.

The full article by Colm Gorey is available at the link below:-

Colm Gorey/Siliconrepublic.com

This article first appeared on www.siliconrepublic.com and can be found at:

<https://www.siliconrepublic.com/innovation/promising-treatment-multiple-myeloma-nui-galway>

UCD spin-out Atturos closer to launching PromarkerD in Europe

By Kelly Earley

26 Sep 2019



Prof Stephen Pennington, UCD School of Medicine, and founder and CSO of Atturos. Image: UCD

University College Dublin (UCD) spin-out Atturos announced that it is one step closer to a European launch of a diagnostic blood test to predict the onset of diabetic kidney disease.

The announcement was made after Proteomics International Laboratories, a medtech company headquartered in Perth, Australia, said that it has successfully transferred its PromarkerD technology to the labs of Atturos, its clinical diagnostics partner.

PromarkerD is a diagnostic blood test that uses a unique protein ‘fingerprint’ to provide early detection of the onset of diabetic kidney disease.

Now that the technology has been transferred to Atturos, the spin-out will be able to provide PromarkerD as a mass spectrometry laboratory developed test (MS-LDT) to license partners in the European market.

The full article by Kelly Earley is available at the link below:-

Kelly Earley/Siliconrepublic.com

This article first appeared on www.siliconrepublic.com and can be found at:

<https://www.siliconrepublic.com/start-ups/atturos-promarkerd-proteomic>

siliconrepublic

COULD THIS NEW IRISH MATERIAL HELP SOLVE A GLOBAL WATER CRISIS?

By Colm Gorey

31 OCT 2019



Prof Michael Zaworotko developed the crystalline material after decades of research. (former Institute Boyle Higgins Gold Medal Award Winner. Image: Sean Curtin Photo

With UN estimates suggesting 2bn people across the world are without access to freshwater and expectations this will surge in the face of a climate crisis, there is an urgent demand for new water technologies.

Now, researchers at the University of Limerick's (UL) Bernal Institute have revealed a potentially revolutionary material that could help give freshwater to millions. This material, they said, can produce water from air, even in the most remote locations.

The crystalline material was discovered and produced by Molecule RnD, an international think tank, research group and incubator fund that has located in UL to work in collaboration with Bernal's Prof Michael Zaworotko.

The full article by Colm Gorey is available at the link below:-

Colm Gorey/Siliconrepublic.com

This article first appeared on www.siliconrepublic.com and can be found at:

<https://www.siliconrepublic.com/machines/university-of-limerick-material-water-revolution>

siliconrepublic

When it comes to producing graphene, Irish whiskey may be the answer

By Colm Gorey

31 OCT 2019



Image: Chris Huh https://en.wikipedia.org/wiki/File:Glass_of_whisky.jpg

You would think a team of researchers turning to drink would mean bad news for science, but in fact it is leading to some exciting developments in the field of materials science. Researchers from the SFI Advanced Materials and Bioengineering Research (AMBER) centre at Trinity College Dublin have revealed a new way to produce graphene using Irish whiskey.

One increasingly popular method of producing the atom-thick, highly conductive ‘wonder material’ is liquid-phase exfoliation (LPE). Deemed to be one of the most efficient and scalable means for producing high-quality graphene sheets, LPE is very versatile and has now been applied to a range of common layered materials including graphite, talcum powder and clay.

As part of a study published to 2D Materials, the AMBER researchers showed that graphene nanosheets free from defects can be exfoliated in Irish whiskey as well as inks that can be printed into nanosheet networks for use in electronics.

The full article by Colm Gorey is available at the link below:-

Colm Gorey/Siliconrepublic.com

This article first appeared on www.siliconrepublic.com and can be found at:

<https://www.siliconrepublic.com/machines/irish-whiskey-graphene-production>

New 'Venus flytrap' biosensors snap pollutants from the air

By Colm Gorey

26 NOV 2019



Noah Elhardt. <https://en.wikipedia.org/wiki/User:NoahElhardt>

Unlike the famous plant that lures insects into its mouth to catch and consume them, new Venus flytrap-like biosensors developed by scientists at Trinity College Dublin (TCD) are designed to trap something very different.

In a paper published to *Angewandte Chemie* – and featured on its front page – the scientists said these sensors are designed to detect and grab specific molecules from mid-air. In particular, it can be used to trap pollutants, which could have major environmental, medical and security applications.

The full article by Colm Gorey is available at the link below:-

Colm Gorey/Siliconrepublic.com

This article first appeared on www.siliconrepublic.com and can be found at:

<https://www.siliconrepublic.com/machines/venus-flytrap-biosensors-catch-pollutants>

Over €100 Million Available For Projects Under Disruptive Technologies Innovation Fund



July 09

The Government recently held a flagship event on the impact of technological change on Irish businesses. The event saw the launch of Pillar 1 of the new whole-of-Government plan, Future Jobs Ireland, which focuses on positioning Ireland as a leader in innovation and technology adoption. The Government also announced that another €100 million was being made available under the Disruptive Technologies Innovation Fund for 3-year projects to 2022. It is one of the first funds of its type in the world and a key driver of Pillar 1 of Future Jobs Ireland.

Heather Humphreys (pictured right), TD, Minister for Business, Enterprise and Innovation, said: “Pillar 1 of Future Jobs Ireland is about ensuring that Ireland can stay ahead of the game. We are currently experiencing a technological revolution, which will have a profound impact on our world for decades to come, and we need to keep up to speed.

“Technological change is already impacting on several sectors, such as manufacturing, finance, retail and transport. Taking the workforce as an example, according to a recent study by the OECD, Irish workers face a 46% chance that their job will be automated by the 2030s. This presents challenges but also new possibilities – certain job roles will disappear or be redefined, and brand-new job roles will appear requiring

new and different skillsets. Against this backdrop, it's crucial that we position Ireland to respond to changes ahead.

“The Disruptive Technologies Innovation Fund is a key part of our efforts to prepare now for tomorrow's world. The successful projects will be rooted in collaboration between industry and academia, with a clear focus on commercialisation. Crucially, they will have a transformative impact on how we work or live.”

The Fund is competitive and will be assessed by an independent international panel of experts. It will drive enterprise collaborations involving firms of all sizes including a requirement for at least one SME in every consortium. It also encourages collaboration with Ireland's world-class research base including universities and colleges.

€75 million was allocated to 27 ground-breaking projects under the first round of the Disruptive Technologies Innovation Fund following 300 expressions of interest. Successful projects covered areas like household electricity generation, sepsis treatments, coastal flooding supports and medical 3D printing.

Paschal Donohoe (pictured centre), TD, Minister for Finance and Public Expenditure & Reform, said: “The Disruptive Technologies Innovation Fund will provide opportunities for our most dynamic companies to translate their research into a commercial reality by working in partnership with Higher Education Institutions. Ireland needs to maintain its position as a technological leader in a modern, global economy. The investment that I and the Government have made available through this initiative for co-funded projects will help us to achieve that objective in the coming years.”

Projects must be geared towards commercialisation and are required to align with Ireland's Research Priority Areas of ICT; Health and Wellbeing; Food; Energy; Climate Action and Sustainability; Manufacturing and Materials; and Business Services and Processes.

In order to ensure that projects of scale and impact are funded, the Disruptive Technologies Innovation Fund is available to applicants requesting funding of €1.5 million or more for projects of up to 3 years duration. Enterprise partners must provide matched funding.

The call for funding will be administered for the Department of Business, Enterprise and Innovation by Enterprise Ireland. Prospective applicants can obtain detailed information on the Fund and on the application process through the www.dbei.gov.ie/DTIF webpage. The application deadline is 15.00 Irish time on Wednesday, 18 September 2019.

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Signing of the Ireland-China MOU to Promote Science, Technology and Innovation Co-operation



July 17

A revised Memorandum of Understanding (MOU) to promote science, technology and innovation cooperation between Ireland and China has been signed. The revised MOU between the Department of Business, Enterprise and Innovation and the Ministry of Science and Technology of the People's Republic of China replaces the 2012 MOU to promote science, technology and co-operation. It will build on the strong links that already exist and explore opportunities for further collaboration between researchers and enterprise in the two countries.

International research and innovation collaboration promotes Ireland as a resilient, innovative, open and globally connected economy and aligns with the Future Jobs Ireland and Innovation 2020 strategies. Today, there are over 200 active collaborations between researchers and enterprise in Ireland and China. One of the key recent developments is the Science Foundation Ireland – National Natural Science Foundation of China Partnership Programme, which was launched in 2017. It involves joint funding of over €12 million for eight new research projects over four years.

