



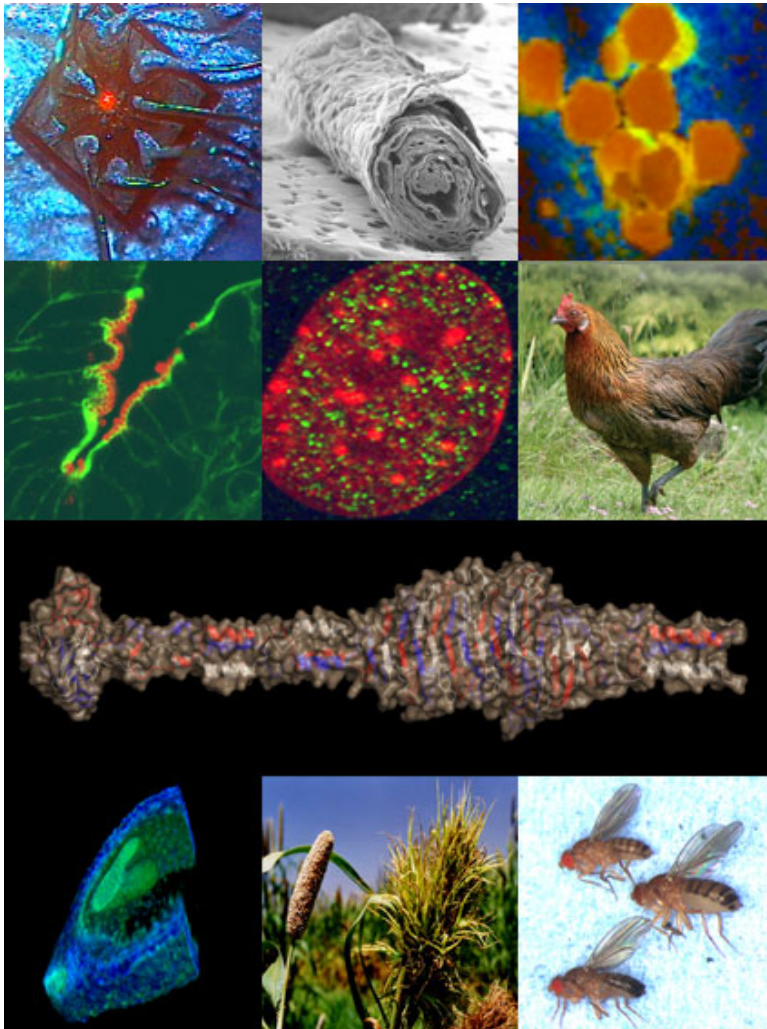
# Skills Development and Delivering Excellence with Impact

Dr Simon Cutler

Business & Innovation Unit  
Biotechnology and Biological Sciences  
Research Council

# Breadth of the BBSRC remit

*BBSRC allocates around £400M p.a. from DIUS*



## MISSION

- Fund first-class bioscience research
- Train bioscientists
- Support innovation and maximise economic impact
- Engage with public

