NovaUCD Newsletter

The Innovation and Technology Transfer Centre

June 2008

Dear Colleagues and Friends

Welcome to the June 2008 issue of the NovaUCD Newsletter.

The NovaUCD 2007 Report has been published. The report highlights the increasing interest of UCD researchers in innovation. The 50 invention disclosures reported was particularly impressive. This represents an increase of 120% in the last two years. During 2007, 26 patent applications were filed, 8 licence agreements were concluded and 4 spin-out companies were incorporated. These figures are indicative of the growing commitment of UCD and its researchers to the commercialisation of UCD research-generated intellectual property for the benefit of the Irish economy and society.

The NovaUCD 2008 Innovation Award was presented to Celtic Catalysts in recognition of its successful commercialisation of chiral synthesis research which took place over many year's in UCD's School of Chemistry and Chemical Biology. This is the first time that the NovaUCD Innovation Award has been presented to a spin-out company.

Two new companies have joined NovaUCD's community of entrepreneurs. Twenty-two companies are currently located at NovaUCD. NovaUCD welcomes proposals from the promoters of high-quality, knowledge-intensive ventures who are interested in locating in NovaUCD.

In this issue we also report on recent developments for ChangingWorlds, Duolog Technologies and Enzolve Technologies and the establishment of new links between UCD and industry.

I would welcome any comments or feedback on this issue or any articles for inclusion in future issues. Please contact Micéal Whelan on t: 01-716 3712 or e: miceal.whelan@ucd.ie.

Dr Pat Frain, Director

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NovaUCD 2007 Annual Report

NovaUCD has published its 2007 Annual Report.

The report highlights that UCD researchers submitted 50 invention disclosures during 2007 an increase of 35% compared to 2006 and a 120% increase on the number reported two years ago.

In 2007, 26 patent applications including 9 priority patent applications, 9 PCT (patent co-operation treaty) and 8 national/regional patent applications were filed by UCD for intellectual property arising from research in life science, engineering and information and communication technology.

Window at NovaUCD

Eight licence agreements were also concluded with a range of indigenous and international companies and 4 new innovative spin-out companies; Advanced Diagnostics Laboratory, AP EnvEcon, Biontrack and OncoMark were incorporated.

A total of 130 companies and 190 individuals have now completed NovaUCD's Campus Company Development Programme which has run annually since 1996 and former participants now collectively employ over 675 people.

Twenty-two innovative new ventures, occupying 37 incubation units, or 90% of the available incubation space, are currently located in NovaUCD. A total of eleven companies have now graduated from NovaUCD and moved on to new premises. It is an important element of NovaUCD's strategy to continuously refresh its community of entrepreneurs and to have capacity at all times to take on new projects.

The NovaUCD 2007 Report is available online via www.ucd.ie/nova/novaucd_2007_report.html.

If you would like to receive a copy of this Report please contact Micéal Whelan.

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NovaUCD 2008 Innovation Award

Celtic Catalysts, which has developed technology which enables global pharmaceutical companies manufacture drugs more cost effectively particularly in anti-viral and anti-cancer therapeutic areas, has been presented with the NovaUCD 2008 Innovation Award.

The Award was presented by Dr Hugh Brady, President, UCD to Celtic Catalysts in recognition of its successful commercialisation of chiral synthesis research which took place over many year's in UCD's School of Chemistry and Chemical Biology. This is the first time that the NovaUCD Innovation Award has been presented to a spin-out company.

Dr Brian Kelly, CEO, Celtic Catalysts

Celtic Catalysts was co-founded in 2000 by Professor Declan Gilheany and Dr Brian Kelly. Its focus is on the area of chiral synthesis and it has developed a comprehensive intellectual property portfolio and carved out a uniquely strong niche for itself in the specialised area of 'P-chiral' technology. This technology can be used in the production of a range of drugs which are particularly prevalent in anti-viral and anti-cancer therapeutic areas.

Brian Elliott, Chairman, Celtic Catalysts, Dr Hugh Brady, President, UCD, Dr Brian Kelly, Professor Declan Gilheany and Dr Pat Frain

Since 2004, Celtic Catalysts has secured €2 million in investment from 4th Level Ventures, Enterprise Ireland, Údarás na Gaeltachta and the Business Expansion Scheme. In addition it has secured two European Commission grants under the prestigious Marie Curie funding scheme. The company currently employs 17 people and is headquartered in NovaUCD.

In addition to product sales, Celtic Catalysts has already signed several research alliance agreements with a number of multinational pharmaceutical companies. These research alliance agreements enable Celtic Catalysts utilise their expertise and technology to solve problems being encountered by pharmaceutical and biotech companies in the manufacture of their drugs.

