Brexit and Translational Research

In a historic referendum on June 23, 2016, the UK voted to leave the European Union (EU) after more than four decades of membership. For the time being, the UK is still a member of the EU until the UK government triggers Article 50 of the Lisbon Treaty—which probably won’t happen before the end of 2016. A minimum of 2 years of negotiations will follow before the UK ceases to be an EU member. This unprecedented Brexit decision has created a shockwave resonating not only within the UK and Europe, but also across the globe, affecting a multitude of aspects from finance and politics to science. Much of the concern has come from the lack of a clear Brexit roadmap and the widespread uncertainty as to what the negotiations will include.

So what are the implications of Brexit in translational research? Given the complexity and multidisciplinary nature of biomedical science, translational research relies profoundly on collaboration among scientists and institutes in order to amalgamate expertise and resources. Internationally coauthored research publication has increased from around 10% in the 1980s to 40-50% in the 2010s, and this global trend is the main driving force in research growth. In the UK, 80% of international collaborators are from the EU, and 15% of academic staff is non-UK EU nationals. Because one of the core arguments for Brexit is to limit immigration, this will likely create an unintended barrier for research collaboration. In fact, there are already some reports of EU scientists being reluctant to collaborate with UK researchers in EU funding applications, because EU funding bodies are yet to decide whether UK scientists will be eligible for funding.

This post-Brexit funding concern could have serious repercussions for translational research. UK researchers receive nearly £1 billion a year from EU funding programs such as Horizon 2020; whether or not they can continue to participate in such funding programs after Brexit will need to be renegotiated. It’s likely that British scientists will have to compete harder in applying for EU funding—if they are allowed to apply. Non-EU associated members like Switzerland can participate in EU funding programs, but they need to pay an associated membership fee and have to agree to free movement of EU citizens. In 2014, the Swiss voted to restrict mass immigration, and Switzerland was suspended from Horizon 2020 as a result. The current uncertainty that Brexit has created also reduces investors’ confidence—safer investment would be in big phamras, whereas small to medium biotechnology companies where much of higher-risk translational research is carried out would be hit harder in this financial climate.

But is it all doom and gloom financially? EU funding—although an important source—only accounts for about 10% of UK research expenditure, while the majority of biomedical research funding comes from the UK government through Research Councils UK (RCUK) such as Medical Research Council (MRC) and Biotechnology and Biological Sciences Research Council (BBSRC), and National Institute of Health Research (NIHR), as well as other charitable sources like Cancer Research UK and the Wellcome Trust. Whether the UK government is prepared to subsidize the loss in EU funding remains a question. As long as the UK retains its competitive edge as one of the world’s financial capitals, investments should keep streaming in. Last week on July 27, GlaxoSmithKline affirmed that despite Brexit, the UK remains an attractive place to invest £275 million across three of its British factories. The UK has the funding infrastructure to support the whole spectrum of translational research, with the RCUK funding for basic research, Innovate UK for early prototype stages of development, and private sectors (e.g., big phamras) for late-stage development and commercialization of products.

The EU has been both criticized and praised when it comes to regulations. It has created thousands of EU regulations to achieve consistency across the region, from everyday products to sophisticated aspects of science, technology and medicine. High-level bureaucracy raises the market-entry bar for small startups with innovative yet untested ideas, thus unintentionally hampering competition. The 2001 European Clinical Trials Directive was created to harmonize regulations but in fact resulted in higher costs and bureaucracy, and inadvertently hindered many UK clinical trials. The new EU Clinical Trials Regulation was then developed with aim to promote clinical trial activity while keeping the guiding principle of the original Directive—to protect participants’ safety and rights. After Brexit, the European Medicines Agency (EMA) will most likely move its London office to an EU country. Which organizations will then regulate health research and medical product approval in the UK? At the other end of the translational research spectrum, will there be any regulatory changes in the use of animals and human tissues for research? Will all of these changes increase or decrease the level of bureaucracy and will biomedical research be harder or easier to be conducted? There is much unknown until more details of the UK-EU negotiation emerge, but perhaps it would be most prudent to keep all regulations unchanged during this transition period.

Although Article 50 has not been triggered, there seems to be no going back on the UK decision to leave the EU. The UK government now has an arduous task to negotiate the best exit deal for the UK. Both the UK and EU have assigned teams who will lead the negotiations. On July 19, a joint letter from seven national academies, including the Royal Society and the Academy of Medical Sciences, was sent to the UK government, calling it to prioritize scientific research during negotiations with the EU, protect research funding and draw up an agreement in which the UK can actively participate and influence EU research policy.

Regardless of what happens, translational research in the UK will likely endure and thrive, and scientists and health researchers must
stay resilient and confront this as a challenge as well as an opportunity. In February 2015, the UK passed a law allowing embryonic mitochondrial editing (dubbed by the media as “three-person babies”), thus giving couples who carry dreadful mitochondrial mutations the chance to have a healthy baby. This is just one example of the cutting-edge science that British researchers are doing that no other European counterparts are legally able to. Innovation and competitiveness is the prowess of British science that will attract international researchers as well as funding. If this strength is recognized and built upon after Brexit, strong research ties between the UK and Europe are expected to be maintained, which would benefit both sides—while at the same time, global collaborations between the UK and other leading countries in biomedical research like the US and China must be further reinforced.