The MOU was signed by John Halligan TD, Minister for Training, Skills, Innovation, Research and Development, and Minister Wang Zhigang, Minister for Science and Technology in the People's Republic of China. Minister Halligan said: "It is very fitting that we are signing this revised MOU to strengthen collaboration between our two countries during 2019, which marks the 40th anniversary of diplomatic relations between the People's Republic of China and Ireland. We look forward to working with Minister

Wang and his Ministry to build on the existing collaborative links between the two countries. We know that research and innovation can play a significant role in addressing the many global challenges we face – from tackling climate change and protecting the environment to responding to the challenges of an ageing society.”

The Department of Business, Enterprise and Innovation has recently announced the establishment of a number of new positions at embassies abroad including one at First Secretary level at the Embassy of Ireland in Beijing, China. The position will be filled in September 2019 and the representative will work with Enterprise Ireland and IDA Ireland as part of Team Ireland in China. This appointment in Beijing is part of the continued implementation of the Government’s Global Ireland 2025 strategy.

Following the signing of the MOU, the Department of Business, Enterprise and Innovation hosted the inaugural Joint Committee Meeting which discussed recent developments between the two countries and the opportunities for further collaboration.

The Joint Committee comprises representatives from the Ministry of Science and Technology of China, the Department of Business, Enterprise and Innovation, the Department of Foreign Affairs and Trade, Science Foundation Ireland, Enterprise Ireland and IDA Ireland. It is co-chaired by senior officials from the Department of Business, Enterprise and Innovation and the Ministry of Science and Technology.

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Strong Performance in Irish Knowledge Transfer System With New Licences Up 33% in 2018



July 26

Knowledge Transfer Ireland (KTI), the State body that works to make it easier for businesses to access publicly-funded research, has launched its 2018 Review and the findings of its Annual Knowledge Transfer Survey (AKTS). The results of the 5th annual survey point to solid increases in levels of licensing activity, spin-out company formation and new products reaching the market.

As part of its work, KTI collects and analyses data from Ireland's universities, Institutes of Technology (IoTs) and other State-funded research organisations, to produce the Annual Knowledge Transfer Survey (AKTS) in conjunction with the Higher Education Authority (HEA). The survey covers activities including licensing, collaboration, consultancy and spin-out creation.

Key 2018 findings:

- 1,824 live research collaborations with industry at year end – an increase of 38% on 2017
- 124 patent filings with the university sector accounting for 76% of these
- 33 new products and services launched to the market – up from 24 in 2017
- 30 new spin-out companies created – up from 21 in 2017
- 80% of collaboration agreements signed with Irish companies.

Minister for Business, Enterprise and Innovation, Heather Humphreys, TD said: “A core ambition in Future Jobs Ireland, our new whole-of-Government framework to prepare Ireland for the economy of tomorrow, is

to strengthen links between businesses and academia. This is with a view to supporting knowledge spillovers, collaborative working and information sharing. Ireland is increasingly viewed as a model of best practice in knowledge transfer on the international stage, by virtue of its structure, support and performance. Since KTI's launch 5 years ago, we have achieved a lot and the results of today's survey are really encouraging for Ireland's future growth."

There was a 33% increase in licences, option agreements and assignment agreements in 2018, the highest number since the survey began. The majority of licences were signed with Irish companies (76%) of which 61% were with Irish SMEs. Most of the licences were for patents and software.

On average there are 30 new companies spinning out from Irish research each year. There were 119 Active Spin-outs (at least three years post formation) in operation at the end of 2018, primarily in the ICT (35%) and health and med tech (27%) sectors.

Dr. Alison Campbell (pictured right), Director of KTI, commented: "This year's results show that we have developed a strong platform for knowledge transfer in Ireland, that is continuing to mature and evolve. The level of international interest in the Irish system and in KTI has been encouraging. The survey findings confirm the value that enterprise places on accessing Irish research and expertise to drive innovation and the upwards trend in repeat engagements reflects the quality of that experience.

"We also see a continuing move in 2018 from a transactional model between research and industry that requires negotiations for each new project, towards a relationship model, leading to the accelerated translation of research into products. As evidence of this, there were 365 repeat collaborations in 2018, an increase of 19% year on year. Our focus will be to build on this momentum of qualitative progress as well as increased volumes."

Paul O'Toole (pictured left), CEO at the Higher Education Authority (HEA), said: "We work to build Ireland's research capacity and to enhance the responsiveness of higher education institutions to the needs of society. We are pleased to support KTI in collating these important data each year and we are very encouraged by the performance of the higher education sector in the context of knowledge transfer as evidenced by the latest results. This survey is an important contribution to ensuring transparency in the reporting of higher education institutions participation in knowledge transfer. Our aim is to enable institutions to work on a commercial basis with enterprise while preserving the public interest appropriately."

The Review and Annual Knowledge Transfer Survey (AKTS) can be accessed at <https://www.knowledgetransferireland.com/>



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Maynooth University Receives €25 Million Capital Grant From Government For New ‘Technology Society and Innovation Project’



September 02

Maynooth University has welcomed a capital grant of €25 million from Government for a major new building project to support the University's rapidly growing student population. The €25 million contribution from the Higher Education Strategic Infrastructure Fund (HESIF) along with €32 million in university and EIB funds will deliver a landmark €57 million campus project.

The project comprises a new 10,554 sq m academic building, to open in late 2020. This forms part of a wider plan to modernise and expand a further 5,670 sq m of the existing Arts and Sciences buildings, for completion by 2021.

Welcoming the announcement, Professor Philip Nolan, President of Maynooth University, said: "This is landmark development project designed to keep pace with rapidly growing student numbers in the country's fastest growing region, and to support the research and innovation skills needed to face fundamental societal challenges."

Prof Nolan continued: "Maynooth University has seen significant growth in our student enrolment, and the output of skilled graduates across a range of disciplines is vital to balanced regional and national economic development, and critical in addressing the major challenges of the twenty-first century. This funding will

provide much-needed physical infrastructure that will allow Maynooth University to play a vital role in the national context to respond to these challenges.”

Maynooth University is Ireland’s fastest growing university. While serving students from all corners of Ireland and internationally, MU has played a particularly important role in meeting the rapidly growing demographic demand for higher education in the Mid-East, Midlands and the western edge of the Dublin metropolitan area.

Formally established as an autonomous university in 1997, Maynooth has tripled its enrolment to almost 13,000 students from at least 90 countries, and is ranked among the top 50 global universities under 50 years old in the *Times Higher Education (THE) Young University Rankings*.

Prof Nolan concluded: “This infrastructural project will further support Maynooth University’s research and innovation in areas vital to economic, social and environmental challenges, including climate science, environmental science, artificial intelligence, regional and urban planning, smart cities, the future of work, as well as services innovation, public policy and social change. We welcome this important announcement from Government and its recognition of the important role Maynooth University plays in these areas of national and international significance.”

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Jacobs Announces 200 New Jobs in Ireland



Pictured at the official opening of the Cork office were (left to right): Niamh Barcoe, Design Technology Manager; Steve Demetriou, Chair and CEO, Jacobs; Micheál O'Connor, Vice President and General Manager, Jacobs Ireland; and Minister for Agriculture, Food and the Marine, Michael Creed TD.

August 28

Jacobs announced 200 new jobs for Ireland over the coming two years, as it unveiled a €4.5 million investment in its office in Cork. The company, which provides end-to-end solutions for infrastructure, biotechnology, pharmaceuticals, semi-conductor, data centres and manufacturing clients, plans to fill the positions in Dublin, Cork and Belfast.

The new roles will be professional services positions across a range of specialities, project and construction management, design, commissioning, qualification and validation. The announcement reflects the success and continued growth of the company in Ireland, as it marks 45 years since opening its office in Dublin in 1974 – its first operation outside of the U.S.

Today, Jacobs employs more than 1,100 people on the island of Ireland, and it is one of the largest firms in the country, focusing primarily on project delivery for advanced facilities, environmental and infrastructure clients. Jacobs has almost doubled its Irish footprint in the past five years due to its growth in construction management, commissioning and validation.

