2016
As part of the strategic project “Louvain 2020”, knowledge transfer is one of five key aspects of UCL’s research policy. The aim is to enhance activities in this area by making researchers more aware of this facet of research, encouraging entrepreneurship and ensuring the visibility of the Louvain Innovation Network, which promotes UCL research to regional economic stakeholders.

What’s more, with renewed support from the Walloon government and the European Social Fund through to the end of 2020, the Louvain Technology Transfer Office (LTTO) is benefiting from a new impetus to consolidate its knowledge transfer policy.

In this context, for the second edition of its calendar, LTTO presents 12 new knowledge transfer success stories that cover the full spectrum of research activities.

Through the testimony of researchers and CEOs, you will discover the history of spin-off creation: Axinesis, Domobios, e-peas, intoPIX, Novadip, N-SIDE, Tessares and Wake Prediction Technologies (WaPT); learn about the signing of licensing/partnership agreements with arGEN-X, Ion Beam Applications (IBA), Hôpital Erasme and UZ Brussel; and also hear about some historic pieces of music brought to light and performed during a public concert as part of Mons 2015.

All of these examples illustrate collaborative ventures with regional economic stakeholders, but also, in some cases, the virtuous circle of innovation.

May all of these success stories inspire other ideas and activities!

Jean-Christophe Renaud
Pro-Rector for Research
In 2004 Pr S. Lucas and Pr P. Coulie at UCL’s de Duve Institute initiated a project to decipher the mechanisms of immune suppression by a subtype of immune cells called “Regulatory T cells”, or Tregs. This led to the discovery of a molecular complex implicated in Treg function, and to the development of antibodies that target this complex, block immunosuppression by Tregs and have the potential to enhance beneficial immune responses in human diseases such as cancer or infections.

Developing new anti-cancer treatments to enhance immune attack of tumors

arGEN-X & UCL: a win-win collaboration for the world of tomorrow

In 2013 arGEN-X, a clinical-stage biopharmaceutical company creating and developing differentiated antibody therapeutics, established an agreement to collaborate with the UCL team to identify other potential therapeutic antibodies and take them, via in vivo proof of concept studies, into clinical practice.

Next step: Identify new antibodies, explore whether they stimulate anti-tumor immune responses in murine syngeneic tumor models and perform exploratory toxicology studies

Exercise of the option to exclusive commercial licence 2015
Patent (first filing) 2013
Research and collaboration agreement January 2013
Research project beginning 2004

In support of Research
To combat the problem, this spin-off company develops ecological and healthy solutions aimed at eradicating domestic pests such as dust mites living in mattresses, chairs and other furniture. The product works by using bio-mimicry: pheromones are used to attract the dust mites to a cover, where they are trapped and then eliminated in the washing machine.

Domobios was founded in 2013 by Dr A.-C. Mailleux and P. Buffet as a result of a research programme supported by the Brussels-Capital Region since 2005 at UCL (Pr T. Hance - ELI/ELIB) and ULB (Pr J.-L. Deneubourg). It is believed that 10-15% of both the world and the Belgian population suffer from dust mite allergies to varying degrees, and the figure is constantly rising.

Put an end to dust mite allergies
Domobios: a key player for the world of tomorrow

To combat the problem, this spin-off company develops ecological and healthy solutions aimed at eradicating domestic pests such as dust mites living in mattresses, chairs and other furniture. The product works by using bio-mimicry: pheromones are used to attract the dust mites to a cover, where they are trapped and then eliminated in the washing machine.

Next Step: New research projects on bed bugs and louses
Acar’up sprl creation (Domobios: parent company) 2014
“Acar’up” launch in pharmacy 2013
Spin-off creation February 2013
“Spin-off in Brussels” Grant at UCL 2009
“Prospective research in Brussels” at ULB 2005
The Tessares solution leverages a new protocol standard, Multipath TCP (MPTCP), allowing one Internet session to be conveyed on several paths over different access networks.

Pr. O. Bonaventure, Dr. S. Barré and Dr. G. Detal (UCL-ICTEAM/INGI) had already significantly contributed to the definition of the standard and the implementation of its reference software before being joined by D. Périquet, who brings a wealth of industry experience in the telecoms world.

Launched in 2015, Tessares is a technology start-up active in the R&D and commercialisation of software solutions that significantly improve the performance and quality of Internet access without requiring the deployment of additional resource-hungry infrastructure.

Next step: Proof of concept phase within Proximus lab and technical field trial within Proximus commercial ecosystem

Industrial partnership agreement with Proximus 2015
Spin-off creation March 2015
“Proof of Concept” Grant 2014
“FIRST Spin-off” Grant 2013
Research project beginning 2008

Dramatically improve internet experience: more speed, more reach, more reliably

Tessares: a key player for the world of tomorrow
After the launch in 2006 of a research project focusing on the rehabilitation of upper limbs in stroke patients, Dr J. Sapin developed an innovative medical device, the REAplan, under the supervision of Pr B. Dehez (UCL-iMMC/MCTR) and in collaboration with Pr T. Lejeune and his team of the Cliniques universitaires Saint-Luc.

