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# Five years on: how Brexit changed three scientists' careers

**How did the United Kingdom's formal departure from the European Union in January 2020 affect scientists who had moved there from mainland Europe?**

By Anna Napolitano




Scientists in the United Kingdom faced uncertainty over funding during the Brexit departure process. Credit: Richard Baker/Getty

The United Kingdom's exit from the European Union five years ago marked a watershed in a bruising battle to settle the country's relationship with its closest international neighbours, many citizens of which had moved to the United Kingdom to develop their careers.

But the United Kingdom's narrow vote to leave the EU in June 2016 meant that UK-based researchers from the bloc's other 27 member states faced tough career decisions. Many no longer felt comfortable living and working in a country that had suddenly severed a 47-year political and economic relationship, that supported career mobility and freedom of movement, fruitful research collaborations and generous funding opportunities.

When the formal separation came, in 2020, some researchers decided to return to their home nations in mainland Europe or move further afield to develop their careers. Others remained and joined UK-based diaspora-scientist associations, where they became active in promoting common interests affecting scientists across continental Europe and beyond. How do they feel their careers have fared over the past five years?

*Nature*'s careers team asked three European research-group leaders, who are based either in the United Kingdom or mainland Europe, about their career dilemmas during the Brexit departure process, and whether the fears they had five years ago were realized.

## NIEK BUURMA: All was calm, before the waves

*Physical organic chemist, Cardiff University, UK.*

I moved to the United Kingdom from the Netherlands in 2002 after finishing my PhD at the University of Groningen, for a chemical-biology postdoctoral position at the University of Sheffield. The field was growing a lot in the United Kingdom at that time and my plan was to stay there for three years. I was then offered a lecturer post at Cardiff University in 2006. I'm still here 19 years later.

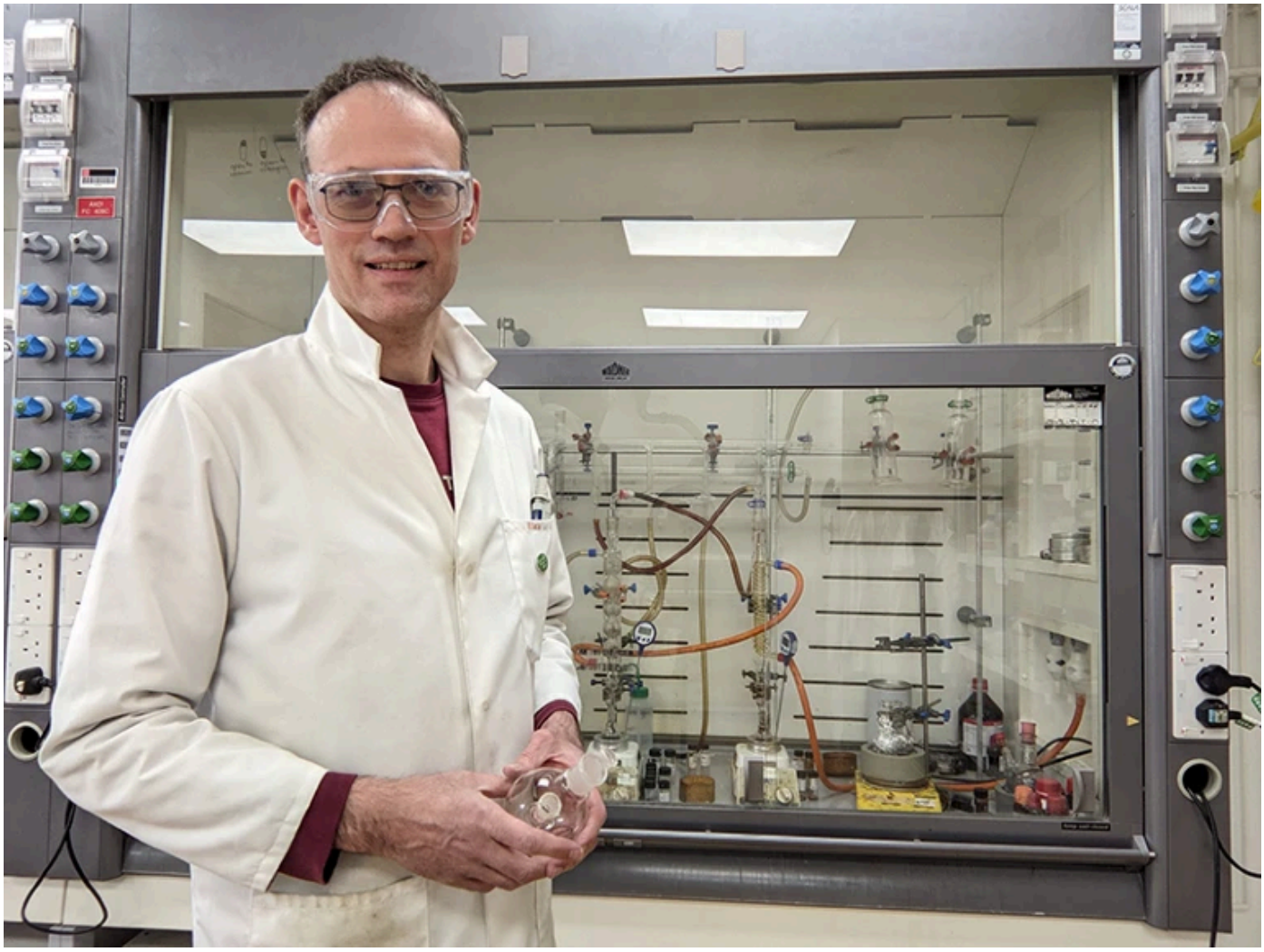
After the United Kingdom voted to leave the EU in June 2016, triggering the process we now know as Brexit, it felt as if I was not considered part of the country. It made me question many of my choices. My partner is French and our two kids were born and go to school here. They speak Dutch, French and English.

