

## The Guarantors of Brain Scholars Programme

In 2020 the Guarantors of Brain sponsored **20 young people** from disadvantaged backgrounds through the In2scienceUK Programme. Young people were shortlisted, interviewed and placed on the programme as 'Guarantors of Brain Scholars'. Due to COVID-19 the programme was transformed from a face to face 2 week work placement to an online programme. Instead of 2 week work placements young people participated in:



1. Online research modules delivered by researchers  
June



2. Online University Access Workshops  
July



3. Mentoring  
August



4. Completion of Public Engagement Competitions  
September

### Mentoring

In total, 21 brain researchers signed up to mentor. 16 were from Imperial (Brain Sciences), 3 from Oxford (MRC Brain Network Dynamics Unit) and 2 from UCL (Queen Square and Institute of Cognitive Neuroscience). However, as mentoring occurred in groups of five, four brain researchers were selected to mentor the group of 20 Guarantors of Brain Scholars in groups of five. During the mentoring sessions students were able to speak to researchers about their research, career pathway as well as seek advice and support. Below is a case study of one of the students. Rumesa was one of our students.

One such student was Rumesa, who had the opportunity to learn more about neurology and neuroscience with help from the Guarantors of Brain.

She already enjoys Biology, but was unsure of which steps to take next in developing her STEM pathway.



Rumesa has also been mentored by Alexandra, a post-doctoral researcher at the Institute of Cognitive Neuroscience at University College London.

“ I love learning about the human body... I thought it would be beneficial to talk to different specialists in science in order to help me make a decision as to which career path I would like to take. ”



“ I signed up for the In2scienceUK virtual placement programme in order to gain a deeper understanding into the world of science and gain insight from someone who has been through the university application process. ”

**Rumesa Shah, Student**



## Research Modules

To give young people an insight into brain research, we engaged three brain researchers to deliver three research modules. These included 'Interacting with the brain', 'Mouse brains to human brains...', a life beyond research and 'Understanding what goes wrong in the brain in Parkinson's disease'. In total **124 young people choose these brain modules to complete**. These were the most popular modules on our platform (we had 43 modules across STEM). For each research module students had to complete pre-reading which involved, looking up key words, reading of two research papers and completion of a 10 question quiz to check their understanding. They then had a 1 hour lecture delivered by the brain researcher and had to complete a task. Following the task, they then submitted the work and received a follow up lecture with the researcher.



### Introduction

In this course you will learn about the importance of understanding the molecular changes that happen in the brain in neurodegeneration. It is vital that we can understand this if we are to be able to design drugs that halt the progression or cure these diseases. We will concentrate on Parkinson's disease and consider what happens in the brain during the disease and how a patient would be diagnosed. We will also look at what the genetics of the disease tells us about how it effects neurons in the brain and will concentrate on the role of the autophagy pathway – the cells waste clearance system.

### What You Will Learn

- Understand the symptoms and neuropathology of Parkinson's disease
- Understand the key genes involved in Parkinson's
- Understand how we model neurodegenerative disease in the lab and what the benefits of different models are
- Understand the role of GBA mutations and the autophagy pathway in Parkinson's disease
- Think about how we might design a new drugs for a neurodegenerative disease
- Learn how to analyse data from enzyme activity and neuropathology experiments

**Key Words:** Neuron, Dopamine, Substantia Nigra, Lewy Body, Induced Pluripotent Stem Cells, Lysosome, Endosome



### Key Dates

Monday 10th August @ 13:30: Live Lecture: Understanding What Goes Wrong in the Brain in Parkinson's Disease

Saturday 15th August @ 17:00: Task Submission

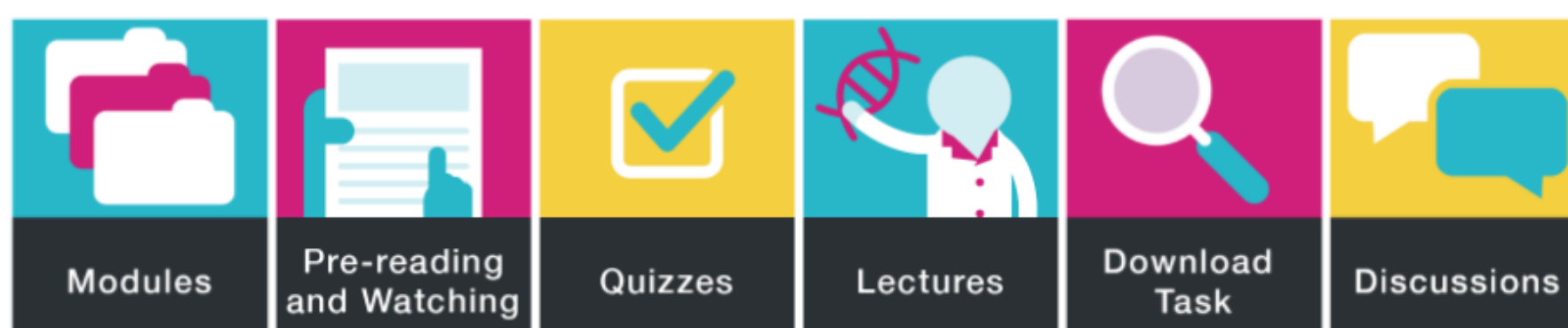
Monday 17th August @ 14:30: Live Lecture: Research Deep Dive, Task Discussion and Q&A



### Quick Links

Everything you need to complete this course is included in the 'modules'. Use the Navigation to access the modules.

