24 MARCH 2009

INNOVATOR OF THE YEAR AWARDS

HISTORIC ROYAL PALACE OF BANQUETING HOUSE, WHITEHALL, LONDON

BBSRC
bioscience for the future

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INTRODUCTION

As the UK's principal public funder of research in biosciences, the Biotechnology and Biological Sciences Research Council (BBSRC) has a responsibility to make sure that the outputs of our research benefit society in general as well as maintaining the UK's position as a world-leader in bioscience research. This new award celebrates and rewards scientists who have sought and seized opportunities to make sure that their research can benefit wealth creation and wellbeing in the UK.

Independent judges, drawn from industry, Government and a range of research disciplines, shortlisted the finalists who are featured in this publication. After a final round of judging, involving additional input from venture capitalists and social scientists, one application will win its author(s) £10,000, a trophy and the prestigious title of BBSRC Innovator of the Year 2009. Two runners-up will each win £5,000 and a trophy.

The BBSRC Innovator of the Year Award is part of BBSRC's continuing commitment to encouraging and embedding a culture of impact in the research community.

CHIEF EXECUTIVE'S WELCOME

Bioscience contributes billions of pounds to the UK's economy every year, from animal vaccines and bioprocessing to disease-resistant crops and improved yields. In addition, billions more are saved by science that supports policy advice in areas such as healthcare for the elderly, food safety and sustainable energy.

Much of this success comes from individuals and small teams realising that the research they do has applications beyond the laboratory and has the potential to benefit the UK's economy and wider society. They use this awareness to follow through their research in order to make a positive difference in a myriad of ways.

We are now delighted to be able to celebrate and reward the achievements of these researchers through the Innovator of the Year Award and want to use this to encourage others to follow their example in harnessing the potential of their science.

I'm especially heartened to see that much of the innovation represented by the finalists builds directly on their curiosity-driven research that is aimed at increasing our understanding of biology in its broadest sense.

I add my personal thanks and appreciation to the researchers featured here for their foresight and effort; and I wish them all the best in their future endeavours.

Professor Douglas Kell
BBSRC Chief Executive

DR ANDREW ALMOND

UNIVERSITY OF MANCHESTER

Dr Andrew Almond from the University of Manchester has developed a new computational technology to improve the efficiency of drug discovery programmes by speeding up the screening of new compounds. His techniques not only make the process of finding new drugs faster, but also improve the chances of finding effective drugs.

Andrew's technology has particular potential for expanding an important family of drugs, which currently make up half of all small-molecule therapeutics. Drug discovery programmes in this area are hindered by the very high costs or, in some cases, impossibility of characterising the drugs. Andrew hopes that, by allowing these prospective drugs to be characterised easily and cheaply, new therapies will become available to patients more quickly. His development is of particular interest to sufferers of neurodegenerative diseases such as Parkinson's and Alzheimer's disease where options for treatment are currently limited.

Andrew has brought this technology from the laboratory to the edge of commercial reality within three years with his spin-out company Conformetrix Ltd, which has already won the 2008 Bionow Biomedical Start-up of the Year Award.

DR LUKE ALPHEY

OXITEC LTD

Insect pests have a huge economic and social impact all round the world. For example, the dengue virus, transmitted by mosquitoes, infects 100 million people each year. In the USA, control of the cotton pest, pink bollworm, requires large amounts of pesticides.

Through his company Oxitec, Dr Luke Alphey has developed RIDL®, a species-specific and environmentally-friendly approach for genetics-based insect control. RIDL® insects carry a gene fatal to their offspring, so when they are released and mate with wild insects, the next generation fails to develop. To develop RIDL®, Luke works at the cutting edge of his discipline and has had to invent new molecular biology techniques, several of which he has patented.

RIDL® pink bollworms are now in field trials in the USA and on-target for use in an area-wide eradication programme in 2010. Luke is also working with the governments of several countries where dengue is endemic. At present, the only effective measure against dengue is to try to control the mosquitoes that transmit the disease, and Luke believes that RIDL® mosquitoes will offer a cheap and effective way to achieve this over large areas.

Luke is also working towards developing regulatory frameworks for GM insects internationally and within a number of countries including the USA.

PROFESSOR JEFF ERRINGTON

NEWCASTLE UNIVERSITY

Antibiotic resistance is an ongoing and increasing problem in veterinary and human healthcare, and developing new antibiotics to combat bacterial infections is vital.