I was afraid of speaking Dutch to them in the street after the vote. I thought, "What if we're heard by someone who doesn't want EU immigrants in the UK?"

I was also afraid that Brexit could affect the scientific environment in the United Kingdom and therefore impact my career.

Brexit allowed people to be more openly negative about immigrants, but it affected me less than I feared. On a personal level, nothing changed for me and my family. We live in a part of the country where there

are already two official languages, English and Welsh, so it is normal hearing people speaking different languages.



Niek Buurma, a physical organic chemist, feared anti-immigrant sentiment after the United Kingdom voted to leave the European Union. Credit: Niek Buurma

I started my own laboratory in 2006 and between then and 2020 I hosted one or two students from France each year as part of the EU-funded Erasmus+ exchange programme, which allows students at EU universities to spend up to a year studying or working in other member states. (In 2018, more than 10,000 UK students took part in the programme by studying at institutions in other EU countries, and almost 30,000 EU students came to the United Kingdom.)

The United Kingdom opted out of the programme in 2020, so the natural link that we had with European universities through the programme is now completely broken.

Also, a few of my collaborations started with preliminary work in a friend's lab during holidays in the Netherlands. I just needed to inform my institution if I was going to work there. But now I might need to seek formal permission from my employer before working abroad. It's a further level of paperwork to prepare. If you already have an established relationship, you find a way to make it work. But building new collaborations is now more complicated.

From a recruitment perspective, most research projects need someone with specific expertise and interests. As a physical organic chemist, I tend to look for people who really enjoy both organic synthesis and mathematics, and that's a rare combination.

The drop in the number of EU researchers moving to the United Kingdom since the Brexit vote took place means that there is a smaller pool of applicants.

Now, when we advertise for a PhD student position, often the advice is to try to recruit UK-based people because we can never be 100% sure about being able to sponsor the visa for an overseas candidate. Last year, I had to re-advertise a PhD studentship three times. None of the applicants had the required characteristics. Before Brexit, the potential pool of suitable applicants would have been from across the entire EU.

Things are better now, but there remains an underlying fear that Brexit will result in a slow but definite separation between the EU and the United Kingdom.

The multitude of small barriers to effective research that have been introduced by Brexit can all be navigated. But more time and energy needs to be invested to develop a research collaboration. And even if UK-based researchers are willing to invest the energy and time, are their potential collaborators in the EU also willing to do so? Or might they consider an easier collaboration with someone else who is based in the EU instead?

At some point, a future UK government might decide that it's no longer worth paying to be associated with European funding schemes. For example, not being associated with Horizon Europe — the European Union's research and innovation funding programme (see 'Deal or no deal') — would be a big (and detrimental) hit.

For me, Brexit highlighted the need for scientists to speak out about European Union ideals and more generally on the influence that political decisions can have on science. I regret my lack of action before the vote. I think academics should have made it clearer how leaving the EU was going to affect the scientific sector. After the Brexit vote, I got involved with the Dutch embassy in London to establish the Dutch Academic Network in the UK. Working with them made me feel part of something bigger.

