Careers in Academic Research
Life Sciences Careers Conference, Royal Veterinary College

Rob Hardwick
BBSRC, Innovation and Skills Group

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My career so far…

2002 BSc Biological Sciences (Birmingham)

2003 MRes Molecular and Cellular Biology (Birmingham)

2006-07 Medici Technology Transfer ( whilst writing up)

2007 PhD Mammalian Genetics (Leicester)

2007-2012 Postdocs

2007-09 Cardiovascular Genetics

2009-11 Genetics of immunity (Leicester)

2011-12 Germline mutation processes (Sanger)

2012-present BBSRC Innovation and Skills Manager

Innovation & Skills Group
• Managing Doctoral Training Partnerships
• Postdoctoral researcher strategy
• Industrial training strategy
What does BBSRC do?

- Fund **world-class bioscience research** in UK Universities and Institutes
- Fund **bioscience training and skills** for the next generation of bioscientists
- Drive the widest possible **social and economic impact** from our bioscience in industry, policy and public goods
- Promote **public dialogue** on bioscience

Agriculture and food security

Industrial biotechnology and bioenergy

Bioscience for health

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Traditionally, there was a linear academic career pathway, but this is changing…
Is a PhD necessary?

• Research technicians / assistants do not require a PhD
  – Perform experiments
  – Lab management
  – Equipment maintenance

• Future research leaders **require** a PhD
PhD Training Opportunities
Is a PhD right for you?

Academic achievement

• Good degree / Masters degree
• Research experience – year in industry, REPs, etc.

Skills and competencies

• Communication – can you defend ideas in debate?
• Analytical / problem-solving
• Maintain focus

Motivation

• A passion for your science niche
• Flexibility on location
Reasons not to do a PhD?

- Because you can’t think of anything else to do
- Because the job market at the moment is not good
- Because your lecturer thinks you should
- Because you want to put ‘Dr’ before your name
Research Skills
• Original research project
• Experimental development and hypothesis testing
• Application of advanced research methods
• Defending the thesis in a viva

Core Skills
• Bioinformatics
• Mathematical modelling
• Statistics and experimental design
• Multidisciplinary approaches to understanding biological systems

Professional Skills
• Professional Internship for PhD Students (PIPS)
• Communication skills
• Ethical awareness and public engagement
• Commercial awareness, business skills and entrepreneurship

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• Research training in area of relevance to non-academic (e.g. industry) partner

• Collaborative postgraduate research training leading to a PhD

• CASE Partner: a non-academic organisation which provides students with distinctive research training / experience not available in an academic setting

• BBSRC supports CASE studentships within remit

• Scheme is supported by all Research Councils

• **Non-academic Partner must provide:**
  - 3 - 18 month placement with relevant training
  - £1.4k pa towards project costs (if company employees > 51)
  - Expenses associated with the placement
The Biotechnology YES is a competition for early-career postgraduate and postdoctoral scientists which raises awareness of bioscience commercialisation.

Participants form teams of 4 or 5 and attend a three-day residential workshop encompassing presentations and mentoring sessions from leading figures in industry.

Each team devises a business plan for a company based on hypothetical science and present their ideas to a panel of investors.

Selected teams progress to the final.
Postdoctoral Funding to Support Research and Training
<table>
<thead>
<tr>
<th>Achievements</th>
<th>Skills</th>
<th>Motivation</th>
<th>Competition</th>
<th>Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Publication record</td>
<td>Communicating</td>
<td>Long and irregular</td>
<td>Who are your research competitors?</td>
<td>What is your research niche?</td>
</tr>
<tr>
<td>Intellectual property</td>
<td>to diverse audiences</td>
<td>hours</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other awards</td>
<td>Collaborations</td>
<td>Fixed-term contracts</td>
<td>What is your competitive edge?</td>
<td>Who will fund your research?</td>
</tr>
<tr>
<td>(e.g. best conference</td>
<td>and networking</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>presentation)</td>
<td>Teaching experience</td>
<td>Flexibility on location</td>
<td>Reputation: conferences, blogs,</td>
<td>Where will you go next?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Twitter etc.</td>
<td></td>
</tr>
</tbody>
</table>

Postdoctoral research

14
BBSRC Fellowship Programmes

PhD viva

-1 1 2 3 4 5 6 7 8 9 10

years

• Independent research in host lab

BBSRC Anniversary Future Leader Fellowships

• Independent research group

BBSRC David Phillips Fellowships

• Independent research group carrying out translational research (2014 call: crop science)

BBSRC Translational Fellowships

Full details available on the BBSRC Fellowships webpage: www.bbsrc.ac.uk/fellowships
Top Tips

1. Follow your own instincts
2. Be open-minded about your career path
3. Acquire your own personalised set of skills
4. Build a diverse network of contacts
5. Communicate your ideas confidently and widely
6. Listen and learn
7. Be an expert, but retain a broad perspective
8. Be collaborative
9. Keep your body and mind healthy
10. If it stops being fun, move on to something else!
Any questions?