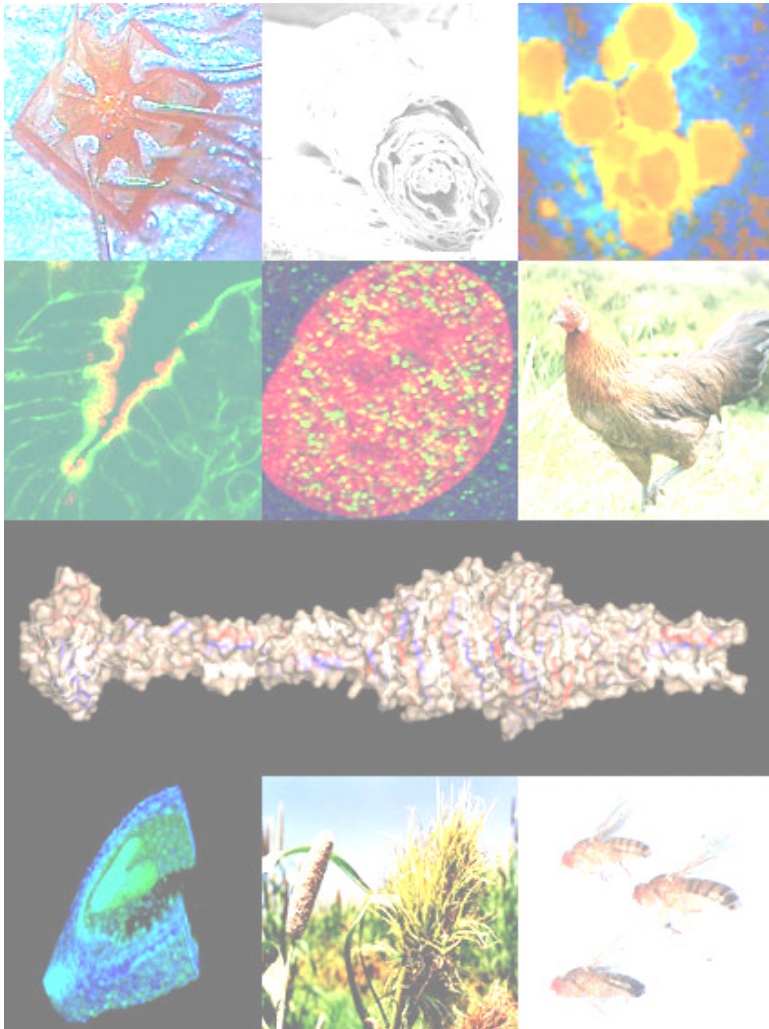
## STAKEHOLDERS

- **PUBLIC:** dialogue and consultation
- **SCIENTIFIC COMMUNITY**
- **INDUSTRY:** agriculture, food, chemical, health, pharmaceutical
- **GOVERNMENT:** e.g. DEFRA, FSA

**Why?**  
**Quality of Life and UK plc**

# Breadth of the BBSRC remit

*BBSRC allocates around £400M p.a. from DIUS*



## MISSION

- Fund first-class bioscience research
- Train bioscientists
- **Support innovation and maximise economic impact**
- Engage with public

## STAKEHOLDERS

- PUBLIC: dialogue and consultation
- SCIENTIFIC COMMUNITY
- **INDUSTRY: agriculture, food, chemical, health, pharmaceutical**
- GOVERNMENT: e.g. DEFRA, FSA

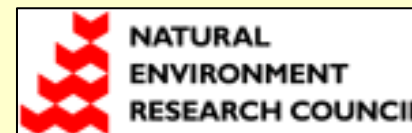
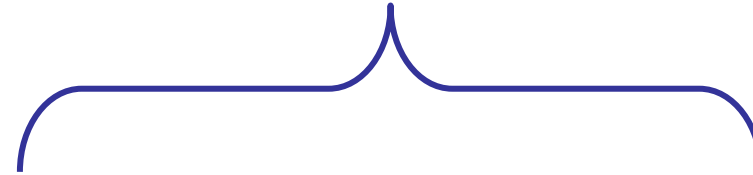
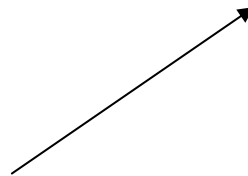
**Why?**  
**Quality of Life and UK plc**

# The Research Councils UK

UK Government (Treasury)



Department for Innovation,  
Universities & Skills (DIUS)



# RCUK Expectations for Societal and Economic Impact (18 Aug 2008)

---

"ensure that research staff and students develop research, vocational and entrepreneurial skills that are matched to the demands of their future career paths"



# Things can only get better...

THE TIMES  
**HIGHER**  
EDUCATION SUPPLEMENT

## Postdocs embittered by lack of career prospects

More career support is needed for the "embittered lost tribe" of postdoctoral researchers who are often kept in the dark about their limited job prospects, a conference was told last week.

Delegates at an Academy of Medical Sciences conference were told that universities had a duty to inform postdoctoral research assistants that only one in seven of them will go on to become principal investigators.

Peter Downes, dean of the faculty of life sciences at Dundee University, told the conference on careers of biomedical scientists that the status of early stage researchers was "an elephant in the room".

"We need to tell them the numbers and encourage them to develop their skills in the most appropriate way," he said.

European employment regulations that came into effect last year give those on a string of fixed-term contracts the right to a permanent post.

But Professor Downes said that while this had reduced the number of researchers on fixed-term contracts open-ended contracts were "not an answer to their career development needs".

A cultural change is needed if universities are to widen the career options available to their research assistants, the professor said.