Minister for Agriculture, Food and the Marine, Michael Creed TD, officially opened the new offices in Cork, cutting the ribbon alongside Jacobs Chair and CEO, Steve Demetriou. Speaking at the event, Minister Creed said: “I am happy to celebrate with Jacobs their 45 years of excellence in Ireland and open their newly

refurbished office space. The announcement of 200 jobs, across the island of Ireland is testimony to their continued success and reflects the world-class expertise and offering they bring to national and global clients. It is wonderful to see the company go from strength to strength in Cork. I wish Jacobs continued growth and success.”

The Cork office investment includes state-of-the-art virtual and augmented reality technology, offering clients the ability to assess plans in 3-D. A complete change of office layout reflects the business’ move to a collaborative working environment, in line with strategic team-based planning operations.

“We opened our Dublin, Ireland, office 45 years ago to design and build a pharmaceutical plant.” said Jacobs Chair and CEO Steve Demetriou. “Today, we continue to capture attractive growth opportunities for complex work in the advanced facilities and infrastructure markets that we are uniquely positioned to perform. I attribute this to our highly talented people and their relentless commitment to providing world-class, high-value solutions for our clients.”

Speaking about the jobs announcement, Executive Director of the IDA, Mary Buckley, said: “This is a very welcome investment from Jacobs, a company that is an important part of the support ecosystem for the biotechnology and biopharma sectors, among others. The Company has demonstrated a strong commitment to Cork where it is a valued employer whose longevity has been of substantial benefit to the local economy. This expansion, as they celebrate 45 years in business in Cork, demonstrates further commitment by the company. I wish them continued success.”

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Celtic Anglian Water Gears Up For Growth



Pictured from left to right: Jack Mills, Daniel O'Kelly, Elizabeth Cohalan, Dr Ciaran Macausland, Declan Maguire, Clare Duggan, Darren O'Reilly and Paddy Barry.

August 29

Celtic Anglian Water (CAW), the water solutions company which provide treatment services across Ireland, has signalled ambitious growth plans with the announcement of a raft of new appointments and promotions. With four new starts and three promotions, the Irish design, construction, and operations company which operates on sites across Ireland including in counties Dublin, Sligo and Waterford, intends to target the ever increasing commercial and industrial sector in Ireland in addition to continuing to operate large municipal treatment works.

The company also intends to double the number of engineers and technicians it has working for it over the next five years in order to achieve ambitious growth projections.

CAW, which is part of the Anglian Water Group, intends to bring the latest technology and operating practices developed across the Group's Innovation Hub's to industrial water sector in Ireland. The Anglian Group has a long and well-established record of delivering innovative, cost effective, and reliable water solutions to large water users across the world, and CAW, the Irish based subsidiary, intends to draw on this international experience.

Operating for over 20 years in the Irish market it currently operates one of the Europe's largest wastewater treatment plants at Ringsend in Dublin, treating over 50 per cent of Ireland's wastewater.

Appointments and promotions:

- Darren O'Reilly joins the company as Industrial Business Development Manager where he will bring his considerable experience of serving large industrial customers to bear by promoting a suite of the latest water technologies and solutions to customers.
- Dr. Ciaran McCausland has been promoted to the CAW Board as Technical Director and will aim to build upon CAW's leading technical expertise in the Irish water sector and grow the company's footprint in the industrial sector.
- Elizabeth Cohalan is appointed manager of the new Mobile Engineering services team for CAW. In this role Elizabeth will be leading a new team increasing the scope of the engineering solutions which CAW can deliver in-house to clients, from design phase right through to civil, mechanical, and electrical finish out.
- Clare Duggan is to be promoted to Senior Project Manager within the engineering team. Clare joined the team as an engineer in 2015 and currently manages all co-ordination on behalf of CAW for the major upgrade works at Ringsend.

New starters at Ringsend are as follows:

- Daniel O' Kelly has joined CAW in a new role as Instrumentation, Control and Automation (ICA) Technician. Daniel is a fully qualified technician with extensive experience in installing, commissioning and maintaining electrical equipment and instrumentation. Daniel has worked in Ireland and Australia.
- Thomas Murray has joined as an Industrial Electrician. Thomas is a fully qualified electrician with extensive experience in installation and maintenance of electrical equipment. Thomas has worked in Ireland and Australia.
- Paddy Barry has joined as Maintenance Fitter. Paddy is a time served Fitter and Welder and has worked extensively in the engineering industry in Ireland.

Commenting on the appointments and promotions Declan Maguire, Managing Director of CAW commented: "We have set some ambitious growth plans as a company and in order to deliver this are delighted to announce this, the first phase of new appointments and promotions to facilitate this growth. These include some incredibly talented individuals, a number of whom boast considerable international experience.

"The high calibre reinforces the fact that we are an excellent company to work for, with a clear focus on health and wellbeing and personal development, and we are always on the lookout for new people to join us. Over the next five years we will be seeking to double the amount of engineers and technicians we have working for us in order to facilitate our growth projections.

"Investing in people has paid incredible dividends, with the improved wellbeing of staff boosting motivation, reducing absenteeism and increasing staff retention. It has also boosted employee relations and assisted in making us more attractive when it comes to staff recruitment."

Pictured from left to right: Jack Mills, Daniel O'Kelly, Elizabeth Cohalan, Dr Ciaran Macausland, Declan Maguire, Clare Duggan, Darren O'Reilly and Paddy Barry.

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CLS Marks 25-year Anniversary With 100 New Jobs



Pictured (left to right): Stephen Creaner, Executive Director, Enterprise Ireland; Anne O'Donnell, Director of Microbiology CLS; Minister Pat Breen TD; and Evelyn O'Toole, CEO, CLS.

October 11

Complete Laboratory Solutions (CLS), Ireland's largest privately-owned contract laboratory, is celebrating 25 years in business with the creation of 100 new jobs over the next two years as the MedTech sector continues to grow. Set up in 1994 in Ros Muc, Connemara, and with a second facility CLS MedPharma in Galway city in 2008, the company currently employs a workforce of 191 who cater for a portfolio of over 600 Irish and international clients.

78 of the new positions will be at CLS MedPharma to manage new projects and the expansion of existing contracts covering roles for microbiology and analytical analysts in Galway as well as at client sites in Cork, Limerick, Dublin, Waterford and Sligo. The CLS Ros Muc water and environmental services will be recruiting 18 environmental science graduates and food microbiologists while the remaining four positions will cover new appointments in marketing, sales and finance.

CLS MedPharma provides sampling, testing, fully trained analysts on contract and first-in-class managed solutions to MedTech, biopharma and pharmaceutical clients, while CLS Ros Muc caters for the equivalent services to environmental and food clients. The CLS laboratories are accredited and approved by the Irish National Accreditation Board (INAB); ISO 17025 (108T); US Food and Drug Administration (FDA); ISO 9001:2015; Health Products Regulatory Authority (HPRA); GMP licenced; Environmental Protection Agency (EPA) approved.

Minister of State for Trade, Employment and Business Pat Breen TD said: “The news of 100 new jobs is fantastic for Connemara and the West region. Complete Laboratory Solutions has been a long-established name in the region since 1994 and has built a reputation as a great employer. The company is also acknowledged as a leading service provider in the pharma sector, providing expertise to deliver world-leading medical innovation. The milestone announcement by CLS is a very positive reinforcement of our position in the global pharmaceutical and medical testing sector.”

Making the announcement at the recent Enterprise Ireland Med in Ireland 2019 Conference, Evelyn O’Toole, Founder and Chief Executive Officer of CLS, said: “Celebrating our 25th year in business has been incredible and I’m delighted to be announcing new jobs to mark the occasion. I want to say a sincere thank you to the management team, all my colleagues at CLS and our clients for their work, their loyalty and support throughout the years.

“Our workforce expansion demonstrates our maturity as an international player, and we have created the momentum to continue to grow and deliver exceptional service for our clients thanks to the vibrant MedTech industry in Ireland. Today we are a key supplier in the industry catering to multinational companies both here and overseas and this is as a result of us reinvesting in our services to make CLS a substantial, strong and innovative supplier. Our trained analysts on contract who supply first-in-class fully managed solutions is expanding and we are currently at 20 client sites. We have certainly come a long way from our humble beginnings in 1994 and I very much look forward to the next chapter.”

Deirdre Glenn, Lifesciences Director, Enterprise Ireland, said: “Driven by highly innovative companies such as Complete Laboratory Solutions, Ireland is now recognised globally as a major centre of excellence for medical technology. Having shown impressive growth since its inception 25 years ago, Complete Laboratory Solutions is now poised for significant further expansion. This expansion will be driven in part by growth in direct export sales, as it expands its range of overseas customers and takes advantage of opportunities presented by Brexit – as UK firms seek to have products and materials certified by EU-accredited laboratories. Enterprise Ireland will continue to work with CLS as it develops through its capacity to innovate and by improving its competitiveness.”