Jeff Errington, now at Newcastle University, has made his career in the study of some of the fundamental problems of cell biology which could illuminate new targets for antibiotics. Through doing this he has developed a proprietary whole-cell screening technology for identifying biological targets for antibiotics and testing potential new drugs for their effectiveness on these targets.

In 1998, Jeff transferred this technology from the laboratory bench into a commercial venture, by starting the company Prolysis Ltd.

Since its inception Prolysis has continued to develop and perfect the screening methods which they have used to find compounds with novel and interesting activities.

In 2008, the company achieved an important landmark in the development of a novel antibiotic that acts on a novel target. This antibiotic, which was shown to cure MRSA infected mice, has a potential market worth hundreds of millions of dollars.

Prolysis is currently the UK's most prominent antibiotic discovery company. If the novel antibiotics the company has created continue to progress successfully through the next phases of drug development, it will have the potential to access a multibillion dollar market.

PROFESSORS EILEEN INGHAM AND JOHN FISHER

UNIVERSITY OF LEEDS

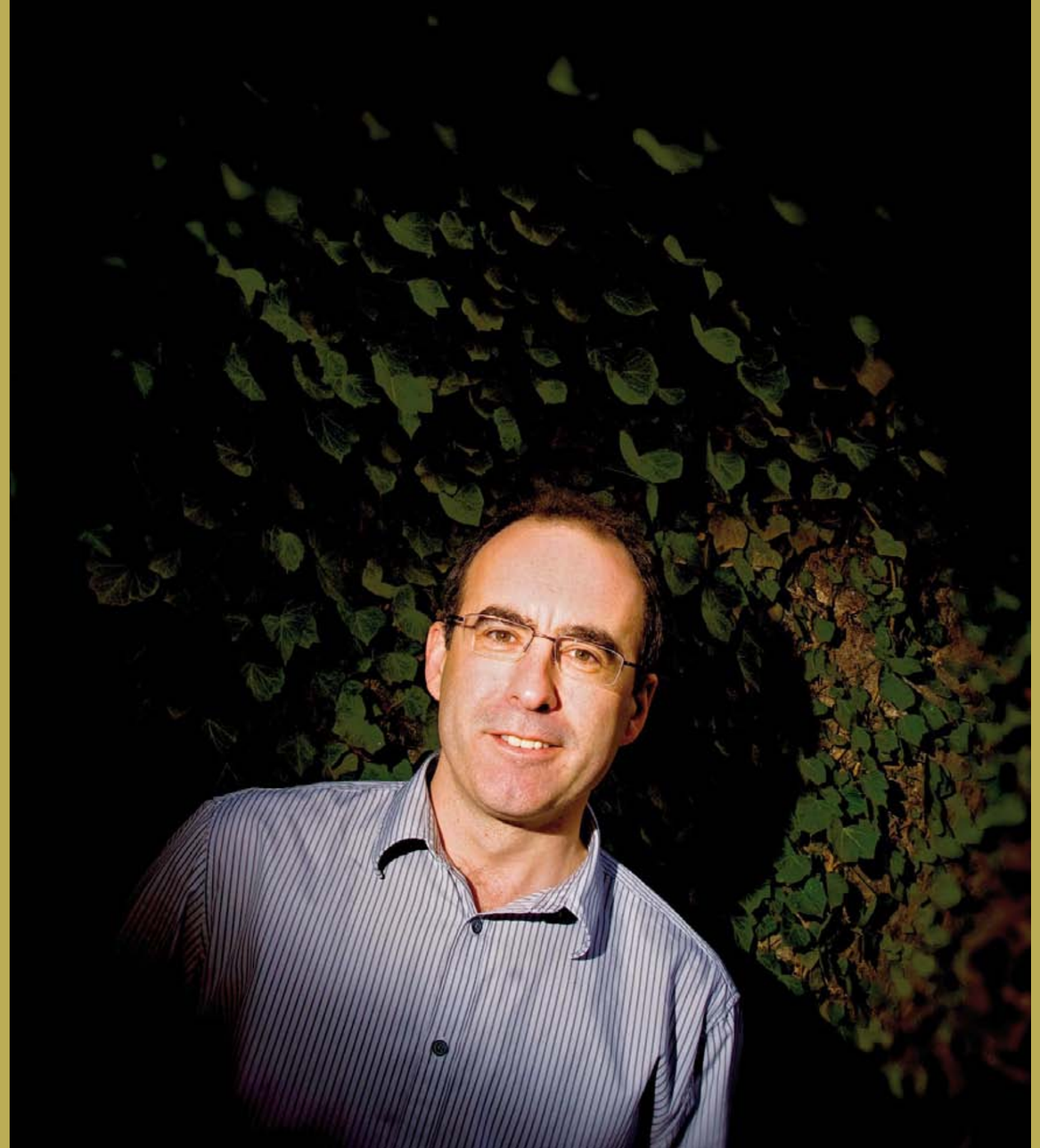
As our population ages, associated diseases such as arthritis and cardiovascular diseases are becoming an increasing problem.