Postdocs who take jobs in industry are not perceived as a success, he said. And academics judge their success in training by how many of their former students and assistants are leading research groups in other universities.

"That isn't the way to influence a knowledge-led economy," said Professor Downes. "Academics put out a strong message that success is 'doing what I do'."

The Roberts review of 2002 recommended additional training, mainly in transferable skills, for PhD students and postdoctoral researchers.

Professor Downes' faculty is using Roberts funding to give researchers generic skills training at each stage in their progression from science graduate to principal investigator, he said.

Christopher Buckley of the Arthritis Research Campaign described an "embittered lost tribe" of postdoc researchers.

He compared the situation to that of senior house officer posts in the NHS, where young doctors could languish for years without hope of progression.

"Only one in 20 PhD students will end up running their own laboratories. Should we keep pushing people to fail? If you cannot obtain a fellowship you're not going to get a principal research investigator post," he said.

Andrew Lloyd, dean of the faculty of science and engineering at Brighton University, said his department had progressed from obtaining a two-star rating in the research assessment exercise to a top five-star rating after it made improvements in its support for postdoctoral researchers.

Postdocs are mentored and given support with grant-writing and are considered for "re-deployment" when the funding for their research runs out, he said. The best fellows have been moved into permanent jobs.

Professor Lloyd said that job-share arrangements and flexible working have been introduced, and those who left to have children, for example, will be followed up after five years and invited back.

**melanie.newman@thes.co.uk**

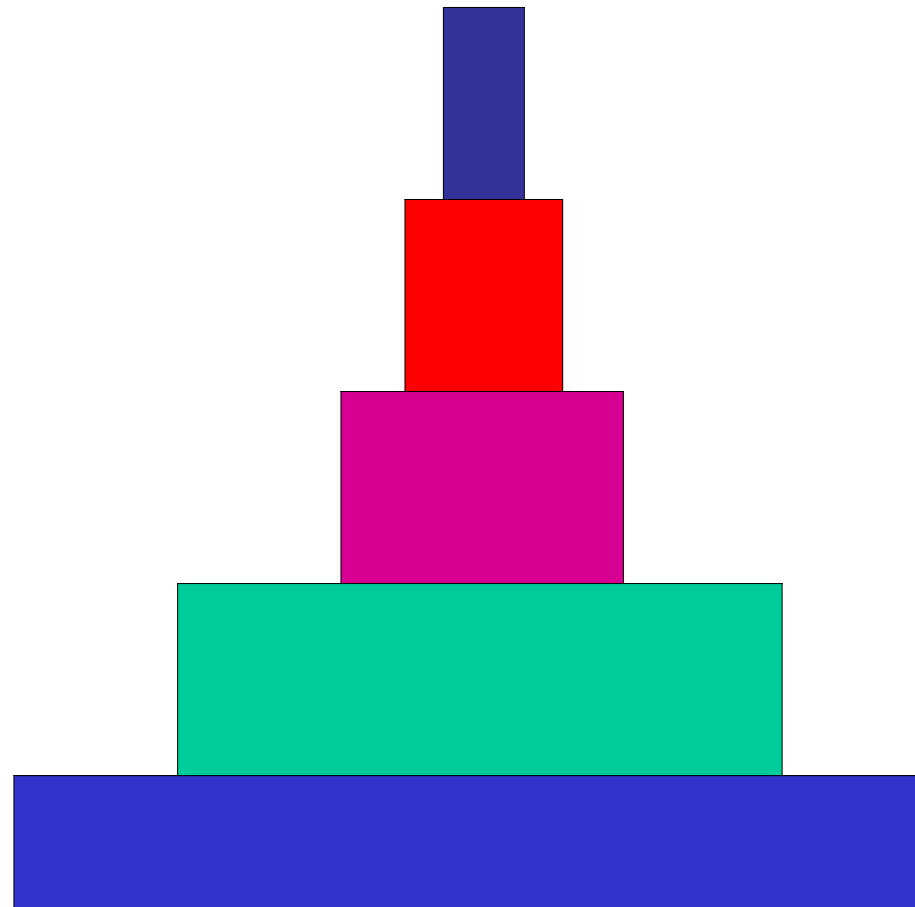
Only one in seven research assistants progresses to a principal investigator post. **Melanie Newman** reports