Údarás na Gaeltachta Chief Executive, Mícheál Ó hÉanaigh, welcomed the announcement stating: “Údarás na Gaeltachta are proud to have supported CLS Teo. (Saotharlann Chonamara Teo.) from its inception in Ros Muc 25 years ago and we congratulate Evelyn O’Toole and her team for their continued growth and success. We wholly welcome their announcement of further expansion and the creation of further high-quality jobs both in Ros Muc and in Galway City. Go maire sibh bhur nuacht.”

For more details on career opportunities at CLS visit www.cls.ie.

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Putting the Science into Irish Beer and Spirits with a Brewing and Distilling Degree



October 31

The Irish brewing and distilling industry has undergone a resurgence in recent years as global consumer demand for novel beverages has increased. In response, Technological University Dublin (TU Dublin) introduced the BSc Food Innovation – Brewing and Distilling degree in 2017 for students interested in an exciting career developing distinctive craft beers and premium spirits and driven by industry demand to fill the skills pools need for this rapidly growing sector in Ireland

This BSc degree provides students with the necessary scientific and technological skills to pursue careers in both well-established and newer breweries and distilleries. As well as obtaining knowledge of the scientific principles fundamental to brewing and distilling, students acquire the business acumen necessary for innovation.

Commenting on the programme's success, Dr Catherine Barry-Ryan, Senior Lecturer of Food Product Development at TU Dublin, says: "The response to this course has been phenomenal, and in October, we celebrated the graduation of our very first cohort of students with a unique set of skills. The specialisation is hugely popular with Leaving Certificate students and advanced entry applications from science graduates seeking a new, exciting career are also hugely welcome."

Marie Byrne, an Industry Expert and Adjunct Lecturer at TU Dublin, developed the Level 8 BSc with Dr Barry-Ryan after receiving support from Irish Distillers and Diageo. The range of part-time options have allowed experienced professionals to receive the academic accreditation to perform at the highest levels within the industry while having the flexibility to continue working while they study. “Experienced applicants can join the programme in Year Two or Three, and our Continuous Professional Development (CPD) modules are available individually or in blocks offering industry professionals a versatile route to graduation,” Marie Byrne says.

Andrew Faraoanu, who is among Ireland’s first graduates of the degree course in Brewing and Distilling, thoroughly enjoyed his time at TU Dublin and is looking forward to a fulfilling career in the industry. “It was an exciting journey to have learned about food and beverages, their processing and safety, and end up focusing on beers, spirits and wines. The work placement was a great opportunity to get some real-life industry experience, and it enabled me to learn about both the use of automated systems as well as the hands-on production of beer in a very busy environment. It also allowed me to make contacts for future employment opportunities.” He adds: “The final-year project was both exciting and challenging. You are not restricted to the projects that are given by the University – you can propose an idea, and if you have someone in the industry to back up that idea, you can carry out the project yourself.”

More information about the BSc in Food Innovation – Brewing and Distilling is available at tudublin.ie. From next September, the programme will be delivered on the University’s flagship campus at Grangegorman in modern laboratories and facilities equipped with the latest technology.

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Biotech Company Auranta Scoops a 2019 Irish Times Innovation Award



November 07

Auranta, which develops and produces a range of innovative and sustainable animal feed products to boost gut health, immunity and performance in calves, poultry, and pigs, has won a 2019 Irish Times Innovation Award. Auranta won the New Frontiers Award category which was sponsored by the UCD Michael Smurfit Graduate Business School.

The company was founded in 2013 by Dr Pat Ward and John Cullen and currently has offices and laboratory space at NovaUCD and Alexandra House, Dublin.

Auranta supplies AuraCalf, AuraPoultry and AuraPig products, based on synergies between plant extracts and natural organic acids, in liquid and powder formats. The company is currently collaborating closely with a number of universities, including, University College Dublin, and agricultural research institutions, to further develop and test the company's products.

John Cullen, Co-founder and Managing Director of Auranta, said: "We are thrilled to have won an Irish Times Innovation Award from a very strong shortlist of companies in the New Frontiers Category. Winning this Award is a recognition of the hard work and dedication of our entire team in building and developing Auranta, which is shaping the future of agriculture through our animal feed products."

He added: “At Auranta we follow a science-based approach and we are continuously innovating animal gut health products for new markets and applications in Ireland and globally.”

Tom Flanagan, Director of Enterprise and Commercialisation at UCD, said: “I would like to congratulate Auranta on winning a prestigious Irish Times Innovation Award. We are all very proud of your achievement here at NovaUCD. I wish the entire Auranta team continuing success as they grow and scale their company and impact the agriculture sector globally through innovative animal feed products.”

He continued: “The multi-million project to develop NovaUCD’s eastern courtyard has increased our capacity to house start-ups by over 50%, we are now looking to support more ambitious start-ups, like Auranta, who want to locate here to leverage our ecosystem to help them grow and scale globally.”

The Irish Times Innovation Awards, which are now in their 10th year, were presented at a recent ceremony attended by more than 200 people at the RDS in Dublin and more than 100 companies took part in the awards this year.

Auranta was the only Dublin-based company to win an Award as finalists from the West of Ireland claimed four of the five category awards.

Atlantic Therapeutics won the overall 2019 Irish Times Innovation Award and also the Life Sciences and Healthcare category Award. Atlantic Therapeutics, based in Galway, was founded in 2015 when it spun-out of Bio-Medical Research. The company has developed and is selling Innovo, a non-invasive device as a long-lasting solution to bladder weakness and other disorders associated with pelvic floor muscle problems.

PEL Waste Reduction Equipment, based in Balla, Co Mayo, won the Manufacturing and Design Award category; FarmHedge based in Limerick won the IT and Fintech Award category while Electricity Exchange, also based in Limerick won the Sustainability Award category.

The Irish Times Innovation Awards 2019 were supported by The Irish Times in partnership with Science Foundation Ireland, Enterprise Ireland, Skillnet Ireland, KPMG and UCD Michael Smurfit Graduate Business School.

CAPTION:

Pictured (left to right): Professor Gerardine Doyle, Director of the UCD Michael Smurfit Graduate Business School and Associate Dean at UCD College of Business, with Dr Pat Ward and John Cullen, co-founders of Auranta.

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90 Jobs Announced at Irish Manufacturer Following €7.5 Million Investment



November 27

Cosmetic Creations, Ireland's leading cosmetic formulator and contract manufacturer, has announced that 90 jobs are to be created between its operations in Cork and Mayo, following an investment of €7.5 million into the company. The announcement comes as the company officially opened its Cork site, in the former Yves Rocher plant on the north side of the city.

Sixty of the roles will be across operations, supply chain, quality and formulation development in Cork, bringing the workforce on Dublin Hill to 100. Thirty are earmarked for the company's Mayo head office, increasing numbers there to 80. Reinforcing the announcement is a newly agreed joint venture with Parnell Pharmaceuticals, a California biopharmaceuticals company, with the company's European headquarters relocating from Dublin to the Cosmetic Creations campus in Cork.

Cosmetic Creations will manufacture over four million units in 2019, consisting of more than 100 individual products, most formulated in house, including skincare, personal care, self-tanning, supplements and base pharmaceutical line products. It is expected to grow this number to over 15 million units by 2022. Shipping to more than 15 countries globally, clients include private label national brand names and Irish, the UK and European retail multiples.

Speaking on the announcement, Aiden Corcoran (pictured right), Owner and CEO of Cosmetic Creations, said: "Cosmetic Creations is here to add value to how people feel, look and live, and since we acquired Cosmetic Creations in 2017, we have been hard at work, scaling the company to a high-volume large-scale

operation. Following the significant investment into our Claremorris facility, the acquisition and expansion of the former Yves Rocher site in Cork is the largest and most significant step in that strategic growth plan. We are also delighted to have been able to rehire over 30 of the former Yves Rocher employees at our Cork site.

“Over the last twelve months, we have invested in advanced formulation and manufacturing technologies in both Mayo and Cork, significantly expanding output capacity. Our target is to deliver over 7 million units next year to Ireland, the UK and Europe, and we look forward to partnering with leading brands that wish to bring quality Irish-made products to the market.”

