
Summary

- UK science is supported by a global workforce, drawn from both EU and non-EU members states. The future strength of UK research will depend on the ability to retain access to a global pool of talent.
- The development of a fair and transparent immigration policy is a priority for ensuring that the UK can continue to attract and retain talented foreign researchers.
- The UK is a world leader in research, despite a recent history of comparatively low government investment in research. The receipt of substantial EU funding over this period has played an important role in supporting UK research.
- The UK should seek to retain close association with existing and future EU funding programmes.
- Alongside funding, participation in EU programmes affords important access to collaborations and research consortia. If participation in EU programmes cannot be maintained, alternative means of facilitating and promoting international collaboration will be required.
- The approach to Brexit negotiations must be closely linked to the development of the UK's Industrial Strategy. Consideration must be given to the factors which make the UK an attractive place to conduct both academic and commercial research. This will include exploring the design of the tax system for research intensive industries and the potential benefits of research and development tax credits.
- Uncertainty surrounding the UK's future relationship with EU regulation of medicine and medicinal products poses a risk to the UK life sciences sector. The benefits of maintaining close collaboration with existing regulatory structures such as between the UK Medicines and Healthcare products Regulatory Agency and the European Medicines Agency should be fully considered in terms of both patient safety and sector confidence.
- The value of harmonised regulation should be carefully balanced against opportunities to develop tailored regulatory structures for the UK. Active engagement with the research community will be required to identify areas of priority in the future.

Introduction

The Academy of Medical Sciences promotes advances in medical science, and supports efforts to see these advances translated into healthcare benefits for society. Our elected Fellowship includes experts drawn from a broad and diverse range of research areas.

We welcome the opportunity to respond to the Committee's inquiry into negotiation priorities related to the UK's departure from the European Union. We are actively engaged with the debate around Brexit and research, including submitting evidence to the Commons Science and Technology Committee inquiry.¹ We have taken this opportunity to focus on three priorities which will be fundamental determinants of the future success of the UK research base in the months and years ahead.

¹ www.acmedsci.ac.uk/policy/policy-projects/submission-to-the-parliamentary-inquiry-on-leaving-the-eu/

We welcome the Prime Ministers recent announcement that maintaining the UK's strength in science and innovation will be a priority during negotiations to leave the EU². We were also pleased to hear the Prime Minister emphasise that the UK will continue to attract the "brightest and best" and will remain open to international talent.

Our written evidence has been informed by engagement with our Fellows, from across the disciplines and sectors we represent. We would be pleased to provide further evidence, and copies of our previous relevant outputs, if required.

Priority 1: Build an efficient, fair and transparent immigration system.

Attracting talented researchers to the UK has been a cornerstone of the nation's success – of the UK's 33 Nobel prizes in Physiology and Medicine, more than a quarter were awarded to researchers born outside the UK. Within our internationally diverse academic community, EU nationals comprise around 20% of the total, a proportion which rises further in many leading research institutions.³ These mobile researchers are frequently accompanied by external funding, and continue to attract funds once here: more than 30% of 2014 European Research Council grantees in the UK were non-UK EU nationals.⁴ The circulation of talented individuals develops the research leaders of tomorrow, and builds an influential network of collaborators across the world when those who have worked or studied here move on.

Access to the global pool of talent delivers greater health and wealth benefits, at local, national and international levels. Constraining the ability of our Universities and life sciences firms to recruit a diverse workforce will constrain their ability to continue delivering these benefits, and public opinion greatly values the contribution these individuals make. In polling conducted following the EU referendum in June, 46% of respondents desired greater levels of highly skilled workers migrating to Britain, versus 12% wanting fewer.⁵ Notably, these figures differed by only a few percentage points between those who voted for Leave versus Remain, showing the broad base of support for highly skilled individuals such as researchers coming to participate in UK society.

The future strength of the UK's medical research base depends on maintaining access to these individuals, wherever they are from. This includes the entire pipeline of science education and research, from undergraduates up to senior academics, clinicians, industry employees, and the technical staff who support these groups. As the UK's relationship with the EU and the wider world changes, it is vital that an efficient, fair and transparent immigration system is in place which will support the dynamic mobility our research base needs. This must include consideration of indirect factors which influence mobility, including the visa process for partners and dependants, as well as the mutual recognition of medical qualifications.

Our competitor nations are already responding by recognising the value of talent flow across borders and building immigration systems which will attract and retain those talented individuals. The US allows those training in STEM fields to extend their visas for an additional 2.5 years after the completion of their course to allow them to work. If we

² <https://www.gov.uk/government/speeches/the-governments-negotiating-objectives-for-exiting-the-eu-pm-speech>

³ www.hesa.ac.uk/index.php?option=com_content&view=article&id=1898&Itemid=634

⁴ https://erc.europa.eu/sites/default/files/document/file/erc_2014_cog_statistics.pdf

⁵ www.britishfuture.org/wp-content/uploads/2016/09/What-next-after-Brexit.pdf

are to remain a preferred destination for researchers and the ideas, jobs and wealth they create, then we must build a system which responds to the needs of the research base, minimises barriers and bureaucracy, and which broadcasts a message that the UK remains 'open for business'.

Priority 2: Funding research at internationally competitive levels.

The UK research base is exceptionally productive, delivering world-leading performance in spite of a history of low investment. Recent moves by the Government have sought to address this long-term underinvestment, and place the UK on a trajectory to more closely align to international competitors.⁶

EU research funding plays a significant role in supporting the UK research base, and within health research the UK attracts greater funding than any other Member State.⁷ With the UK currently ranked bottom of OECD countries in investment per capita in research, EU funds have played an important role in sustaining the sector through several years of 'flat cash' settlements in the UK.