Together with the other diaspora scientists' associations, we realized the value of having a larger group to represent the interests of researchers. That kind of critical mass helped us in making our voices heard.

In 2022, these diaspora groups came together in the CONNECTS–UK project, in which we collected the experiences of scientists and shared them with scientific attachés, members of the EU Parliament and UK Parliament.

A practical example is the loss of specific funding that the EU gives to less economically developed areas of a member state (Wales is one example), which the United Kingdom cannot access anymore.

What I'm really worried about is that, over time, all those little limitations will affect future generations of scientists in the United Kingdom and inevitably reduce collaborations between the EU and the United Kingdom. Like a tsunami, all was calm, and then suddenly the waves came.

## DIANA PASSARO: An escape route to Paris

*Leukaemia researcher, Cochin Institute, Paris.*

It's important for early-career researchers to work in different environments — hence my move from Italy, my home country, in 2009, to do a PhD in oncology and cancer biology at the University of Paris Cité.

I was happy there but wanted to go to an English-speaking city to progress in my career. New York and London were my top choices, so it was great to land a four-year postdoc in London in 2015, working in Dominique Bonnet's cancer research lab at the Francis Crick Institute.

London had plenty of career opportunities for my husband, a computational neuroscientist, who secured a postdoc position at King's College London.

But then, in 2016, everything changed. The Brexit vote, for me, was an end to the certainties provided by the EU: freedom of movement and the possibility to establish my life and career wherever I wanted. Also, the freedom to apply for European grants.

Leukaemia researcher Diana Passaro says she wouldn't have left the United Kingdom if the country hadn't voted to leave the European Union.

At the time, I was pregnant and felt anxious about not being British, which might have made a mortgage application more difficult, and perhaps having to wait longer before I could apply for citizenship. I was also worried that my children might not have the right to stay in the country where they were born.

Despite the economic uncertainties, I embarked on a fellowship provided by the Crick that enables young researchers to transition towards becoming a principal investigator (PI).

As a new group leader, you don't have much money or power to attract talent, and I realized that in the United Kingdom my career progression could became more difficult because of what was happening.

I returned to Paris in 2019 and established an international lab at the Cochin Institute. I now have people from France, Italy, Africa, Indonesia, Brazil and Ireland. Working with people from various backgrounds enriches our science.

I rely significantly on students' help. Erasmus+ students or interns can help a project to succeed. By contrast, most of my lab-leader colleagues in the United Kingdom say they struggle to find people from abroad and of course cannot count on Erasmus+ students anymore.

The visa application process to bring PhD students to the United Kingdom is now long and expensive. Often, applicants prefer to go elsewhere. This means wasting time and resources, which are precious when you start your career.

Paris provided an escape route for me after Brexit. Here, I found everything I needed and all the support to grow my career. I am happy here and don't regret my choice.

But my husband found it much harder to leave the United Kingdom. His background is deeply multidisciplinary. In London, this was an asset, but here in Paris he found it difficult to land a PI position.

In the end, he decided to leave academia and now works as a neuroscientist at a scientific company in Paris.

He is happy in his current job, although we often wonder whether things would have worked out differently if we had stayed in the United Kingdom. If it wasn't for the vote, we wouldn't have left.

## SERGI CASTELLANO: A plane without propellers

*Evolutionary biologist and geneticist, University College London.*

I never understood Brexit. The United Kingdom had all the benefits of easy trading with a resourceful neighbour and decided to cut itself off from it. For science, it was an act of self-harm.

I felt the United Kingdom had some of the good things from the United States, such as the entrepreneurial element, and some good things from Europe, such as the public health-care system.

I'm originally from Spain, where I trained as computational biologist. After earning my PhD at Pompeu Fabra University in Barcelona in 2004, I worked at three US academic institutions for six years before setting up my own lab at the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany, where my research focus was the role and evolution of functional elements in eukaryotic genomes.

In 2017, I moved country again and changed research field, joining University College London's genetics and genomic medicine department. Now, my research interest is using genomics to improve the diagnosis, prognosis and treatment of rare diseases in children.

Moving to the United Kingdom just after the Brexit vote wasn't an easy choice, but at the time I thought that there were still many opportunities to shape the future scientific relationships between the EU and United Kingdom.

The decision was complicated on two levels. Alongside moving into a new field, I was re-establishing myself in a country that many researchers, on whom I might rely for advice and collaborations, were leaving because of Brexit. Eventually, these things stabilized as people learnt to live in post-Brexit United Kingdom.