Celtic Catalysts is currently in fundraising mode and plans to employ over 30 people, mostly at PhD level, within the next two years, occupy its own laboratory facilities to manufacture bulk quantities of its chiral building blocks in addition to securing alliances and supply agreements with all major Pharma and fine chemical companies.

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

Previous award winners include Professor Ciaran Regan (2007), Professor Conor Heneghan (2006), Professor Barry Smyth (2005) and Professor Mark Rogers (2004).

NovaUCD Director Elected Chair of ProTon Europe

Dr Pat Frain, Director of NovaUCD has been elected Chair of ProTon Europe. ProTon Europe is the pan-European network of knowledge transfer offices, national knowledge transfer associations and companies affiliated to universities and other public research organisations.

ProTon Europe has over 250 direct member institutions in 28 European countries employing some 2000 knowledge transfer professionals. Dr Frain is the first Irishman to chair ProTon Europe.

Dr Pat Frain

ProTon Europe was established in 2002 to promote innovation by increasing the effectiveness and efficiency of knowledge transfer and university-industry collaboration across Europe. Through the representation of national associations at a European level ProTon Europe offers its members an opportunity to develop, inform and influence European policy relating to knowledge transfer.

ProTon Europe also supports the professional development of knowledge transfer offices across Europe through the exchange of best practice, staff exchanges, the delivery of appropriate training and networking.

For additional information on ProTon Europe visit www.protoneurope.org

Protection and Commercialisation of Intellectual Property

NovaUCD is responsible for the implementation of UCD's policies relating to the commercialisation of intellectual property and for the management of the intellectual property arising from UCD's research programmes.

A key priority of NovaUCD is to work with UCD researchers in identifying, protecting and commercialising the intellectual property arising from their research programmes and to take innovative ideas from proof-of-principle to full commercial success.

Researchers PC

A dedicated PC with access to certain proprietary databases is available at NovaUCD to support UCD researchers in commercialisation activities. The PC can for example be used to conduct market analysis on different industrial sectors, either to support grant proposals or to assist in the development of commercialisation plans. Assistance will also be provided in searching patent databases.

The PC is available on a 'first-come-first-served basis' and a time-slot to use this PC should be booked in advance via John Wrigley, NovaUCD, t: 716 3721 or e: john.wrigley@ucd.ie.

UCD 2008 Invention Disclosures and Patent Filings

Eighteen invention disclosures have already been disclosed by UCD researchers to NovaUCD since the start of 2008.

UCD patents filed in 2008 to date include:

A method and apparatus for blind source separation, Dr Scott Rickard, UCD School of Electrical, Electronic and Mechanical Engineering. A European and US national patent application.

An encoding scheme and a decoding scheme using a series of LDPC codes based on finite inversive spaces, Dr Mark Flanagan, UCD School of Electrical, Electronic and Mechanical Engineering and Dr Marcus Greferath, UCD School of Mathematical Science. A PCT patent application.

Captodiamine, Professor Ciaran Regan, UCD School of Biomolecular and Biomedical Science. An Irish priority patent application.

Cluster aggregation point for load balancing in a sensor network, Gregory O'Hare and colleagues, UCD School of Computer Science and Informatics. A PCT patent application.

Cognition TxP (alternatively transcribed genes associated with memory consolidation), Professor Ciaran Regan, UCD School of Biomolecular and Biomedical Science. A US priority patent application.

High Power EUV Lamp Systems, Professor Padraig Dunne, UCD School of Physics. A European patent application.

Method of Coating a Thin Liquid Metal Film onto a Solid Substrate, Dr Fergal O'Reilly, UCD School of Physics. An Irish priority patent application.

Method for producing *polyhydroalkanoate (PET to PHA)*, Dr Kevin O'Connor, UCD School of Biomolecular and Biomedical Science. A UK priority patent application.

Meparfynol, Professor Ciaran Regan, UCD School of Biomolecular and Biomedical Science. An Irish priority patent application.

Nitrosylated Conjugated Linoleic Acids, Dr Orina Belton, UCD Conway Institute and Professor Des Fitzgerald and colleagues from RCSI. A UK priority patent application.

Schizo TxP (alternatively transcribed genes associated with Schizophrenia), Professor Ciaran Regan, UCD School of Biomolecular and Biomedical Science. A US priority patent application.

The conversion of a mixture BTEX compounds by defined mixed cultures to medium chain length polyhydroalkanoate, Dr Kevin O'Connor, UCD School of Biomolecular and Biomedical Science. A UK priority patent application.

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Companies at NovaUCD

Twenty-two innovative new ventures, occupying 37 incubation units, or 90% of the available incubation space, are currently located in NovaUCD.