He added: “Our goal over the next five years will be to build on our current foundation in cosmetics and expand into the growing national pharmaceutical market to become a global life sciences brand. Beginning in 2020, our new joint venture with Parnell Pharmaceuticals to develop, manufacture, market and distribute its wide range of products in the EU and Ireland is expected to increase our production of health-related products by over 150%.”

Officially opening the Cork site, An Tánaiste and Minister for Foreign Affairs, Simon Coveney TD (pictured left) said: “It’s fantastic to see an indigenous company expanding nationally. Manufacturing is hugely important to both the Cork and national economy, and I look forward to Cosmetics Creations’ continued success.”

Funding was raised through IPS Finance, who are based in Limerick. With over 30 years’ experience in contract formulation and manufacturing, the company also develop food supplements and animal welfare products. The company also unveiled their new brand and website at events in their Mayo and Cork sites. For more information, visit www.cosmeticsireland.com.

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UCD Wins Two Knowledge Transfer Ireland 2019 Impact Awards



November 28

Pictured (l-r): Tom Flanagan, UCD Director of Enterprise and Commercialisation; Professor Orla Feely, UCD Vice-President for Research, Innovation and Impact; Dr Stacey Kelly, Case Manager, Knowledge Transfer, NovaUCD; Professor Kevin O'Connor, UCD School of Biomolecular and Biomedical Science; Dr Alison Campbell, Director, KTI; Bill Morrissey, Glanbia Ireland; and Dr Ciaran O'Beirne, Head, Knowledge Transfer Services, NovaUCD. (Maxwell Photography).

University College Dublin, through NovaUCD, has won two Knowledge Transfer Ireland (KTI) 2019 Impact Awards. The annual KTI Impact Awards, in five categories, recognise significant achievements in knowledge transfer and the commercialisation of research carried out in Irish Higher Education Institutions and publicly funded research organisations nationwide. The Awards pay tribute to the work of those within Ireland's Knowledge Transfer Offices who provide a vital link between industry and the academic research.

UCD and Glanbia won the Collaborative Research Impact Award for the AgriChemWhey project. This €22 million Horizon 2020 funded project, led by Glanbia in collaboration with UCD, through Professor Kevin O'Connor, UCD School of Biomolecular and Biomedical Science, is focused on the transformation of dairy waste products into high-value, bio-based products for growing global markets including biodegradable plastics, bio-based fertilisers and minerals for human nutrition.

UCD and Atlantic Therapeutics won the Licence2Market Impact Award. Atlantic Therapeutics, headquartered in Galway, develops professional and consumer medical devices to treat all types of incontinence and other associated disorders by modulating nerves of the pelvic floor thus strengthening the muscles.

Last year the company received FDA approval for its INNOVO therapy device, an externally worn electrical muscle stimulator, the first ever transcutaneous electrical stimulator cleared as a safe, clinically effective and non-invasive product to treat stress urinary incontinence.

The INNOVO technology, comprising a patent application, now granted, and associated know-how was developed in collaboration with UCD through Professor Brian Caulfield, UCD School of Public Health, Physiotherapy and Sports Science, and subsequently licensed to the company.

John Halligan TD, Minister for Training, Skills, Innovation, Research and Development, said: “The Irish government has invested significantly in the country’s research and innovation capacity over the last 20 years and this long-term commitment has resulted in a strong ecosystem to support research commercialisation that is respected in Europe and beyond.”

“It is critical that publicly funded research is put to work, boosting business productivity and competitiveness and generating growth and jobs. The winners of this year’s Impact Awards are exemplars of best practice in this regard, demonstrating how innovation, in a practical and effective way, can benefit the economy and wider society.”

Winners of the 2019 KTI Impact Awards were announced at an awards ceremony held in Dublin. Over 140 guests from knowledge transfer offices, academia, industry as well as investors and the wider business community attended the awards, where a keynote speech was delivered by former Microsoft executive and tech evangelist Clare Dillon.

Professor Orla Feely, UCD Vice-President for Research, Innovation and Impact, said: “I am delighted that UCD has won two KTI 2019 Impact Awards. This success is an indication of the range and quality of the research and innovation activities within UCD, in collaboration with companies such as Glanbia and Atlantic Therapeutics, and it also reflects the strength of support provided to our research community by the knowledge transfer team at NovaUCD.”

KTI Director and Chair of the Judging Panel Dr Alison Campbell said: “The EU’s Innovation Scoreboard classifies Ireland as a “Strong Innovator” with our performance ranking favourably among our EU peers.”

“The Awards recognise and pay tribute to the work of those on the ground nationwide in Ireland’s Technology Transfer Offices who actually make this innovation happen, acting as a vital link between industry and academia. They provide the information to companies, support and manage the processes that allow commercialisation and collaboration to flourish, freeing up researchers and businesses to get on with the business of innovating.”

Finalists were evaluated by a panel of international experts that included Maxine Ficarra, CEO, PraxisAuril, the UK knowledge exchange and commercialisation organisation; Holly Wales Meadows, US Patent Attorney and Director, US-based knowledge transfer association AUTM; and Eavan O’Brien, Assistant Director for Impact and Partnerships, Irish Research Council.

Submissions were judged according to criteria such as the level of the impact delivered; the clarity and succinctness of the entry; the persuasiveness of the submission in outlining what it has achieved and why it is relevant to the category at hand; and the role that the local technology transfer office played in the activity.

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€21.6 Million Boost For ‘Functional Food’ Technology Centre



Minister for Business, Enterprise, and Innovation Heather Humphreys (pictured centre) at the announcement with Dr Nessa Noronha, Director of Food for Health Ireland (on the left); and Alexa Toomey, Manager of Dairy, Beverages and FDI at Enterprise Ireland (on the right).

November 29

The Government has announced Enterprise Ireland funding of €7.2 million, over five years, for Food for Health Ireland, a Technology Centre based in University College Dublin (UCD) that aims to improve global health through innovation in functional food.

Speaking at the launch, Minister for Business, Enterprise, and Innovation Heather Humphreys said: “Innovation 2020, the Government’s strategy for research and development, science and technology, recognises the importance of innovation for the agri-food sector. Enterprise Ireland’s continued support of Food for Health Ireland, through investment in research and innovation capability, will help to build competitive advantage in the food sector and is well aligned with our Future Jobs Ireland framework. Introducing companies to the expertise in Food for Health Ireland will lead to innovative technologies and job creation in the sector.

“The agri-food sector is Ireland’s largest indigenous industry and plays a crucial role in Ireland’s economic performance, with a total turnover of over €26 billion. Irish food and drink is sold in 180 markets worldwide by a countrywide network of around 1,300 businesses. The agri-food sector accounts for 7.9% of total employment in the State. Some 38%, or €5.2 billion, of exports go to the UK while 48% of our beef exports go to the UK. Market diversification, both within the EU and to international markets, is a key priority for the sector. That is why the Government’s ongoing market diversification strategy is so vital as we deal with the challenges of Brexit.”

“The great success of the Irish food sector in recent decades can be attributed to a number of factors, but chief among them is the ingenuity and innovative capacity of Irish food companies,” according to Alexa Toomey, Manager of Dairy, Beverages and FDI at Enterprise Ireland.

“Our research shows that food and beverage companies that availed of collaborative innovation supports from Enterprise Ireland saw sales growth that was three times higher than those that did not participate,” she said. “We are delighted to support the continued work of Food for Health Ireland, with a renewed focus on expanding the network and commercialising its research outputs. Through programmes like this we can ensure that Ireland is recognised as a global leader in functional food innovation.”

This latest round of funding comes on the back of the centre’s 10-year collaboration with research and industry partners to produce peer-reviewed market-led research that supports innovation in the functional food space. Food for Health Ireland’s human-intervention trials have already produced results that can be translated into innovations in food for use in tackling the key health issues that underpin diabetes, obesity and heart health, as well as supporting healthier ageing.

“Food for Health Ireland has spent over a decade building a unique innovation ecosystem that brings together leaders in food and health research, industry, policy, marketing and investment,” according to the centre’s new director, Dr Nessa Noronha. “Working with our industry partners – Carbery, Dairygold, Glanbia Ireland and Kerry – we have developed a world-class model for collaboration and we are now ideally placed to expand our network to include start-ups, SMEs and other large and international players in the food and drink sector who need our support to innovate in the functional food space.”

