

# World's largest genetics research project to fight deadly diseases and offer new offer for international students

Prime Minister Boris Johnson has unveiled plans to transform how talented international students are able build successful careers in the UK through a new immigration route, as a new ground-breaking project in the fight against life-threatening illnesses launches.

International students make up half of all full-time post-graduate students in Science, Technology, Engineering and Maths (STEM) subjects. The new immigration route announced today (11 September 2019) will mean international graduates in any subject, including STEM, will be able to stay in the UK for two years to find work.

Students will need to have successfully completed a degree from a trusted UK university or higher education provider which has a proven track record in upholding immigration checks and other rules on studying in the UK.

This will build on government action to help recruit and retain the best and brightest global talent, but also open up opportunities for future breakthroughs in science, technology and research and other world-leading work that international talent brings to the UK.

One example of pioneering research and international collaboration in the UK is the world's largest genetics project, the £200 million whole genome sequencing project of all volunteers in the UK Biobank, launching today.

The new project aims to improve the prevention, diagnosis and treatment of a wide range of serious and life-threatening illnesses including cancer, heart diseases, diabetes, arthritis and dementia, through genetic research that can explain why some people develop these conditions and others do not. The partnership of pharmaceutical firms and health experts from the UK and abroad will examine and sequence the genetic code of 500,000 volunteers at the UK Biobank.

This sits alongside the work by Genomics England in partnership with NHS England on the 100,000 Genomes Project, which has seen around 25% of patients with rare diseases receive a diagnosis for the first time, and for some conditions a diagnosis rate as high as 60%.

Prime Minister Boris Johnson said:

Britain has a proud history of putting itself at the heart of international collaboration and discovery. Over sixty years ago, we saw the discovery of DNA in Cambridge by a team of international

researchers and today we are going even further. Now we are bringing together experts from around the globe to work in the UK on the world's largest genetics research project, set to help us better treat life-threatening illnesses and ultimately save lives.

Breakthroughs of this kind wouldn't be possible without being open to the brightest and the best from across the globe to study and work in the UK. That's why we're unveiling a new route for international students to unlock their potential and start their careers in the UK.

Business Secretary Andrea Leadsom said:

Today's funding will support one of the world's most ambitious gene sequencing programmes ever undertaken, reflecting the UK's determination to remain at the forefront of scientific endeavour and progress.

Its results could transform the field of genetic research – unlocking the causes of some of the most terrible diseases and how we can best tackle them. It will be a major step forward for individually tailored treatment plans, and will help us better understand why some people get certain diseases while others don't.

Home Secretary Priti Patel said:

The new Graduate Route will mean talented international students, whether in science and maths or technology and engineering, can study in the UK and then gain valuable work experience as they go on to build successful careers.

It demonstrates our global outlook and will ensure that we continue to attract the best and brightest.

Education Secretary Gavin Williamson said:

It is a testament to our world-leading universities that so many students from abroad want to study here. The important contribution international students make to our country and universities is both cultural and economic. Their presence benefits Britain, which is why we've increased the period of time these students can remain in the UK after their studies.

Our universities thrive on being open global institutions. Introducing the graduate route ensures our prestigious higher education sector will continue to attract the best talent from around the world to global Britain.

Health and Social Care Secretary Matt Hancock said:

I am incredibly excited by the potential of genomics to change the way we think about disease and healthcare. In an ageing society with an increasing burden of chronic diseases, it is vital that we diagnose earlier, personalise treatment and where possible prevent diseases from occurring altogether.

This project will help unlock new treatments and grow our understanding of how genetics affects our risk of disease. It is one part of our world leading set of genomics programmes, including the NHS' Genomics Medicine Service and the Accelerated Detection of Disease challenge, and shows that the UK is the go-to destination for genomics research and development.

Alistair Jarvis, Chief Executive of Universities UK:

This is very positive news. Evidence shows that international students bring significant positive social outcomes to the UK as well as £26 billion in economic contributions, but for too long the lack of post-study work opportunities in the UK has put us at a competitive disadvantage in attracting those students.

The introduction of a two-year post-study work visa is something Universities UK has long campaigned for and we strongly welcome this policy change, which will put us back where we belong as a first choice study destination. Not only will a wide range of employers now have access to talented graduates from around the world, these students hold lifelong links in the UK.

Prof Sir John Bell, HMG's Life Sciences Champion, said:

This genome sequencing project will provide exciting new insights into the causes of many major diseases. It builds on 70 years of pioneering work in genetics research and exemplifies the creation of a whole new sector in Life Sciences that the UK Life Sciences Industrial Strategy has been developing. We do not know what the project will uncover but it is certain to be both novel and informative.

Sir Mark Walport, Chief Executive of UK Research and Innovation said:

As one of the half million participants in UK BioBank, I'm very excited by the potential of the Whole Genome Sequencing Project, which will sequence the genetic code of everyone in UK BioBank to help develop novel and personalised forms of healthcare.

UK BioBank is globally unique in the depth and quality of the information that it contains about so many people in health and disease. Adding whole genome sequencing data to this will provide major opportunities to improve how we prevent, diagnose and treat the chronic conditions that afflict so many of us as we live longer lives.

John Lepore, Senior Vice President, Research at GlaxoSmithKline (GSK) said:

This historic whole genome sequencing effort is a welcome asset for researchers and testament to the volunteers who believe in the power of data to advance science.

Genetically validated drug candidates are twice as likely to become registered novel medicines, and efforts like this bring us closer to developing transformational medicines that can significantly improve patient health and change lives.

Mene Pangalos, Executive Vice President, BioPharmaceuticals R&D, AstraZeneca, commented:

Whole genome sequencing on this scale is unprecedented, and through this collaboration we hope to unlock the potential of genomics to evolve our understanding of complex diseases such as cancer, heart disease and chronic kidney disease.

These new insights will guide our drug discovery programme and will help us bring innovative new precision medicines to patients who need them most urgently.

Richard Tillyer, PhD, Global Head, Janssen Discovery, Johnson & Johnson, commented:

We are proud to participate in this ground-breaking initiative to generate genomics data from samples obtained through the generosity of citizens/people in the United Kingdom.

The insights gained from the analysis of this rich data set will guide our efforts to develop safe and effective therapies so that diseases aren't just being treated, they are predicted, pre-empted and stopped in their tracks to help generations of people live their healthiest lives.

David M. Reese, M.D., Executive Vice-President of Research and Development at Amgen said:

We are pleased to partner on a project with immense potential to advance public health. This collaboration reflects our belief in the power of human genetics to transform medicine and the need for continued growth in the size and diversity of the data that can be mined for new discoveries for patients with serious life-threatening diseases.