Next step: A-Tour Closing / Commercial launch in EU and new medical applications

Spin-off creation
“Proof of Concept” Grants
“FIRST Spin-off” Grant
Research project beginning

April 2015
2011 & 2012
2010
2006

In support of Research

During rehabilitation programmes, the intensity of repeated movements achieved by the patients, as permitted by the companion robot, optimises the process of neuronal reorganisation after brain injuries, also known as neuroplasticity. Thus in 2015 Dr J. Sapin and E. Hanesse set up Axinesis with a clear objective: to democratise access to innovative technologies dedicated to the rehabilitation of impaired upper limbs of stroke adults or cerebral palsy children.
Based on research led by Pr B. Macq and Pr J.-J. Quisquater (UCL-ICTEAM/ELEN), intoPIX was set up in 2006 by J.-F. Nivart, Dr G. Rouvroy and Pr F.-X. Standaert. This independent image technology company benefits from world-class expertise and knowledge in image processing, cryptography and micro-electronics and provides its customers with leading-edge image and video compression, security and hardware enforcement IP cores for audiovisual markets.

Direction of reading: Pr B. Macq (UCL-ICTEAM: Institute of Information and Communication Technologies, Electronics and Applied Mathematics), P. Pellegrin - Senior Hardware Manager, A. Wislet - COO, Pr J.-D. Legat (UCL-ICTEAM), J.-B. Lorent - Product & Marketing Manager, Dr G. Rouvroy - Co-Founder & CTO, Pr J.-J. Quisquater

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Provide a faster and easier access to new emerging image technologies
intoPIX: a key player for the world of tomorrow

intoPIX has become the reference provider of JPEG 2000 tools for digital cinema and now leads the way with cost-effective solutions for digital acquisition, post-production, video over IP, contribution, storage and archiving. intoPIX technologies are dedicated to digital cinema, broadcasting, post-production, archiving, wireless, medical, aerospace, security, telecoms and any other audiovisual applications where image quality is crucial.

Next step: Deployment of the TICO product on the market
Technology and Engineering Emmy® Award 2014
100% market share in 4K cinema projection 2011
and more than 25% of the worldwide movie theatres equipped with the intoPIX technology
Spin-off creation
“FIRST Spin-off” Grants March 2006
Research project beginning 2001

In support of Research
Novadip Biosciences is a biopharmaceutical company founded in 2013 by Pr D. Dufrane (UCL-IREC) and J.-F. Pollet on the basis of research performed within the Cliniques universitaires Saint-Luc - Centre de Thérapie Tissulaire et Cellulaire. This spin-off company aims to design, develop and bring to market innovative stem cell-based therapies for regenerative medicine.

Novadip: a key player for the world of tomorrow

The lead product Creost® introduces new principles of guided tissue regeneration based on stem cells from fatty tissue, associated with osteoinductive, osteoconductive and osteogenic properties, to manufacture 3D natural bone implants with the right shape, mineralisation and all mechanical properties for replacement and repair of large bone defects (spine surgery, orthopaedic surgery for trauma or tumour resection, cranial and maxillofacial surgery, osteonecrosis, etc.).

Next step: Process optimisation & industrialisation of Creost®, development of new products and preparation of next clinical trials

15 First-in-human clinical trials (hospital exemption) 2012-2015
Spin-off creation May 2013
2 Proofs of concept in severe bone reconstruction on pig models disorders 2011-2012
Research project beginning 2008

In support of Research
IBA, a spin-off company of UCL established in 1986, has become the world leader in proton therapy by developing its expertise in particle accelerators for cancer treatment. IBA, UCL (Pr B. Macq (ICTEAM/ELEN) and Pr J. Lee (IREC/MIRO)) and the Walloon Region teamed up in 2011, establishing the iMagX team, with a view to developing innovative imaging solutions to improve the accuracy of proton therapy.

Consequently, iMagX was launched as part of a public-private partnership, which ended in September 2015. So, 25 years after its creation, IBA has returned to its home university with some pioneering challenges that have enabled the UCL teams and IBA to achieve a world premiere: the first proton therapy guided by volumetric imaging in the treatment room at the University of Pennsylvania in Philadelphia.

**Date of licence agreement**

“Proof of Concept” Grant
Research project beginning

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<td>September 2015</td>
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**In support of Research**

**CONTACT US**
+32(0)10 47 25 47
LTTO@uclouvain.be
www.LTTO.com
Based on applied research projects of UCL-IMMAQ/CORE (Centre for Operations Research and Econometrics), N-SIDE was founded in 2000 by Pr P. Chevalier and Pr Y. Pochet and has since established a presence in North America, Latin America and Asia. Nowadays, N-SIDE is an ambitious management consulting firm focusing on solving complex senior management issues and implementing integrated software solutions.