Functional foods have a positive effect on health beyond basic nutrition, helping to promote optimal health and reducing the risk of disease. “Food for Health Ireland’s research addresses global concerns about food, nutrition and wellbeing and health,” said the centre’s lead scientist, Prof Dolores O’Riordan, Director of the UCD Institute of Food and Health. “Our focus is on providing safe, sustainable and scientifically-proven innovations in food. Our research addresses the growing desire globally for health-enhancing ingredients and functional food – from healthier cheeses to sustainable dairy practices to environmentally beneficial food innovations.”

The global market for functional food is forecast to be worth more than €250 billion by 2023. Consumers are looking for health-enhancing ingredients to come in food, not pills. “Preventative, holistic and natural health is replacing reactive treatment worldwide,” said Dr Noronha.

“The kind of research and insights we provide at Food for Health Ireland supports the food industry in maintaining a pipeline and a pathway for new functional foods to meet these mega-trends. World-class consumer-driven research is key to innovation in this space, and our vision is to make Ireland a world leader in improving global health through functional food.”

Food for Health Ireland offers a tiered membership structure, providing industry partners with a collaborative pre-competitive space in which they can access tailored research and insights. “Our industry partners have unanimously confirmed that the core research programme of Food for Health Ireland was a key market differentiator in dealing with their customers,” said Dr Noronha. “With this continued support from our partners and Enterprise Ireland, we are delighted to now be in a position to build on our decade of experience and open up this model to new partners. See fhi.ie for more.”

Minister for Business, Enterprise, and Innovation Heather Humphreys (pictured centre) at the announcement with Dr Nessa Noronha, Director of Food for Health Ireland (on the left); and AlexaToomey, Manager of Dairy, Beverages and FDI at Enterprise Ireland (on the right).

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New €10 Million Investment in Moorepark Technology



December 18

A new €10 million investment in Moorepark Technology Limited (MTL) has been officially opened in Fermoy, County Cork. The €10 million investment in the new Moorepark Technology Limited Pilot Plant Extension was made by Teagasc and the dairy companies who are shareholders in MTL.

Today MTL is a modern pilot plant facility containing versatile scale processing equipment across a wide range of applications, making it one of the foremost pilot facilities in the world. It was set up in the early 1990s as a dedicated state of the art pilot plant to meet the growing Research and Development needs of the dairy industries.

Speaking at the Official Opening, Michael Creed TD, Minister for Agriculture, Food and the Marine, said: “The Irish food industry needs to continuously adapt and change to meet the new market challenges that continuously emerge. This new MTL pilot plant extension allows dairy companies and other food companies to develop new products and adapt existing food offerings, to meet the needs of an ever changing consumer. MTL underwent a detailed review process, and emerged with an ambitious strategy for development and growth, which is secured with this €10 million investment. I want to acknowledge the shareholders commitment and their desire to position MTL as a futuristic pilot plant.”

Chairman of Teagasc, Liam Herlihy thanked each of the shareholders and the Minister for making their respective investments. He said: “The pilot plant can provide critical technical knowledge in applying research and optimising a large-scale plant. It allows the implementation of new product and process changes in controlled and least cost principles. The range of equipment and technical knowledge, combined

with the range of testing and analytical facilities from the Teagasc Food Research Centre, makes this campus a huge asset to the industry.”

Ownership of MTL is on a shareholder basis with Teagasc being the majority shareholder (57%) and the remaining shares being held by nine dairy processing companies, Enterprise Ireland and Ornua. The dairy companies with shareholdings include Glanbia Ingredients Ireland. Ltd., Kerry Group, Dairygold Co-Op. Society Ltd., Carbery Group, Arrabawn Co-op Ltd., Aurivo Co-op Ltd., Tipperary Co-Op Creamery Ltd., North Cork Co-Op Ltd. and Mullinahone Co-Op Ltd. The shareholders were represented by their respective Chairs and Chief executives at the official opening.

Cal Flynn, Chairman of the MTL Board, said: “The investment in MTL has seen increased usage of the facility in line with the forecasts in the strategic plan. It now has a base infrastructure to build on to support the urgent development requirements that Brexit has foisted upon the Irish Dairy industry and food sector as a whole.”

The pilot plant contains the most up-to-date and versatile pilot scale processing equipment for food research and development. MTL’s core business is the rental of that pilot plant to food companies worldwide and public research institutions for the purposes of carrying out product and process development, training, or small scale start-up manufacture. MTL operates an ultra-modern pilot plant covering 5,000 sq. metres floor area. The services offered by MTL include: Pilot plant rental; Contract research and development; Pre-commercial manufacture and Technical assistance/advice/support.

Teagasc Director, Professor Gerry Boyle said: “This new Moorepark Technology Limited Pilot Plant Extension is part of the Teagasc suite of support facilities for food companies in Ireland. We have a comprehensive food research programme based here in Moorepark and at the research facility in Ashtown, Dublin, providing expertise to the broad spectrum of Ireland’s food industry.”

He said: “We have also just broken ground on an additional €10 million investment in a Food Innovation Hub here in Moorepark. This new world class facility will allow companies to rent high quality laboratories and offices to locate their own R&D teams at Moorepark who will collaborate with Teagasc researchers and use the MTL pilot plant. In this unique environment food companies will greatly enhance their research and innovation capacity.”

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Government Investment in Research & Development Amounted to €808.1 Million in 2019



December 12

Government spend on R&D was €765.7 million in 2018 which marks an increase of 3.6% in expenditure over the previous year. It is estimated to increase in 2019 by a further 5.5% with allocated funding of €808.1 million.

The Department of Business, Enterprise and Innovation and its Agencies (Science Foundation Ireland, InterTrade Ireland, Enterprise Ireland and IDA Ireland) were responsible for over half (47.6%) of all Government R&D investment in 2018 at €364.8 million.

The report published by the Department of Business, Enterprise and Innovation provides details of Government funded research programs and highlights the extent and variety of R&D being carried out in the country.

In addition, the report brings together the latest data on business, higher education and government agencies' spending on R&D in Ireland. In 2018, Gross Expenditure on R&D (GERD) by all these sectors of the Irish

economy was €3.704 billion. The highest expenditure on R&D continues to be within the business sector, which accounted for €2.778 billion or 75% of total GERD.

Minister for Training, Skills, Innovation and Research and Development, John Halligan TD said: “Research and Development are key drivers of competitiveness, productivity and economic growth. Ireland’s future economic growth and prosperity will depend in very large measure on our continued investment in R&D. This State investment is all about developing a competitive, knowledge-based economy and society, driving innovation in enterprise, building human capital and maximising the return on R&D investment for economic and social progress. It is encouraging to see the increased provision in 2019, especially given the competing demands and continuing pressure on public finances. This positive momentum must be maintained and we must continue to give R&D funding sufficient priority to ensure Ireland becomes a global innovation leader.”

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DuPont Acquires UCD Spin-out OxyMem



Pictured (L-R): Wayne Byrne, Dr Eoin Syron and Professor Eoin Casey, the co-founders of OxyMem.

December 20

DuPont has exercised its option to acquire full ownership of OxyMem Ltd, a University College Dublin (UCD) spin-out company. OxyMem develops and produces Membrane Aerated Biofilm Reactor (MABR) technology for the treatment and purification of municipal and industrial wastewater. The company has more than 60 employees and one production site located in Athlone, County Westmeath.

“MABR is a new technology that offers unique and differentiated performance for secondary wastewater treatment over existing technologies,” said, HP Nanda, Global Vice-President and General Manager, DuPont Water Solutions.

OxyMem was co-founded by Wayne Byrne, Professor Eoin Casey and Dr Eoin Syron in 2013 as a spin-out from the UCD School of Chemical and Bioprocess Engineering.

The company is engaged in the development, manufacturing and sales of MABR units using patented technology for hollow fibre, silicone polydimethylsiloxane (PDMS) membranes to treat wastewater. DuPont already owns 31 percent of the company and has exercised its option to acquire all outstanding shares of OxyMem for 100 percent ownership.

“MABR is a new technology that offers unique and differentiated performance for secondary wastewater treatment over existing technologies,” added HP Nanda. “Wastewater is a fast-growing global market driven by industrial expansion, challenging water conditions and tightening regulations. Together with the MEMCOR MBR product DuPont is acquiring, this additional emerging technology provides more solutions for customers looking to reduce footprint and energy requirements for secondary wastewater treatment and enhances the performance of systems using other traditional water purification, reuse and recovery technologies.”

“OxyMem has benefited from working with DuPont, as an investor, for the last four years. A world-class water business, DuPont helped us refocus our development efforts to advance our Membrane Aerated Biofilm Reactor (MABR) technology,” said Wayne Byrne, CEO, OxyMem Ltd.