© The Education Ltd 2007. Published and licensed by distributor in electronic and/or other distribution by The Education Ltd, 28 Bedford Square, London WC1R 4EJ. Printed: Postcodes 129 3704 3800, without which copyright protection in copyright is not possible. Printed by: Shelwell Press, Castle Way, Thompson-Carter Industrial Estate, Dunnington, East Yorkshire YO21 2AA. Telephone: 01430 820000. Fax: 01430 820001. Email: info@shelwellpress.co.uk. Registered in England No. 1042987. Registered Office: Shelwell Press, Castle Way, Thompson-Carter Industrial Estate, Dunnington, East Yorkshire YO21 2AA. Telephone: 01430 820000. Fax: 01430 820001. Email: info@shelwellpress.co.uk. Registered in England No. 1042987. Registered Office: Shelwell Press, Castle Way, Thompson-Carter Industrial Estate, Dunnington, East Yorkshire YO21 2AA. Telephone: 01430 820000. Fax: 01430 820001. Email: info@shelwellpress.co.uk.

# Bioscience career pyramid

---

Professors (1170)
Senior Lecturers (1790)
Lecturers (2715)
Postdoctoral Researchers (5850)
Doctoral Students (8885)



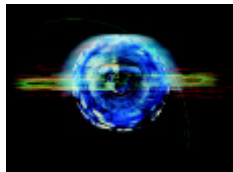
# BBSRC innovation activities



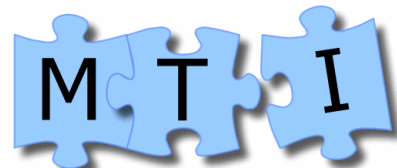
**Collaborative  
Research**



**IPA**  
industrial  
partnership  
awards



**Industrial Involvement  
in Training**



Modular Training *for* Industry



**Commercialisation  
of Research &  
Development**

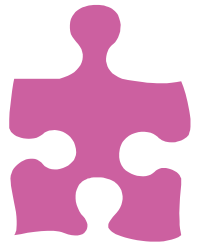


**People &  
Knowledge  