My work relies more and more on artificial intelligence (AI), and the fact that this field in the United Kingdom is diverging from the EU might bring some positives.

The UK regulatory landscape is much more open than the EU's and there are a lot of start-up organizations and companies developing AI here, with a lot of research funding.

The European Union, I feel, is still a bit behind. Legislation always takes longer in Europe and needs so many approvals. Now, researchers in the United Kingdom can at least take advantage of the EU's poor track record for approving technologies.

I am privileged to be in a supportive environment and to be able to continue my career progression despite the Brexit hurdles. Many other institutions in the United Kingdom were more reliant on EU funding and connections, which have now been cut.

I think of UK science like a plane that was flying high and then lost its propellers. Without motors, you slowly descend.

It regained some power thanks to innovative legislation, such as that for AI and regulations for genetically modified organisms, so we're beginning to take off again, but it will take time. I think that the post-Brexit

United Kingdom is still scientifically strong, perhaps just a bit less than it could have been if it had stayed in the EU.

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### Deal or no deal

In March 2017, nine months after the referendum in which UK citizens narrowly voted to leave the European Union, a two-year countdown to the country's formal departure from the bloc began. This was extended three times in the absence of a deal, with Brexit finally taking place in January 2020.

Science leaders responded to the uncertainty both before and after the formal departure by repeatedly warning about the impact on science funding, collaborations, talent recruitment and retention, researcher morale and safeguarding laboratory supply chains. This timeline charts what happened as the United Kingdom's exit loomed.

## January 2019: gloves, goggles and lab coats

UK universities describe the measures they are taking to protect lab supplies if the country crashes out of the EU, as scheduled for March that year, without agreeing a deal. These include animals and animal products, Petri dishes and tissue-culture plates, mouse bedding, liquid nitrogen, carbon dioxide, gloves, goggles and lab coats.

## February 2019: UK "sleepwalking into a disaster"

In the absence of a Brexit deal and with one month to go before the United Kingdom is set to leave the EU, Paul Nurse, the director of the Francis Crick Institute in London, warns that the country is "sleepwalking into a disaster" and calls for a second referendum. Chief among Nurse's concerns is the fear that a no-deal Brexit could immediately halt EU research funding to the United Kingdom, with scant details from the UK government on its plans to plug the gap.

## November 2019: elite UK research funder call

With a new departure date agreed for January 2020, a report commissioned by UK science minister Chris Skidmore calls for a UK equivalent of the European Research Council if the country's hopes of becoming an associate member of Horizon Europe, the EU's funding programme for research and innovation, are dashed.

## December 2019: immigration plans

The UK Conservative Party wins a 79-seat majority in the general election. The party's manifesto pledged to introduce "new rules for those of exceptional talent" in a post-Brexit immigration system and a commitment to raise UK spending on science and research to 2.4% of gross domestic product (GDP) by 2027, up from 1.7%.

## January 2020: a long goodbye

The United Kingdom formally leaves the EU at 11 p.m. on 31 January, marking the start of an 11-month transition period that will include negotiations on the country's future relationship with the bloc, straddling trade arrangements, immigration policies and participation in Horizon Europe. Freedom of movement between the United Kingdom and EU countries is not on the table.

## December 2020: trade deal reached

The United Kingdom reaches a Brexit trade deal with the EU on 24 December, sealing its associate membership of Horizon Europe (contingent on a yet-to-be-announced sum that the country will pay into the fund, proportional to its GDP). The trade deal excludes the European Innovation Council Fund, which is designed to support start-up and university spin-off firms.

## July 2022: "move or lose"

An impasse over border controls between the Republic of Ireland (part of the EU) and Northern Ireland (part of the United Kingdom), results in the EU cancelling the grants of UK scientists who have won European Research Council fellowships. The affected researchers are told they can retain the grants if they transfer to an institution in an EU member country.

## January 2023: EU student numbers plummet

Numbers released by the UK Higher Education Statistics Agency record a 53% drop in the number of first-year students coming to the United Kingdom from EU countries, falling from around 65,000 during academic years 2017–18 to 2020–21, to 31,400 in 2021–22.

## September 2023: Horizon hurrah

The United Kingdom negotiates a return to Horizon Europe's €95-billion (US$105-billion) research-funding programme, ending two years of wrangling. However, as an associated country, it has no say in deciding details of Horizon's seven-year work programme (running 2021–27), and is subject to other exclusions.

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*These interviews have been edited for length and clarity.*

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