



# ACES Winners – 2008

## Profiles in innovative technologies

At a meeting in Stockholm at Karolinska Institutet, the Swedish medical university that names the Nobel Prize in Physiology or Medicine, the first winners were selected 2 December of the pan-European ACES Awards for university enterprise. The Awards programme involves 27 university and public research institutions across Europe, and 14 sponsoring organisations. Here is a summary on each of the winners.

The innovative technologies of the winners include:

-Tissue regeneration technology to create bio-compatible implants for cartilage, ligament or bone repair. Orthomimetics, a spin-out from the University of Cambridge and Massachusetts Institute of Technology.

-New diabetes and obesity treatments based on naturally occurring human peptide. Diabetica, a spin-out from the University of Ulster.

-A novel "face analysis engine" to scan crowds in airports and conference, for security or market research. Kee Square, a spin-out from the Politecnico di Milano.

-A new desalination process, using natural osmosis rather than other techniques, to purify water in developing countries. Surrey Aquatechnology, a spin-out of the University of Surrey.

-Aerodynamic "side wings" to fit on long-distance trucks, providing thrust and reducing fuel consumption by up to 15%. Ephicas, a spin-out of TU Delft.

In addition, the jury awarded a special prize jointly to three individuals for successfully promoting good industry-university collaboration in Europe. They are Tom Hockaday, CEO of Oxford University's ISIS Innovations, Eleanor Taylor, head of Scottish Enterprise's Proof of Concept programme, and Hans Wigzell, former President of Karolinska Institutet.

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## Category: Chemicals/Materials

### **Winner: Dr. Andrew Lynn, Othomimetics Ltd. – Cambridge University**

Orthomimetics has developed implants that can be accurately delivered using minimally invasive, single-step procedures. They are based on tissue regeneration scaffolds that support the separate, yet simultaneous, repair of both soft tissue, such as cartilage ligament or tendon, and the bone to which they are anchored.

The biocompatible material can be incorporated into devices for treating cartilage, meniscus, ligament and tendon damage. It has a precisely controlled, interconnected pore structure that allows for cell migration and attachment and encourages a natural, cell regeneration and repair process until the scaffold is fully resorbed. In addition, the material has a shape memory and a distinctive self-contouring capacity, making it easy to implant via minimally invasive methods and ensuring a perfect fit to the defect.

Orthomimetics' technology was developed as part of collaboration between Cambridge University and the Massachusetts Institute of Technology. It was spun out by Andrew Lynn in March 2005, and raised £5million in its first round in January 2007. The company has also received £2.3 million in grant funding. European CE approval for the first product, Chondromimetic, is expected soon, with FDA approval for the US market expected by the end of 2009.

## Category: Life Sciences

**Winners:** Dr. Neville H. McClenaghan, Prof. Peter R Flatt, Prof. Finbarr P.M. O'Harte, Diabetica Ltd. – University of Ulster

Diabetica, a spin-out from the University of Ulster's Diabetes Research Group, is developing therapeutics, diagnostics and other technologies for treating Type II diabetes, obesity and metabolic syndrome. The main focus is on the company's glucose-dependent insulinotropic polypeptide (GIP) platform technology, which to date has yielded a first-in-class insulin stimulating GIP agonist, and an insulin-sensitising and weight-loss promoting GIP antagonist. These are based on naturally occurring human peptides.

Diabetica has preclinical data demonstrating that long-term therapeutic GIP antagonism prevents body weight gain and reduces obesity with decreased fat deposition and percentage body fat. The data are consistent with independent studies in GIP receptor knock-out mice and have parallels with the effects of gastric bypass surgery, which involves bypassing the small intestine that contains GIP-producing cells.

In March 2006 the company signed an agreement with the US diabetes specialist Amylin Pharmaceuticals Inc. worth \$41 million plus royalties for the development of the product. Further deals have been signed for the commercialisation of Diabetica's pre diabetes/diabetes biomarker, and its bioengineered and cultured human insulin-releasing pancreatic beta-cells. In addition, the company has a second platform technology based on cholecystokinin, a human peptide involved in satiety, from which it is planned to generate appetite suppressants.

### **Category: ICT**

*Winners:* Pasquale Pigazzini, Augusto Sarti, Stefano Tubaro, Kee Square - Politecnico di Milano

Kee Square is developing security products that combine high-end image and audio analysis and processing techniques with classification techniques, for recognising people, identifying objects, detecting dangerous events or situations, and identifying threats. Its products, Morpheus-PC, Morpheus-AC and Morpheus-ZS, are designed for logical/physical access-control, identity verification and white list/black list monitoring. Another product, Morpheus-ICAO, is a face analysis engine for real-time control of digital pictures/images for use with Electronic Identity Documents (EID). This software interactively guides the user to take just one passport picture that is guaranteed to be compliant with EID standards.

The face analysis engine is also incorporated in Morpheus-AI, a system for performing real time, automatic audience measurements, for measuring attention span, marketing effectiveness or assessing the impact made by an advertisement. The company suggests this data can then be used for the personalisation of adverts. Another product, KeeSonic, performs intelligent acoustic monitoring, processing sounds acquired by one or more microphones and, in real time, detect, classify and localise audio events – for example, explosions, screams, car crashes. This can be used to direct CCTV cameras and alert security staff.