Flow**



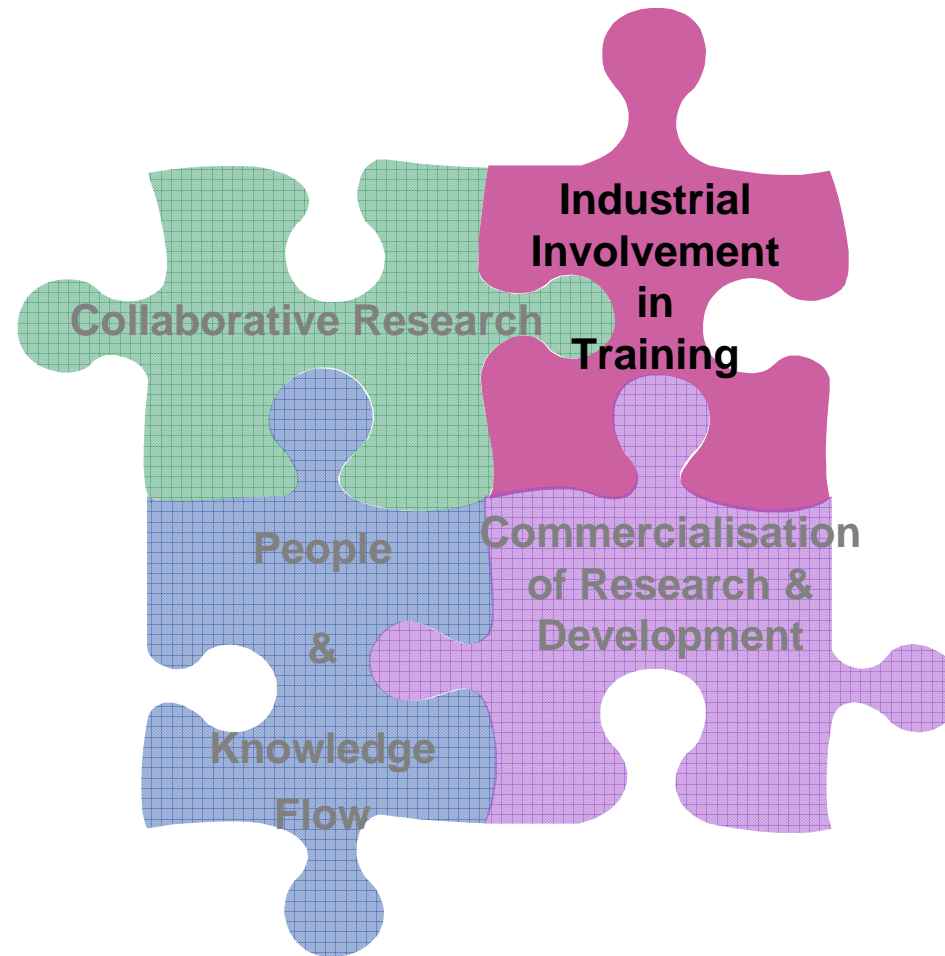
Knowledge  
Transfer  
Partnerships





# Industrial Involvement in Training

---



# Modular Training for Industry

---

- delivering up to date, industrially-relevant **technical training** for graduates working in industry
- BBSRC provides pump priming support to develop **modular courses at Masters level**
- must demonstrate clear evidence of **industrial demand**
- examples of previously-supported courses:
  - *in-vivo* techniques for biosciences and drug development
  - MSc brewing science
  - Principles of genetic improvement
  - Positron Emission Tomography: technology and application
  - Post-genomic data analysis
  - The business of bioremediation
- ✓ deadlines summer and winter

***Next Closing Date: 19 Sept 2008***



# Industrial involvement in training

## Training in imaging

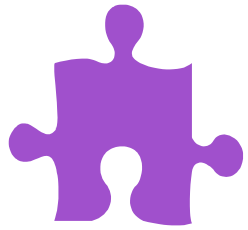
- association between **GSK** and **Imperial College London**
- UK's only training module in Positron Emission Tomography (PET)
- simultaneous, real-time imaging of biological molecules in living tissues
- key tool for drug development

# Industrial involvement in training Something's brewing

---

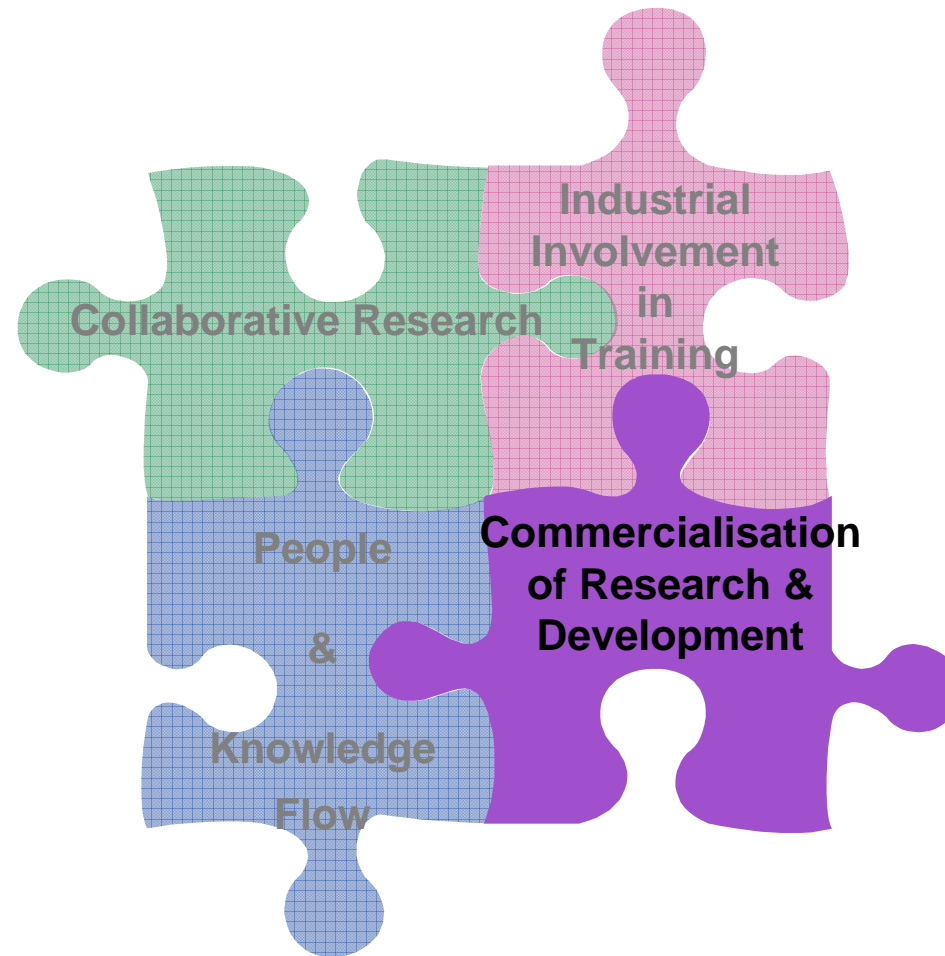
- Masters training for the brewing industry
- delivered through UK's first female Professor of Brewing Science at **Nottingham University**, Katherine Smart, and supported by industrialists such as **SABMiller**