“With the ownership of DuPont, we look forward to scaling MABR to meet the growing demand for the treatment and purification of municipal and industrial wastewater.”

Tom Flanagan, UCD Director of Enterprise and Commercialisation, said: “I would like to congratulate the founders of OxyMem, Wayne Byrne, Professor Eoin Casey and Dr Eoin Syron, and the entire OxyMem team, following the announcement by DuPont that it is acquiring the UCD spin-out company.”

“OxyMem, established to commercialise world-class UCD research outputs, is an excellent example of the quality of companies emerging from the University over the last number of years with the support of NovaUCD. While only established in 2013, OxyMem had already grown significantly, employing over 60 people, with a manufacturing site in Athlone and secured significant investment and major clients around the world.”

“I would like to wish the OxyMem team continuing success as part of DuPont as it scales to meet the growing global demand for the MABR technology to treat wastewater.”

DuPont is a leader in water purification and separation technology including ultrafiltration, reverse osmosis and ion exchange resins. The FilmTec™ brand is recognised globally and known for consistent and reliable performance. Each of the acquisitions announced this year supports our strategy to drive growth and innovation through access to new manufacturing capabilities, geographies and technologies.

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The Fourth Industrial Revolution Will Impact Every Aspect of Life



Henrik von Scheel was the opening keynote speaker at the 2020 National Manufacturing and Supply Chain Conference and also spoke at some of the complementary, co-located events at the CityWest Convention Centre.

January 31

“The Fourth Industrial Revolution will fundamentally change every aspect of our lives and manufacturing is at the epicentre of that. Manufacturing will be totally reshaped,” pointed out Henrik von Scheel (pictured), when addressing the 2020 National Manufacturing and Supply Chain Conference & Exhibition, which was held recently at the Citywest Convention Centre in Dublin.

Henrik von Scheel is credited with being the originator of the concept of the ‘Fourth Industrial Revolution’ (Industry 4.0) because of his work in helping to shape Germany’s future digital strategy (‘Digital Agenda’) in the wake of the economic crisis in 2008. The ‘Digital Agenda’ was subsequently adopted by the European Commission in 2010 as part of the Europe 2020 strategy and evolved into the European Digital Revolution. The Digital Agenda for Europe (DAE) is one of seven flagship initiatives under the Europe 2020 strategy. It focuses on modern technologies and online services that will allow Europe to create jobs and promote economic prosperity.

Caused by the collision of three worlds – the digital, the physical and the virtual – “the Fourth Industrial Revolution will be the biggest transformational change in the history of mankind in the shortest amount of

time,” Henrik von Scheel explained. “The last eight years of change is nothing compared to what is going to happen.”

According to Henrik von Scheel, the Fourth Industrial Revolution is arriving in three waves of 17 technology sets that will disrupt everything. The ‘first wave’, encompassing Digitisation (IoT), Advanced Analytics, Cloud Computing, Augmented Reality, Robotics and 3D Printing, broke between 2009 and 2016.

The ‘second wave’, which extends from 2016 to 2025, incorporates technologies such as AI, Autonomous Systems, Blockchain, Smart Automation, 6G Communication and Future of Energy. This ‘second wave’ will be even more disruptive and require “a totally new way of thinking the value chain.”

“AI scares people but there is nothing to fear but it will change the way we work.” He added: “Our ability to adapt to change is crucial.” Similarly, Smart Automation will also play a major role in how manufacturing evolves in the future.

“We live in a new reality, you just don’t realise it,” he cautioned.



The 2020 National Manufacturing and Supply Chain Conference & Exhibition was held recently at the Citywest Convention Centre in Dublin.

The ‘third wave’ identified by Henrik von Scheel, and due to impact by 2025 is characterised by Quantum Technology, Cybersecurity, Neurotechnology, Nanotechnology, Bioinformatics and Advanced Material. “The ‘third wave’ is the most disruptive. This sounds futuristic but it is not,” he warned.

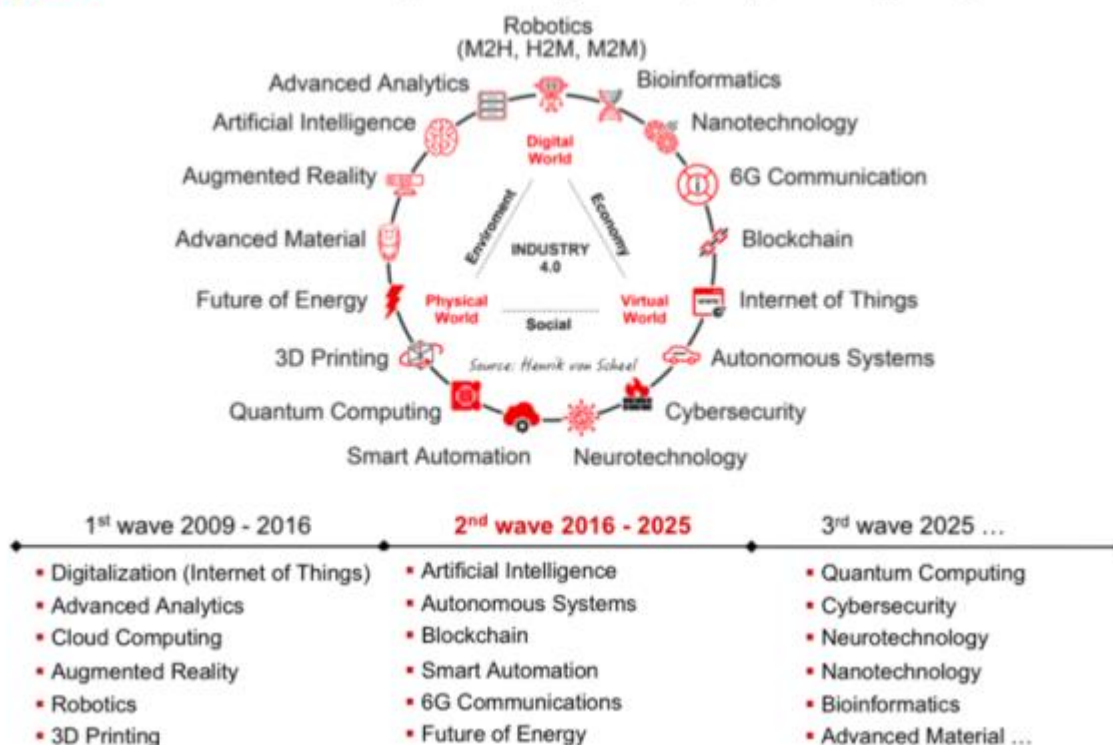
To remain competitive in the fast changing Industry 4.0 environment, manufacturers will have to re-think their entire value chains. “The value chain is something we learn about in school but no one knows how to apply. This is not ‘rocket science’ but it is a discipline that everyone needs to know.”

Of course, the Fourth Industrial Revolution is being accompanied by Climate Change, which poses an existential threat and requires urgent action to re-balance our eco-systems.

“By 2025 we will have killed off 50% of the animals on the planet – ‘holy smoke’ what an accomplishment. But we don’t see it because it is not an elephant. 69% of bees died last year.” He elaborated: “We live in the greatest time ever for mankind, with more equality and more money than ever before. But we are also the one generation that is at a crossroads. Are we able to take the right decisions?”

While the technological tidal waves that constitute the Fourth Industrial Revolution are daunting, Henrik von Scheel reassured listeners: “The centre piece of the Fourth Industrial Revolution is the human being and our ability to adapt. People always matter more than technology.”

Industry 4.0 arrives in wave of maturity that disrupts everything



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Unlocking the Value of the Circular Economy



Dr Geraldine Brennan (pictured), Circular Economy Lead at IMR.

February 03

Irish Manufacturing Research (IMR) launched **CIRCULEIRE** – the National Platform for Circular Manufacturing – at the 2020 National Manufacturing & Supply Chain Conference & Exhibition, which was held recently at the CityWest Convention Centre in Dublin. The IMR initiative aims to help Irish manufacturers and their supply chains to unlock the value that resides in an Irish circular economy.

CIRCULEIRE is a cross-sectoral industry-led public-private innovation network. Its objectives are to demystify, de-risk and deliver tangible financial benefits of the circular economy and enhance internal circular economy knowledge and capability for Irish manufacturers and their supply chains.

“CIRCULEIRE’s vision is to accelerate the transition towards a zero-carbon circular economy in Ireland by using manufacturing and its supply chains as a role model for the circular transition across the entire Irish economy,” according to Dr Geraldine Brennan (pictured), Circular Economy Lead at IMR.