The latest companies to locate at NovaUCD are Advanced Diagnostics Laboratory and OncoMark.

Advanced Diagnostics Laboratory is Ireland's first commercial and diagnostic laboratory for animal health and toxicology.

The company, which completed the NovaUCD 2007 Campus Company Development Programme was co-founded by Dr Peter O'Brien and Maureen O'Brien as a spin-out from UCD's School of Agriculture, Food Science and Veterinary.

OncoMark specialises in researching, developing, creating and producing biomarkers for use in predicting and tracking the efficacy of drug treatments. OncoMark's primary focus is on the development of fully-validated multi-marker assays for cancer relevant biomarkers.

The company, which also completed the 2007 Campus Company Development Programme was co-founded by Professor William Gallagher, UCD School of Biomolecular and Biomedical Science and Steve Penney.

NovaUCD welcomes proposals from the promoters of high-quality, knowledge-intensive ventures who are interested in locating in NovaUCD.

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Companies in the News

ChangingWorlds

ChangingWorlds, the UCD School of Computer Science and Informatics spin-out has won the inaugural Irish Technology Leadership Group (ITLG)/Irish Times Innovation Award.

The award was presented in March at gala dinner held in Stanford University, California, which was attended by over 200 executives from some of Silicon Valley's leading technology companies.

The ITLG is an independent organisation comprised of a number of high-level technology leaders in Silicon Valley who are Irish or Irish-American and who are committed to helping Ireland address the challenges of embracing new technology opportunities.

The ITLG-Irish Times 2008 Innovation Award was presented to David Moran, CEO, ChangingWorlds, in recognition of the company's impressive customer successes, product strategy, management team, outstanding intellectual property portfolio and international growth across all of its key territories, Europe, Asia and the US.

David Moran, CEO, ChangingWorlds

ChangingWorlds was among four companies short-listed for the award which was established to recognise an innovative Irish company which it is believed has the most potential to succeed on the international stage.

ChangingWorlds, the global expert in intelligent content discovery and subscriber intelligence for the Mobile Internet was co-founded by Professor Barry Smyth and Paul Cotter in 1999 to commercialise their research into personalisation and artificial intelligence technologies at UCD's Smart Media Institute.

Based on advanced artificial intelligence technology, the company's ClixSmart™ Intelligent Portal platform offers a personalised content discovery solution that enhances content relevance and optimises the user experience of the wireless internet, resulting in greater ARPU for the network operator.

ChangingWorlds has rolled out the ClixSmart™ Intelligent Mobile Portal platform to 50 mobile network operators worldwide, including Vodafone Global Group, O_2 Ireland and Germany, TeliaSonera,

Celcom Malaysia and Hong Kong CSL.

The company now employs over 120 highly qualified staff including staff based in its Advanced Research Centre based at NovaUCD. The company is headquarters in Dublin with offices in the Far East and USA.

Duolog Technologies

Duolog Technologies, the NovaUCD-headquartered Collaborative Design Automation™ company, has appointed Gary J. Johnson as the company's Senior Vice-President of Worldwide Sales and Marketing. Duolog has appointed Gary, a Silicon Valley veteran, to accelerate sales and expand international markets.

Gary J. Johnson, Duolog Technologies

Duolog Technologies is a pioneering developer of groundbreaking EDA tools that enable the flawless and rapid integration of increasingly complex SoC (System on Chip), ASIC (Application Specific Integrated Circuit) and FPGA (Field Programmable Gate Array) designs. These tools drastically reduce the risk of costly delays for its clients in their chip integration processes.

Gary Johnson has more than 25 years experience as a highly respected senior executive with leading Silicon Valley technology companies. Johnson has held positions as CEO and President, executive Vice-President of Sales and Marketing, Vice-President of Operations and numerous other senior management roles at companies including Procera Networks Berkeley Software Design, now Wind River Systems, Click Software and Convergent Technologies, now Unisys. Earlier in his career, Johnson worked at Fairchild Semiconductor and Measurex Corporation. Johnson holds a Bachelor's Degree in Business Administration from Michigan State University.

Duolog Technologies currently employs 75 people in its headquarters at NovaUCD, the Innovation and Technology Transfer Centre at UCD, and its design centres in Galway and Budapest, Hungary.

Enzolve Technologies

Enzolve Technologies has received substantial investment from Enterprise Ireland and private investors which will enable it to commence production of 'NeoScreenPak'.

NeoScreenPak is a range of diagnostic kits for screening a variety of disorders that affect newborn infants. The initial test in the 'NeoScreenPak' range will screen for phenylketonuria (PKU) and each kit will contain sufficient materials to allow up to 1,000 newborns to be tested.