Future access to such funds should be clarified as soon as possible, and Academies from across the UK have jointly called for the 'closest possible association' with EU research programmes post-Brexit.⁸ Several options for affiliation are demonstrated across non-EU states such as Norway and Switzerland, and the merits and risks of each should be considered.

If access to this funding is lost in the future, then it is vital that we understand the specific dependencies of individual disciplines and sectors on EU support. The UK research funding landscape is an interconnected ecosystem of private, public and philanthropic investors, and it is unclear how this network will respond if EU funding was withdrawn. The four National Academies are jointly commissioning evidence on these questions, and will publish their findings in Spring 2017.

EU programmes also deliver benefits beyond funding alone – offering support for collaborations, or building new partnerships through programmes such as the Innovative Medicines Initiative.⁹ We must understand the value delivered by these programmes, and whether such benefits can be replicated by UK-only programmes, and delivered by existing and planned mechanisms such as UKRI. UK researchers have been particularly active in leading EU-funded consortia, and any continuation of such multi-country collaborations will require dedicated and adequate resourcing. Priority areas for attention include those research areas where sufficient patient cohorts are impossible without international collaboration, including in a multitude of rare diseases.

Priority 3: Making the UK attractive to the life sciences industry

⁶ <http://www.acmedsci.ac.uk/more/news/academy-response-to-the-autumn-statement/>

⁷ European Commission (2015). *Horizon 2020 first results*.

https://ec.europa.eu/programmes/horizon2020/sites/horizon2020/files/horizon_2020_first_results.pdf

⁸ www.acmedsci.ac.uk/more/news/joint-academies-publish-statement-on-research-innovation-after-the-eu-referendum/

⁹ <http://www.imi.europa.eu/>

Private investment is by far the largest contributor to the UK medical research base – UK pharma invest £11.5m in R&D each day – and all sectors of research benefit from a thriving and collaborative industrial sector.¹⁰ Economically, the life sciences sector contributes more than £60bn to UK GDP per annum, including annual exports of £29.5bn.¹¹ As the UK enters negotiations around its future relationship with the EU, it is vital that the factors that make the UK an attractive destination for pharma, biotech and medtech companies are protected.

Brexit negotiations must work synergistically with the upcoming Industrial Strategy, to ensure that the UK research environment can compete internationally. The Academy welcomed the opportunity to inform the Life Sciences Strategy when it hosted for those leading its development, Fellows and other stakeholders in January 2017. Participants highlighted the opportunity to remove barriers for funding of innovation, for instance through re-evaluation of the current requirement for biomedical catalyst funding to gain 50% matched funding in order to meet EU state aid rules.

Additional considerations for the Industrial Strategy¹² will include the previously discussed commitment from Government to increase public investment in research; research and development tax credits and the wider tax system for research-intensive industries; and optimal use of the NHS as a driver and adopter of innovation. There is a known link between quality of care and research activity in hospitals, and hosting commercial research activity via the NIHR Clinical Research Network saved the NHS £192m in 2014/15.^{13,14}

A major threat to business continuity is uncertainty around the UK's future relationship with EU regulation governing the development and licensing of medicine and medicinal products. The expected relocation of the European Medicines Agency from London must be done in a manner which protects patient safety and minimises disruption for industry. The UK Medicines and Healthcare products Regulatory Agency (MHRA) currently plays a disproportionate role in supporting EMA activities, and the benefits of continued close collaboration should be fully investigated. The Academy is working with a coalition of medical research organisations to deliver evidence which will clarify this complex relationship, as well as other ways in which the wider EU benefits from UK strengths and leadership across medical research.

There will need to be a careful consideration of the benefits and drawbacks of continued alignment with EU regulatory practices in medical research. There is currently a highly collaborative system of medical product regulation operating across Member States, with the UK playing a major role in market authorisation assessments, pharmacovigilance, manufacturing inspections and anti-counterfeiting surveillance, among others.

In a future outside the EU, the UK will need to carefully balance the value of remaining harmonised with EU legislation, versus opportunities to develop tailored regulation according to the UK's circumstances. The UK has been a leading voice in the

¹⁰ ONS, Business Enterprise Research and Development 2013, November 2014

¹¹ ONS Balance of Payments data (data for 2015)

¹² https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/585273/building-our-industrial-strategy-green-paper.pdf

¹³ <http://gut.bmj.com/content/early/2016/10/14/gutjnl-2015-311308.full>

¹⁴ www.nihr.ac.uk/news/new-report-highlights-the-benefits-to-the-uk-economy-of-clinical-research/4981

development of proportionate regulation for health research, and outside the EU the opportunities for such influence will be greatly diminished. Understanding potential benefits and challenges of maintaining harmonisation will require input from all research sectors, and the Government should consider how the UK would be best served in the long term so that appropriate steps can be taken in the coming negotiations.

Concluding remarks

A changing relationship with the EU has the potential to create significant challenges for the UK medical research sector, and it is vital that research is on the agenda for Brexit negotiations. Medical research delivers the innovative medicines and treatments which improve health and increase wealth across the UK, and the wider world. This activity is best served when the UK research sector is able to operate in a stable and supportive environment. Negotiations around Brexit should give consideration to the complex relationship between the UK research community, the EU, and other EU Member States. If research is not kept at the heart of the agenda for negotiations, the UK risks losing the talented researchers, funding and connections which deliver benefits to patients.

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