“The full potential of the circular economy has yet to be identified, never mind realised,” she said.

Having joined IMR to design and deliver the organisation’s flagship Circular Economy initiative the National Platform for Circular Manufacturing (CIRCULEIRE) as well as develop IMR’s Sustainable Manufacturing research offering under the theme of the Circular Economy, Geraldine Brennan supports

Irish manufacturers and their supply-chains transition to a zero-carbon economy through designing circular business models and systems innovation demonstration projects.

The circular economy is pivotal in the Government's Climate Action Plan, which aims to achieve a cleaner, safer and more sustainable future for Ireland.

"It's about seeing waste as a resource – understanding which models other businesses have tried and tested and learning from them," she explained. "If we are not preserving that value, we are throwing away money."

CIRCULEIRE, by making knowledge accessible, "will show manufacturers how to take the first steps," she told the 2020 National Manufacturing & Supply Chain Conference. "What makes it different is that we are co-creating these solutions with manufacturers."

Spanning from 2020 to 2022, CIRCULEIRE will provide manufacturers with access to a dedicated innovation fund. In addition to anticipating future legislative hurdles, CIRCULEIRE will also provide an opportunity for manufacturers to shape national policy. It will also benefit manufacturers through bespoke training to support capacity building, innovation and implementation in the area of circularity.

"We are not just looking at materials but also energy and water." She continued: "The circular economy is an innovation opportunity. Ultimately, the circular economy is about how you design your products in the first place."

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Innovation Zed and A. Menarini Diagnostics Enter Commercial Agreement



January 28

Innovation Zed Ltd, an Irish medical technology company, and **A. Menarini Diagnostics**, a leading diagnostics company headquartered in Italy, and part of the Menarini Group, have announced an international partnership to commercialise the 'InsulCheck Connect' device developed by Innovation Zed.

'InsulCheck Connect' is an innovative insulin pen add-on device. It automatically collects essential usage data that informs insulin pen users of their injection history to assist them take control of their diabetes management. The 'InsulCheck Connect' device was specifically chosen to integrate within A. Menarini Diagnostics' connected diabetes care platform.

With this agreement the two companies are forming a long-term partnership where A. Menarini Diagnostics will perform sales, marketing, training, and customer support, providing all necessary technical and clinical information for the correct use of the Insulin Pen 'InsulCheck Connect' device in regions around the globe including Europe.

Innovation Zed is headquartered at NovaUCD, the Centre for New Ventures and Entrepreneurs at University College Dublin (UCD).

“We are very pleased with this announcement,” said Dean Minnock, Director of Business Development and Third-Party Relationships at Innovation Zed. “The relationships that A. Menarini Diagnostics has established with patients and healthcare providers in the diabetes community, and their extensive distribution expertise will positively position us to deliver to key international markets.”

“With this innovative insulin pen ‘InsulCheck Connect’ device, healthcare providers and patients will have a powerful tool to take under control the blood glucose levels and prevent diabetes complications,” said Fabio Piazzalunga, General Manager and Global Head, A. Menarini Diagnostics.

“This agreement is part of our strategy to develop a portfolio of fully integrated innovative products, allowing an enhanced management of diabetes for healthcare providers and an improved quality of life for patients.”

Dean Minnock added: “A. Menarini Diagnostics has established fantastic relationships with patients and healthcare providers and has extensive distribution expertise to effectively utilise the ‘InsulCheck Connect’ device to greatly empower the diabetes community.”

A. Menarini Diagnostics and Innovation Zed are also discussing terms to commercialise additional innovative systems to improve the quality of life for patients with diabetes.

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Enterprise Ireland CEO to Step Down



February 17

Enterprise Ireland, the Government agency responsible for developing Irish business globally, has announced that its Chief Executive Officer Julie Sinnamon (pictured above) is to step down from her role later this year.

Enterprise Ireland Chairman, Terence O'Rourke, paid tribute to Julie Sinnamon saying: "Julie has made a hugely significant contribution to Enterprise Ireland and the growth of Irish enterprises around the world during her tenure as CEO. A record 221,895 people are now employed by Enterprise Ireland backed companies, with exports of almost €24 billion, the highest in the history of the agency. I would like to thank Julie for her work as CEO, her leadership of the Enterprise Ireland team and for her commitment and dedication in supporting our client companies, ensuring that Irish enterprise is in a very strong position for the future."



Julie Sinnamon, CEO of Enterprise Ireland, said: "It has been, and remains, an honour to lead this organisation and to work with colleagues throughout Ireland and globally to support the success of Irish

exporters. I would like to thank our Chairman and Board, colleagues across the agency and in Government, and our clients for their support throughout my time as CEO. It has also been my absolute privilege and joy to work with ambitious companies throughout Ireland to help them realise their potential on the global stage. I will work with the organisation until later in the year to ensure an orderly transition and, in the meantime, will continue to devote all of my efforts to help colleagues and clients achieve further success in global markets.”

Enterprise Ireland will soon begin the recruitment process for a new CEO.

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€24 Million Invested in Start-ups by Enterprise Ireland in 2019



February 26

Enterprise Ireland, the government agency responsible for the development and growth of Irish companies in global markets, invested €24 million in Irish start-ups in 2019 and supported a total of 127 start-up companies. Investment was provided through Enterprise Ireland's High Potential Start-Up (HPSU) and Competitive Start Fund (CSF) programmes.

600 delegates attended the recent Enterprise Ireland Start-Up Showcase in Croke Park including start-up businesses and investors. Start-ups supported by Enterprise Ireland in 2019 include:

- 91 High Potential Start-Up (HPSU) investments – start-up businesses with the potential to create 10 jobs and €1 million in sales within three to four years of starting up
- 36 Competitive Start Fund (CSF) investments, which inject critical early-stage funding into new businesses
- 42% of the companies supported are located outside of Dublin
- 38 women-led start-up companies were approved investment
- 13 HPSUs were successfully commercialised in partnership with 3rd level research institutions
- 16 additional HPSUs received follow-on investment funding as their businesses scaled.

Jennifer Melia, Manager, HPSU Division, Enterprise Ireland, said: “A strong start-up economy is absolutely vital to the future of Ireland. Start-ups are a powerful driver of economic growth, new talent and innovation.

In Enterprise Ireland we are committed to helping founders to start and grow their business internationally. These founders are our future business leaders and their businesses the lifeblood of our economy.



“2019 was another successful year for Irish start-ups across a range of sectors including ICT, medtech, fintech, food and manufacturing. We also saw a strong performance by start-ups from outside of Dublin. Furthermore, 38 of the businesses supported were founded by women which supports Enterprise Ireland’s recently launched 2020 Action Plan for Women in Business, aiming to increase the participation of women in entrepreneurship and business leadership. The class of 2019 are great role models for new founders who have the determination and resilience required to get their enterprises up and running.”

The Formula for Start-Up Success

Enterprise Ireland has also launched a new campaign – ‘The Formula for Success’ – which aims to attract ambitious founders, the disruptors of the future and fast-growing export-led early stage companies, to apply for High Potential Start-Up supports. A HPSU is a fast growing, export focused company, often with a need for significant investment. The formula for success centres on matching a founder’s vision and ambition with Enterprise Ireland’s investment, expertise and network to help them succeed.

As part of the campaign Enterprise Ireland has also published its six-year roadmap to grow and nurture the start-ups of the future. The plan outlines four key objectives with 14 key actions to support the development of the next generation of Ireland’s business leaders and make Ireland a great location to start and scale export-led start-ups that will be required to drive the future economy. They include:

1. Build a strong HPSU pipeline of ambitious and diverse company founders
2. Support company founders to design and build fast-scaling businesses in the sectors and markets of the future
3. Improve the environment for entrepreneurship
4. Work smarter together through collaboration as ‘one Ireland team’

Jennifer Melia said: “The launch of the roadmap is timely when we consider the vast and rapid technological advancements that are taking place. Today everything is faster, more efficient, and more easily accessible. Disruptive technologies will significantly change the way that we work and live and we need to embrace the changes coming our way.

“This roadmap aims to meet these challenges and ensure we assist entrepreneurs to create strong and sustainable exporting businesses. This approach brings together and strengthens the financial and development supports, the sectoral and market intelligence and the connections to help entrepreneurs succeed – a formula for success to fulfil their potential in developing their business every step of the scaling journey.”

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