N-SIDE: a key player for the world of tomorrow

Computing day-ahead market prices for European Power Exchanges

All solutions are based on state-of-the-art mathematical modelling and operations research and enable optimum decision-making for businesses in multiple sectors, such as steel, energy, pharmaceuticals and the supply chain. N-SIDE works with global firms headquartered all around the world, implementing its advanced business analytics solutions.

Next step: Opening of a new office in China

New office in Brazil 2013
New office in the USA 2005
Spin-off creation August 2000
“FIRST Spin-off” Grant 1999
Research project beginning 1996
Predicting wakes to tackle airport congestion and wind energy challenges
WaPT: a key player for the world of tomorrow

WaPT provides technical support for the definition, refinement and certification of new operational concepts for air traffic management, allowing air traffic controllers to cope with airport congestion issues. The spin-off company also offers solutions to problems related to several aspects of wind energy production optimisation: from blade design to optimisation of turbine positioning, control and maintenance.

**Next step:** R&D and services in wind energy applications
- Support to NATS 2015
- Support to Eurocontrol 2013-2016
- Spin-off creation September 2013
- Research project beginning 1998
In October 2015 Harmonia Sacra and the PhilidOr Ensemble combined their talents to revisit the very best of Hainaut Province’s musical heritage. This artistic initiative is one of the major achievements of a broad research project led by Pr B. Van Wymeersch (UCL-INCAL/CERMUS) and Harmonia Sacra, a French vocal and musical ensemble specialising in ancient music.

The aim was to rediscover, study and promote Hainaut’s musical heritage from the 17th and 18th centuries in order to make it accessible to a wider audience (students, students of music academies, amateur musicians, etc.). An exhibition dedicated to music scores, miscellaneous documents and instruments from the period was also open to the public.

Strengthen the identity of Hainaut Province thanks to its musical heritage

Harmonica Sacra & UCL: a win-win collaboration for the world of tomorrow

Artistic creation and public exhibition
Research project beginning

October 2015
2012

In support of Research
Based on the results of a research project supported by Welbio since 2012 and led by Pr M. Vikkula (UCL-DDUV/GEHU), Highlander is a bioinformatics tool designed to analyse and explore massive parallel sequencing (MPS) data. It centralises sequencing data and their numerous annotations in a database and provides a powerful graphical interface for biologists to interact with.

Facilitate mutation detection and interpretation in medical genetic centres

Hôpital Erasme - UZ Brussel & UCL: a win-win collaboration for the world of tomorrow

As MPS becomes a mandatory approach to human genetic research and diagnostics, the genetic centres at Hôpital Erasme and UZ Brussel were looking for a tool to analyse the data generated by their new common sequencing platform. They showed great interest in Highlander and an agreement was reached on installing the tool, training users and carrying out further maintenance on both sites.

Second consultancy agreement
(up and running at UZ Brussel)

First consultancy agreement
(up and running at Hôpital Erasme)

Research project beginning

Second consultancy agreement
December 2014

First consultancy agreement
October 2014

In support of Research
e-peas was founded in 2014 by Dr G. Gosset and Dr J. De Vos, based on the conviction that the trillions of connected nodes of the Internet-of-Things to be deployed in the next few years will require disruptive solutions to avoid battery replacement. e-peas relies on 10 years of research, supported by the Walloon Region and the EU under the direction of Pr D. Bol and Pr D. Flandre (UCL-ICTEAM/ELEN), and on their patented disruptive technologies.

The unique approach of e-peas is based on both increasing the amount of harvested energy and drastically reducing the energy consumption of all power-consuming blocks in the electronic system. The spin-off company offers a portfolio of integrated circuits: management unit for photovoltaic and thermoelectric harvesters, microcontrollers and sensors solutions, all designed to improve system robustness and reduce application development time.

Next step: First prototype of microcontroller (early 2016)
First prototype of ambient energy manager 2015
Spin-off creation December 2014
"Proof of Concept" Grant 2013
"FIRST Spin-off" Grant 2012
Research project beginning 2006

In support of Research
The knowledge transfer at UCL dates back to the early eighties.
To its credit - Nearly 70 active spin-off companies - which today generate over 2,000 jobs –, about 100 patent families, and a number of side benefits (e.g. services to third parties or new research programmes). All of those factors contribute to developing the economic activity and the Society.

This calendar is aiming to emphasise some success stories – one story per month - that best illustrate the history of knowledge transfer at UCL, in all sectors: Science and Technology, Medical and Humanities.

May all these examples inspire other ideas and activities, not only for 2016 but also for the years to come.

We wish you an inspiring New Year 2016!