Dr Denise Cornally and Dr Anna Edvardsson, Development Scientists, Enzolve Technologies

The screening of newborn infants for a variety of disorders that seriously damage their long term health is well established in economically developed countries but less so in under-developed countries. In Ireland all newborns are routinely tested for five common disorders, phenylketonuria (PKU), maple syrup urine disease, homocystinuria, galactosaemia and congenital hypothyroidism. If left undetected and untreated any of these disorders will cause long term and serious impairment to the infant.

Enzolve's new diagnostic screening package, 'NeoScreenPak' offers several key advantages over other available screening methods. 'NeoScreenPak' is a single format test-package which will be used to screen for seven of the eleven most

commonly screened disorders affecting newborns, thus eliminating the necessity for completely different set-ups for screening each of these conditions.

Enzolve's 'one-step' tests are also faster, more reliable, convenient and cost effective than tests currently available on the market. Such advantages are proving to be particularly attractive in international markets, especially those where newborn screening programmes are as yet under-developed or under-funded.

Enzolve Technologies, which is commercialising genetically engineered enzymes, enzyme-based specialty products and enzyme expertise, was co-founded by Professor Paul C. Engel and Dr Suren Aghajanian as a spin-out company from UCD's School of Biomolecular and Biomedical Science at the Conway Institute.

The company which now employs 4 full time staff occupies laboratory and office space at NovaUCD. Enzolve has partnered with another Enterprise Ireland High Potential Start-Up, Europharma Concepts Ltd, based in Co. Offaly, to manufacture the kits.

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Links with Industry

CLARITY CSET

The establishment of the CLARITY Research Centre was announced in April.

CLARITY is a new Science Foundation Ireland Centre for Science, Engineering and Technology (CSET) which will focus on the so-called 'Sensor Web', which captures the intersection between two important research areas – Adaptive Sensing and Information Discovery.

The core aim of this innovative research centre is 'bringing information to life'. The research will investigate the integration of sensor data from the physical world with sophisticated information processing and artificial intelligence techniques from computer science. CLARITY aims to develop systems that can sense, process and analyse what is happening in the real world and respond in an appropriate manner.

The new cutting-edge centre is a partnership between University College Dublin and Dublin City University, supported by research at the Tyndall National Institute, Cork.

The CLARITY CSET Director is UCD's Professor Barry Smyth and the Deputy Director is DCU's Professor Alan Smeaton. Eventually over 90 highly skilled personnel will be working to deliver the CLARITY research programme.

Professor Alan Smeaton, DCU, Professor Frank Gannon, Director General, SFI and Professor Barry Smyth, UCD

In addition, CLARITY will collaborate with leading multinationals and SMEs including: IBM, Vodafone, Ericsson, Foster-Miller, ChangingWorlds, the UCD computer science spin-out, Fidelity Investments and Critical Path, as well as national agencies, such as the Environmental Protection Agency, the Marine Institute and the National Museum of Ireland.

Over the next five years, total investment in CLARITY will amount to €16.4 million, of which Science Foundation Ireland through the CSET programme will contribute €11.8 million. CLARITY's primary industry partners will make a significant contribution collectively of over €4.6 million by contributing personnel, funding, equipment, infrastructure and services.

Strategic Research Clusters

The establishment of the CLARITY Research Centre follows on from the award to UCD of four Science Foundation Ireland (SFI) Strategic Research Cluster awards valued at over €25 million.

The four clusters will investigate a broad research spectrum that includes - pioneering the understanding of how nanoscale particles interact with living matter; developing novel drug delivery technologies;

discovering and manipulating molecules to enhance fertility; and developing efficient low cost solar energy conversion technologies.

The Strategic Research Clusters, which involve industry partners such as Airtricity, Biotrin, DePuy, Genzyme Ireland, Intel and Pfizer along with other third level institutions, will all focus on a research area of strategic importance for Ireland's knowledge-based future.

Applied Intellectual Capital

Applied Intellectual Capital (AIC) and RedOx Biofuels a wholly-owned subsidiary of AIC, have today announced a new collaborative scientific research agreement with Dr Kevin O'Connor from UCD'S School of Biomolecular and Biomedical Science, to investigate methods of converting post-consumer waste into bio-degradable plastics.

By combining Dr O'Connor's patent-pending microbiological technology and AIC/RedOx's proprietary technology (mediated metal redox ("MMR")), the proposal is to convert several waste streams into bio-degradable plastics which can be used in a variety of forms ranging from plastic bottles to surgical parts thereby replacing traditional fossil fuel-based plastics. The collaboration may also be extended in the future to produce other value added products like bio-fuels from waste.