# Commercialisation of Research & Development

---



# BiotechnologyYES

---

[www.biotechnologyYES.co.uk](http://www.biotechnologyYES.co.uk)

- in **13<sup>th</sup> year** and jointly organised by BBSRC/UNIEI (other sponsors: MRC, NERC, Gatsby, Industry)
- delivers **commercialisation awareness training** to over 300 bioscientists
- regional **workshops** for teams of 5 PhD/Postdocs
- prepare presentation **business plan**, with help from expert mentors, based on imaginary biotechnology ideas
- Final **(for £1000)** in December

# In partnership: Biotechnology Young Entrepreneurs Scheme Sponsors 2007



Nottingham University  
Business School



NATURAL  
ENVIRONMENT  
RESEARCH COUNCIL



ERIC POTTER CLARKSON  
PATENTS · TRADEMARKS · DESIGNS · COPYRIGHT



- 
- over **1500** participants
  - **3 entrepreneurs** raised over **£5M** of equity investment for their ventures
  - **43%** gone on to work in the private sector
  - **77%** working in private industry said the competition helped them gain their current position
  - **12%** working in technology transfer/IP management

# Commercialisation of R&D

## Entrepreneurial training

---



- Tim Hart: Founder/ CEO of Cybersense Biosystems
- spin-out specialising in remediation of contaminated land
- developed as a result of commercial awareness training received in 1998





**Richard Gibbs** is a trainee patent attorney with Marks & Clerk where he works predominantly with biotechnology patents.

#### AT THE TIME OF BIOTECHNOLOGY YES

<b>YEAR:</b>	2000
<b>ME:</b>	PhD student Edinburgh University
<b>TEAM NAME:</b>	ColourBac
<b>BUSINESS PLAN:</b>	To develop a spray-based detector for bacterial contamination of food preparation surfaces
<b>ROLE:</b>	Managing Director
<b>RESULT:</b>	Finalists

#### CAREER ACHIEVEMENTS SINCE YES

- >> After competing in Biotechnology YES considered starting his own company and was approached by Edinburgh University to help them to start company based around antibody production technology
- >> After consideration decided to pursue a career as a patent attorney
- >> Began as a trainee patent attorney in Glasgow with Marks & Clerk, the largest firm of its kind in the UK – 2003
- >> Remains at Marks & Clerk specialising in biotechnology-based patents



**Stephanie Clegg** is a Drug Discovery Scientist at GlaxoSmithKline.

### AT THE TIME OF BIOTECHNOLOGY YES

<b>YEAR:</b>	2000
<b>ME:</b>	PhD student University of Birmingham
<b>TEAM NAME:</b>	Sobek Technologies
<b>BUSINESS PLAN:</b>	To develop a natural product found in crocodiles as a cure for the common cold
<b>ROLE:</b>	R&D Director
<b>RESULT:</b>	Finalists

### CAREER ACHIEVEMENTS SINCE YES

- >> Took a Marie Curie postdoctoral fellowship in Stockholm, Sweden – 2002
- >> Returned to the UK to accept a position at GlaxoSmithKline as a Drug Discovery Scientist – 2004
- >> Long term aim is to gain more project management experience ultimately moving into scientific management



**Angela Oldacres** is Technology Transfer Manager at the Corporate Development Centre, University of Central England.

#### AT THE TIME OF BIOTECHNOLOGY YES

YEAR:	2002
ME:	PhD student University of Birmingham
TEAM NAME:	Ezyme - Ezydiesel
BUSINESS PLAN:	To efficiently produce bio-diesel using a novel enzyme to digest fats
ROLE:	Marketing Director
RESULT:	Finalists