Professors Eileen Ingham and John Fisher from the University of Leeds have developed a technology to replace some of the tissues that degenerate in these diseases using animal or donor tissue which has been cleaned up, to eliminate the problems of tissue rejection. This tissue forms a biological scaffold into which the recipient's own cells can grow.

In 2006, they set up Tissue Regenix to help commercialise their technique and later that year the company received an investment of £685,000 from IP Group plc. A year later they gained a further £3 million in venture capital to develop their work. The products have a potential market value of hundreds of billions of dollars per year.

The technique has been licensed to the NHS Blood and Transplant Tissue Services and one of their cardiovascular products is going into clinical trial this year. They have a portfolio of patents for their products in six different areas and are now investigating ways of expanding the technology to other tissue types.

Eileen and John have already won a number of awards for innovation and knowledge transfer in their work including the Yorkshire Forward Young Company of the Year 2008.



PROFESSOR STEPHEN JACKSON

UNIVERSITY OF CAMBRIDGE

Professor Stephen Jackson from the University of Cambridge has made a series of key discoveries around DNA damage and its repair.

He quickly realised that since DNA damage lies at the root of cancer, drugs which targeted the cell's DNA damage response could be very valuable in fighting the disease.

In 1997 he founded KuDOS Pharmaceuticals Ltd, to develop anti-cancer medicines using high throughput screening methods he had developed, to look for useful drugs.

In 2005, KuDOS was acquired by AstraZeneca for $210 million, though it still operates semi-autonomously in Cambridge. The company has developed a range of anti-cancer drugs now at various stages of preclinical and clinical trials.

Steve is most excited about a class of drugs that can target hereditary breast and ovarian cancers. Clinical trials of these drugs have gone extremely well, with patients who entered the trials with very low life-expectancies experiencing disease stabilisation and tumour regression. Phase 2 trials of these drugs are now underway in several countries and trials targeting other cancers will begin shortly.

DR MARTIN WICKHAM

INSTITUTE OF FOOD RESEARCH

Dr Martin Wickham from the Institute of Food Research has put his expertise to use by creating the Dynamic Gastric Model (DGM), the first and only true simulation of the human stomach.

With the health debate focussed on obesity, cancer and diabetes, the way food is digested and its effects on health have become an important topic for the food industry. The pharmaceutical industry also needs to find out how drugs in the stomach behave in the presence of food, allowing them to understand dose level and prevent adverse effects. The DGM makes a valuable contribution to both of these industries as an inexpensive, quick and ethical alternative to human and animal testing of food and pharmaceutical products.

The first DGM commercial prototype was commissioned and built in late 2006. The Model Gut contract service business was rolled out to the food industry in January 2007 and in 2008, the DGM technology was patented in the EU, the USA, Japan, Canada and Australasia.

The contract service business has been able to expand its capacity to accommodate increasing demand and Martin is now developing a new version of DGM for in-house use by the pharmaceutical industry.

FURTHER INFORMATION

Further information on BBSRC's impact incentives is available at:

www.bbsrc.ac.uk/innovation/maximising-impact/fostering-innovation/
Email: impact.awards@bbsrc.ac.uk **Telephone:** 01793 413 390

The Biotechnology and Biological Sciences Research Council (BBSRC) is the leading UK funding agency for research across the biosciences. Funded through the Government's Science Budget, BBSRC annually invests over £400M in a wide range of research that makes a significant impact on the UK economy and wider society.

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