UK research and the European Union

People

June 2018
UK researchers are from around the world

Research and innovation is increasingly global. The UK’s reputation for excellence attracts people from around the world, and allows it to compete with other scientifically excellent nations for international talent.

FIGURE 1

Where do academic researchers working in the UK come from?

![Pie chart showing percentages of academic researchers from different countries]


Professional motivations are the main drivers for researchers choosing to move internationally1.

It is difficult to gather clear and comprehensive data on the mobility of researchers working in industry but anecdotally we know that many companies value the opportunity to recruit staff from UK universities, which themselves offer a highly international pool of researchers3.

“We are a very much integrated company, and the smooth movement of people, goods and services is really important for us, across Europe and around the rest of the world4.”

Katherine Bennett
Senior Vice President, Airbus

Europe is home to world-class research, and researchers come from all over the world to collaborate with researchers that are based here and to use European scientific infrastructure. Elite scientists are drawn to research excellence5.

The number of academic staff from other EU countries in UK higher education institutions2.

29% of academic staff in UK universities are non-UK nationals, with 17% coming from other EU countries and 12% from the rest of the world6.

1. RAND Europe. 2017 International mobility of researchers: A survey of researchers in the UK.
5. RAND Europe. 2017 International mobility of researchers: A survey of researchers in the UK.
The proportion of researchers from outside the UK varies across regions

Changes to the UK’s migration policy may impact on the mobility of researchers from overseas. Academic research institutions with a higher proportion of overseas staff will be more sensitive to these changes.

Where do academic researchers working in each UK region come from?

Source: Higher Education Statistics Agency. 2017 Staff numbers and characteristics. Figures include academic staff with functions in research, in teaching or neither. (see https://www.hesa.ac.uk/data-and-analysis/staff accessed 14 March 2018). Numbers are rounded and figures inside circles refer to total number of researchers in the region.
Researchers often move around throughout their careers

The ability to move is important for researchers seeking to develop their career, or work with others around the world.

- **72%** of active UK researchers have trained or worked as researchers abroad.

- **38%** of UK doctoral students take up a position in another country after completing their training.

- **More than half (58%)** of the Fellows and grant recipients of the National Academies have spent a sustained period of a year of more working abroad.

- **79%** of researchers agree that there is an expectation of international mobility in the research community.

- **Highly-mobile researchers publish research articles with citation rates about 40% higher than non-mobile ones.**

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8. Opinion Leader. 2017 The role of international collaboration and mobility in research: Findings from a qualitative and quantitative study with Fellows and grant recipients of the Royal Society, British Academy, Royal Academy of Engineering and the Academy of Medical Sciences.
10. RAND Europe. 2017 International mobility of researchers: A survey of researchers in the UK.
CASE STUDY 1

International mobility – Dr Marina Petri

Dr Marina Petri is a nuclear physicist who was born in Greece but built her research career across Greece, the UK, the USA and Germany before returning to the UK in 2016 to take up a Royal Society University Research Fellowship at the University of York; “I moved countries to gain experience, widen my knowledge of the subject I am working on, be exposed to different working cultures, build my international scientific network, and challenge myself. Moving between countries and research groups throughout my career, I learned not to be afraid of change and to always be ready to adapt in new environments.”

“Mobility is the best way to develop new collaborations and join different research groups. I was lucky to have experienced this first hand. Every move I made represented career development. Mobility is being appreciated by employers as an asset and this is reflected in my career trajectory. I now have a strong international network of collaborators across America, Europe, Asia, and Africa.”

To read about more UK-based researchers who have moved throughout their careers, visit royalsociety.org/topics-policy/projects/international-researcher-mobility/international-mobility-case-studies

Career timeline

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
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<tbody>
<tr>
<td>2000</td>
<td>Research assistant, University of Liverpool, UK.</td>
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<tr>
<td>2002</td>
<td>Postdoctoral Research Fellow, Lawrence Berkeley National Laboratory, USA</td>
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<tr>
<td>2004</td>
<td>PhD, Nuclear Physics, University of Liverpool, UK.</td>
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<tr>
<td>2006</td>
<td>* Royal Society University Research Fellow, University of York, UK.</td>
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The UK’s research workforce includes people with lots of different skills

Strategically valuable individuals include not just successful leaders in research fields, but the early-stage researchers, technologists and technicians with specialist expertise that support them, and the students that learn from and work with them. Mobility is important for all of these people.

FIGURE 4

Where do postgraduate researchers in the UK come from?

International students are worth £25 billion to the UK economy per year12.

Over half of UK postgraduate research students – a key part of the UK’s research workforce – come from overseas13.

“At my institute, we recruit researchers and technicians at all levels from across the world. Our success is built not only on their diverse contributions while working at SLCU, but also on the international networks they bring with them and continue to help us to build after they leave.”

Professor Ottoline Leyser DBE FRS
Director of the Sainsbury Laboratory, University of Cambridge

CASE STUDY 2

Maria Pakendorf – Research technician

Maria is a research technician in the Department for Biomedical Science at the University of Sheffield in the research group of Professor Walter Marcotti, who is funded by the Wellcome Trust to conduct research into hearing loss. Maria came to the University after completing an MSc and MPhil at the University of Leicester. Prior to this she completed her undergraduate studies at the University of Leipzig in Germany. She is part of a large group of researchers (PhD students and postdoctoral researchers) who are mostly experienced in electrophysiological techniques. Maria is the only person with molecular biology experience, and this is critical to all of the research group. Maria is training the other researchers in the technique of polymerase chain reaction (PCR), and also carries out individual research projects to investigate new areas of interest and feasibility studies.