The company has raised €1.5 million in venture funding and has sold over a thousand Morpheus-ICAO licences to the consortium implementing Spain's Electronic Identity Card. It has also sold licenses to Dedem SpA, the Italian branch of the Photo-Me group, to ensure pictures taken in its booths are suitable for use as passport photographs.

### **Category: Energy/Environment**

*Winner:* Prof. Adel Sharif, Surrey Aquatechnology – Surrey University

The company is developing water purification and desalination technologies with the ability to extract pure water from seawater or wastewater, which contains particles and ions of a wide range of sizes and solubilities, by natural osmosis.

The desalination method reduces both energy consumption and the use of chemical additives, and allows less expensive materials to replace the corrosion-resistant alloys that are used in existing high-pressure reverse osmosis systems.

The scientific principle has been widely proven in a 1 cubic metre per hour pilot plant based at Surrey University, with results showing power consumption reductions in the order of 50%, with improved power/flow rates following the theoretical curves. Comparable results are now being obtained from industrial-scale installations based in the Mediterranean.

### **Category: The Fast Start**

Awarded to individuals who have created a promising but as-yet unproven spin-out based on ideas developed at universities and public research institutes in Europe.

*Winners:* Gandert Van Raemdonck, Hjalmar Van Raemdonck, Ephicas BV – TU Delft

Ephicas is developing and producing aerodynamic devices for lorry trailers that reduce fuel consumption up to 15%, saving fuel costs and reducing pollution. The company's technology applies high-tech expertise from the aerospace industry in aerodynamics and lightweight structures, to a relatively low tech industry.

The company, founded in July 2008, has a preliminary agreement with logistics company TNT Express to equip 500 of its trailers with the Ephicas SideWings. Ephicas is also negotiating with several big trailer manufacturers to integrate the SideWings in their designs.

Several road tests have been performed by Ephicas in collaboration with TNT Express and Squarell Technology to verify the fuel reduction in fuel consumption in trailers equipped with the side wings. In the first test fuel reduction of 5% was measured when the truck had a tail wind and 15% with a head wind. In the second test, the TNT Express trailer drove the same route for 4 weeks in a row, the first two weeks without wings, the last two weeks with. Fuel consumption was cut by 6.4% in the second half of the trial. In a third road test assessing the impact of the wings at a cruising speed of 85km per hour the average fuel reduction was 7%.

### **Category: The Bridge Award**

The Bridge Award is for individuals who have done the most to promote policies for entrepreneurship in university or public research institutions. The prize was award jointly to three individuals:

*Joint Winner:* Dr. Tom Hockaday, CEO, Isis Innovation – Oxford University

After joining Isis Innovation Ltd. in 2000, Tom Hockaday became Managing Director of the company, Oxford University's technology transfer arm, in 2006. Since Hockaday joined the company Isis has signed over 200 licenses, reached 300 consulting agreements, and assisted in the formation of 52 spin-outs.

Before moving to Oxford, Hockaday was Managing Director of Bristol Innovations Ltd. and previously worked in the research contracting unit of University College London for four years. He was chair of UNICO, the UK's technology transfer trade association in 2003 and served on the founding committee of Praxis, the UK's national training programme for at technology transfer professionals, from 2002 to 2005.

*Joint Winner:* Eleanor Taylor, Head of Proof of Concept Programme, Scottish Enterprise

Eleanor Taylor is head of Scotland's Proof of Concept Programme, one of the largest commercialization initiatives in Europe. Taylor was invited to lead the development of the programme in 1999 and has since has taken it from a fund of £11 million to £79 million. It estimated that to date the fund has generated £128 million in gross added value to the economy in Scotland.

To maximise the opportunities for transferring technology, either through creating spin-offs or in licensing to existing companies, Taylor recognised project teams need more than just money. After securing further funding of £10 million from the European Regional Development Fund, she developed

the Proof of Concept Programme to bring technology company creation experts and a project management structure to each PoCP project.

Taylor has built strong links with the angel investment communities and venture capitalists, who recognise that the programme involves due diligence. She also forged excellent working relationships with other organisations, including the National Health Service, the Scottish Government, business leaders and the Globalscot network, a grouping of international business men and women wishing to help Scotland prosper.

*Joint Winner:* Prof. Hans Wigzell, former President, Karolinska Institutet

Prof. Hans Wigzell pioneered and led the development of the innovation system at Karolinska Institutet, one of Europe's largest and most research-intensive medical universities. He began this work after becoming President in 1995, forming Karolinska Innovations AB, the university's technology transfer company. He also recruited a business studies professor with a brief to study processes in medical innovation within the Centre for Medical Innovations on campus.

Later in the 1990s Wigzell recruited a group of senior managers from AstraZeneca and Pharmacia to professionalise Karolinska Innovations. He established a €65 million venture fund with investments from large pension funds and the Wallenberg Foundation to fund development projects. In 2002, Wigzell created another investment fund, Karolinska Development, with private external money. The fund was set up with a pre-formed portfolio of over 40 seed-stage life science companies, several of which are now in well-advanced clinical trials. Wigzell has continued as chairman of Karolinska Development after retiring as rector in 2004, and has raised €100 million for the fund.

Wigzell is an advocate for entrepreneurship and innovation in the academic system, and encouraged the teaching and study of entrepreneurship at Karolinska. He has taken many initiatives to strengthen the interactions between the universities in the Stockholm and Uppsala region. He was also instrumental in getting politicians to support Stockholm Bioscience, a major project to boost R&D investment by both the private and public sector in a specially designated development zone of Stockholm.

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