Stay in touch...

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### Sector Destinations of PhD Graduates

**Employment Sectors for Doctoral Graduates in UK Employment**

<table>
<thead>
<tr>
<th>Sector</th>
<th>2010 L DLHE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All</td>
</tr>
<tr>
<td>HE</td>
<td>43.9%</td>
</tr>
<tr>
<td>Education (other)</td>
<td>6.0%</td>
</tr>
<tr>
<td>Finance, business and IT</td>
<td>10.8%</td>
</tr>
<tr>
<td>Health and social work</td>
<td>13.1%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>9.1%</td>
</tr>
<tr>
<td>Research &amp; development</td>
<td>6.5%</td>
</tr>
<tr>
<td>Public administration</td>
<td>4.1%</td>
</tr>
<tr>
<td>Other sectors</td>
<td>6.6%</td>
</tr>
<tr>
<td>(N)</td>
<td>2000</td>
</tr>
<tr>
<td>HE at 6 months, for comparison</td>
<td>48.5%</td>
</tr>
</tbody>
</table>

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*Source: Destinations of Leavers from Higher Education Longitudinal Surveys 2008 and 2010*
## What do PhD Graduates Earn?

Gross Annual Earnings for Doctoral Graduates in UK Employment

<table>
<thead>
<tr>
<th>2010 L DLHE</th>
<th>All</th>
<th>Arts and humanities</th>
<th>Biological sciences</th>
<th>Biomedical sciences</th>
<th>Physical sciences and engineering</th>
<th>Social sciences</th>
</tr>
</thead>
<tbody>
<tr>
<td>£25,000 or less</td>
<td>8.4%</td>
<td>18.7%</td>
<td>9.5%</td>
<td>5.4%</td>
<td>8.9%</td>
<td>3.3%</td>
</tr>
<tr>
<td>£25,001 to £30,000</td>
<td>19.4%</td>
<td>18.4%</td>
<td>34.4%</td>
<td>13.2%</td>
<td>22.4%</td>
<td>12.2%</td>
</tr>
<tr>
<td>£30,001 to £40,000</td>
<td>43.7%</td>
<td>41.2%</td>
<td>41.2%</td>
<td>38.4%</td>
<td>51.9%</td>
<td>44.6%</td>
</tr>
<tr>
<td>£40,001 to £50,000</td>
<td>16.1%</td>
<td>15.7%</td>
<td>9.2%</td>
<td>21.8%</td>
<td>10.0%</td>
<td>23.9%</td>
</tr>
<tr>
<td>£50,001 or more</td>
<td>12.4%</td>
<td>6.0%</td>
<td>5.7%</td>
<td>21.2%</td>
<td>6.8%</td>
<td>16.0%</td>
</tr>
<tr>
<td>(N)</td>
<td>1385</td>
<td>140</td>
<td>200</td>
<td>315</td>
<td>520</td>
<td>145</td>
</tr>
<tr>
<td>Median £</td>
<td>35000</td>
<td>34000</td>
<td>32000</td>
<td>40000</td>
<td>33060</td>
<td>39000</td>
</tr>
</tbody>
</table>

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Source: Destinations of Leavers from Higher Education Longitudinal Surveys 2008 and 2010*
Studentship Allocation for 2014/15

DTP: Doctoral Training Partnership; iCASE: Industrial CASE; ICP: Industrial CASE Partnership; TPS: Targeted Priority Studentships
Policy Internships

- A competitively awarded 3-month internship for BBSRC, NERC and AHRC PhD students

- Interns will work on an area of science policy in a professional science policy organisation

- Interns may:
  - Produce a policy briefing
  - Participate in a policy inquiry
  - Research, develop and organise a science policy event or workshop

- Choose from eight hosts

Parliamentary Hosts

- National Assembly for Wales Research Service
- Parliamentary Office of Science and Technology
- Scottish Parliament Information Centre

Non-Parliamentary Hosts

- British Library
- Centre for Science & Policy
- Government Office for Science
- The Royal Society
- Society of Biology