#### CAREER ACHIEVEMENTS SINCE YES

- >> Finished PhD at the School of Biosciences, University of Birmingham – 2004
- >> Became a Medici Fellow at the School of Biosciences, University of Birmingham – 2004-2005
- >> Took up current position of Technology Transfer Manager at the University of Central England – 2005

# Commercialisation of R&D Enterprise Fellowships

---



- reimbursed for **12 months Fellow's salary** to enable development of a commercial proposition or product (60% time)
- up to **£6k support costs**, plus T&S
- **business training**, delivered by University of Strathclyde (40% time)
- access to an **academic mentor** and **industrial supervisor**
- administered by **The Royal Society of Edinburgh**
- expect 5 Fellowships to be awarded per annum
- also funded by STFC and Scottish Enterprise

*Next Closing Date: 14 Oct 2008*

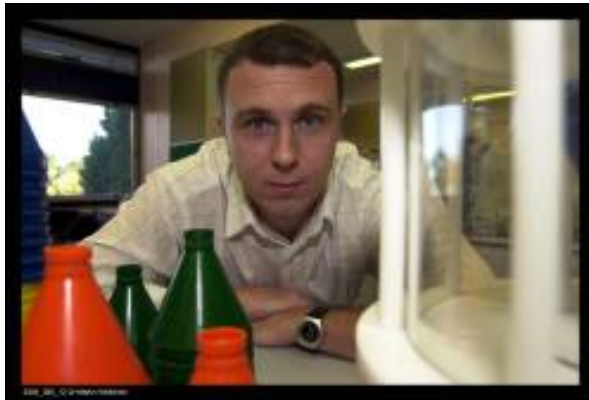
# Commercialisation of R&D

## The Model Gut

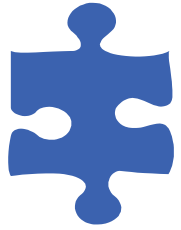
---

### **BBC NEWS**

**Scientists create artificial gut**  
UK scientists have built an artificial stomach to simulate human digestion.

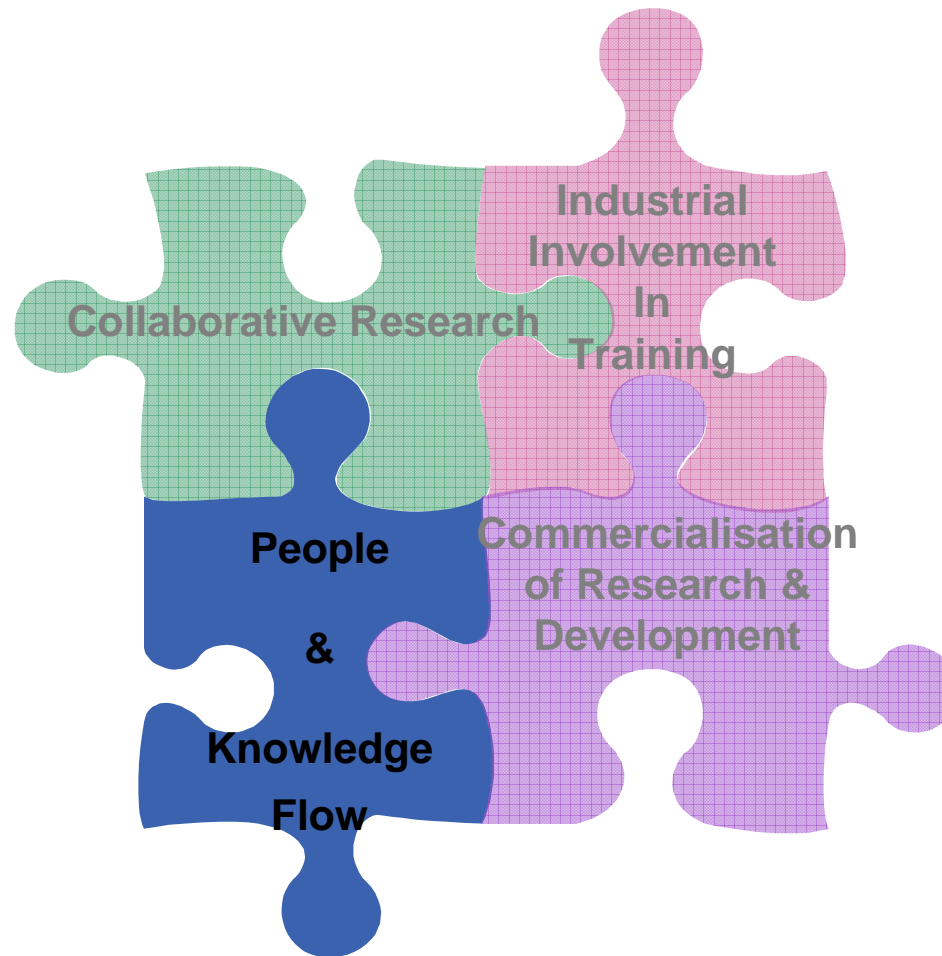


- Dr Martin Wickham benefited from entrepreneurial training, proof-of-concept funding, and a “time out” enterprise fellowship
- the Model Gut has applications for pharmaceutical and food sectors



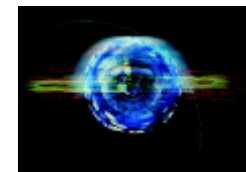