This case study was produced by the University of Sheffield who kindly shared it for this document. To read more, visit https://www.sheffield.ac.uk/staff/spotlight/stories.


13. Higher Education Statistics Agency via Heidi Plus. See https://heidiplus.hesa.ac.uk (accessed 02 March 2018). Postgraduate researchers include students undertaking research masters’ and PhDs full-time. Part-time students are not included. Numbers are rounded.
Researchers, innovators and entrepreneurs from overseas travel to and work in the UK in many different ways

People with in-demand skills may choose to come and work for long periods or settle in the UK. Others come to develop their career and may choose to take part in exchanges, studentships or secondments based in the UK. In other cases, people may make short visits to meet collaborators, deliver lectures, attend conferences, or make use of equipment or research infrastructure that is in the UK in the course of their day-to-day work.

5,736 researchers from other EU countries worked in the UK between 2007 and 2013, funded through EU Marie Skłodowska-Curie Actions[^14].

International travel enables more international collaboration. 86% of National Academy Fellows and grant holders consider international travel essential to research as a whole[^15].

CASE STUDY 3

Dr Lucas Edelman

Lucas Edelman is a molecular biologist from Chicago, United States, who came to the UK as a student and is now an entrepreneur. After his undergraduate degree in Biological Engineering in Illinois, Lucas decided to move to the UK in 2009 to study for a PhD in Molecular Biology at the University of Cambridge. “I came here for reasons both personal and academic – my PhD project was engaging, but I also liked the adventure of living in a new place.”

Encouraged by a growing genomics sector in the UK, Lucas decided to stay in Cambridge after the PhD in 2014 to found his own company, CS Genetics. His start-up is developing a new ‘molecular indexing’ technology using DNA sequencing that has led to a new type of diagnostic test for cancer and other diseases. “As an entrepreneur with some ferocious global competitors, I need to base my business in the best, most supportive place in the world – or close to it. The UK has sensible visa schemes for entrepreneurs; this is important, but rarely a decisive factor. I need as many advantages as possible to compete in the global marketplace, particularly with sophisticated, well-capitalised American firms.”

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<td>2005</td>
<td>Undergraduate degree in Bioengineering, University of Illinois.</td>
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<tr>
<td>2009</td>
<td>PhD in Molecular Biology, Babraham Institute, University of Cambridge (Tier 4 Student Visa).</td>
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<td>2011</td>
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<td>2013</td>
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<td>2015</td>
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<td>2016</td>
<td>Founder and Chief Executive, CS Genetics Limited.</td>
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<td>2017</td>
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<tr>
<td>2014</td>
<td>Tier 1 visa – Entrepreneur.</td>
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<td>2014 – 2016</td>
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[^15]: Opinion Leader. 2017 The role of international collaboration and mobility in research: Findings from a qualitative and quantitative study with Fellows and grant recipients of the Royal Society, British Academy, Royal Academy of Engineering and the Academy of Medical Sciences.
Perceptions are important. Choosing where to live and work is a personal decision as well as a professional choice.

Nearly three-quarters of the British public would like to see the same number or more international students coming to study in the UK.16

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Professional drivers are more important to men and to early career researchers. Women and more senior researchers are more likely to consider a mix of personal and professional factors, although professional drivers remain important.17
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Scientists are more likely to move between countries which are geographically closer, socioeconomically similar and have comparable scientific cultures, placing a similar importance and funding on R&D.18
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“The UK has always been an open country and it is one of the reasons our research community has thrived. The vast majority of the British public remain happy to accept skilled immigration, from Europe and elsewhere. However, this is not always how the UK is perceived today. We need to make sure that a strong and consistent message is sent that we will continue to remain open to talent from around the world, or we risk pushing highly sought after researchers away from the UK.”

**Sir Venki Ramakrishnan**
President of the Royal Society

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17. RAND Europe. 2017 International mobility of researchers: A survey of researchers in the UK.


We all benefit from highly mobile researchers choosing to come and work in the UK.

International researchers choosing to work in the UK help upskill our workforce, sharing knowledge and ideas. They also benefit their source countries by continuing to collaborate with them and, for those that choose to return, bring back skills, knowledge and networks.

In 2016, 117 highly prestigious European Research Council grants were awarded to researchers who would work in the UK, contributing to the strength of the UK’s research base. 72 of these grantees were from outside the UK.

40% of researchers based away from their home country report on-going research collaborations with researchers in their country of origin.

Among engineering, science, and hi-tech firms, nearly half (44%) report difficulties in finding experienced recruits with the right STEM skills, particularly high-level STEM skills. The research system plays a key role in training skilled people in the UK to fill these skills shortages.

UK research benefits from the immigration of top foreign researchers to the UK. These include several Nobel Prize winners, such as Russian-born physicists Sir Andre Geim FRS and Sir Konstantin Novoselov FRS, rewarded for their work on graphene.

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The US and UK are key destinations for top scientists.

A snapshot of 135 of the UK’s research infrastructures found that they employ a high proportion of non-UK EU nationals.

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22. Royal Society. 2018 A snapshot of UK research infrastructures. Note: the survey found that a total of 32% of staff at UK research infrastructures come from overseas, 23% of whom are from other EU/EEA countries. This compares to 17% of academic staff in UK universities coming from other EU countries.
25. Ibid. note 20.
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