# People & Knowledge Flow

---





- ② collaborative project between business and knowledge base
  - developing new products
  - improving existing products
- ② (*postdoc*) KTP Associate(s) employed enabling
  - business to increase profitability
  - knowledge base to transfer research to users
  - opportunity for (post)graduates to bridge the gap to industry
- ② programme run by Technology Strategy Board, sponsored by BBSRC + others
- ② more information at [www.ktponline.org.uk](http://www.ktponline.org.uk)



# Parliamentary Fellowships

---

*A three month secondment to POST to gain  
experience of policy work*

- open to all BBSRC-funded PhD students in the final two years of their degree
- work with a wide range of groups to produce a briefing note on a policy area of interest to student and Parliamentarians
- Fellowship provides a fully-funded three month extension to the studentship
- also funded by EPSRC, ESRC, MRC, NERC + others

**Closing date: 29 September 2008**

[www.bbsrc.ac.uk/business/people\\_information](http://www.bbsrc.ac.uk/business/people_information)

[www.parliament.uk/parliamentary\\_offices/post.cfm](http://www.parliament.uk/parliamentary_offices/post.cfm)

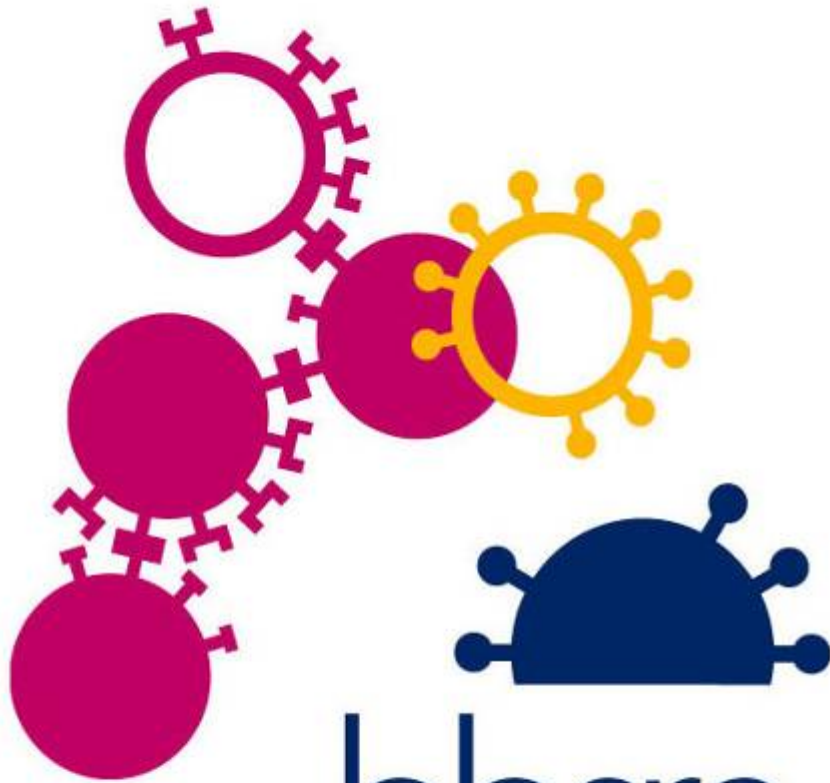


Parliamentary Office of  
Science and Technology



Life  
is  
too  
short  
to  
remain  
unnoticed

Salvador Dali



bbsrc

---

biotechnology and biological sciences  
research council

---