But if you want to use quick links click the icons below.





# Impact

Students were surveyed before and after the programme. Below is an extract of data from our 2020 cohort.

Before the programme

After the programme

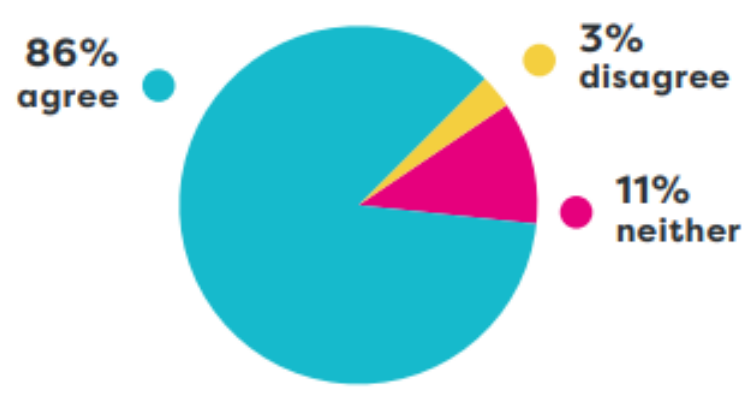
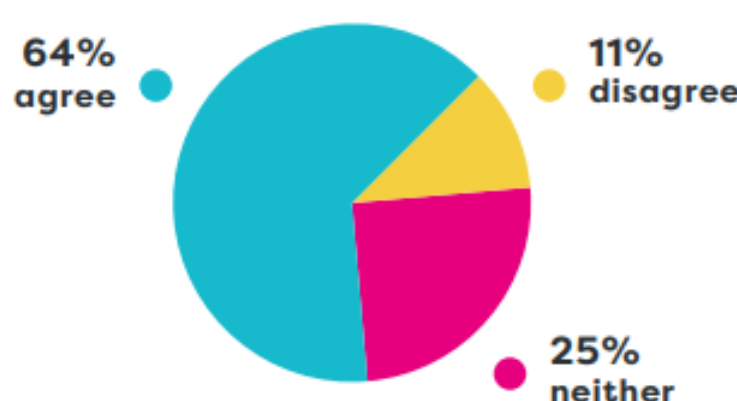
**'I am confident there are lots of STEM jobs available to me, once I have completed a STEM degree'**



**'I know a number of diverse careers I could enter with the degree I am choosing'**



**'I feel confident introducing myself to a STEM professional via email'**



**'I understand the content and structure of a range of STEM degrees'**



**'I can confidently write a high quality UCAS personal statement'**

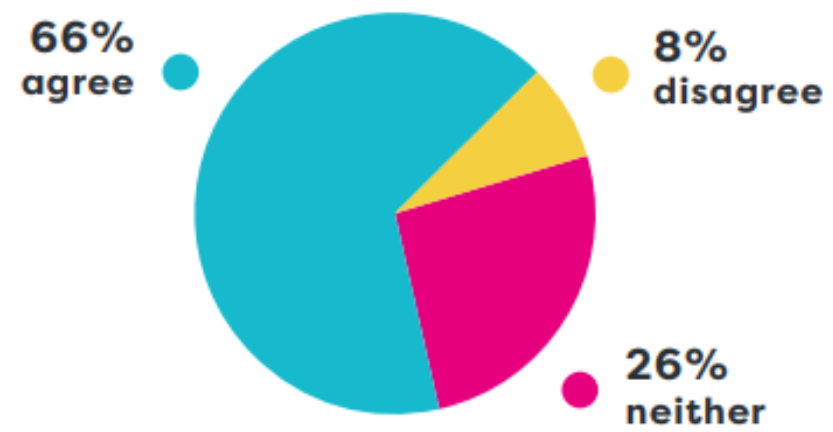


**'I know where to get support and advice about the application process'**

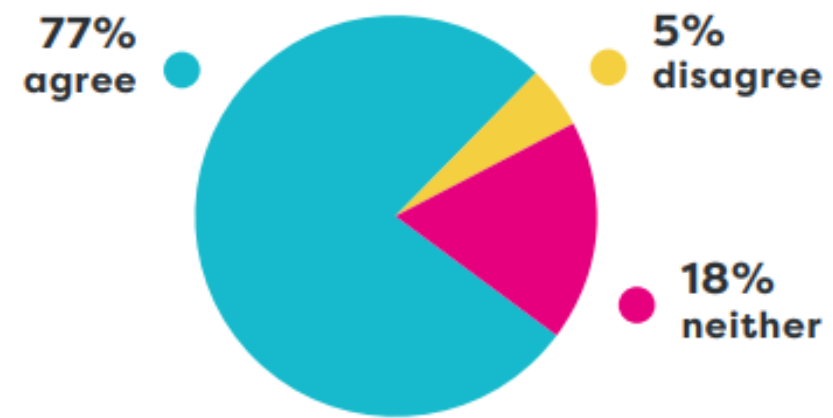
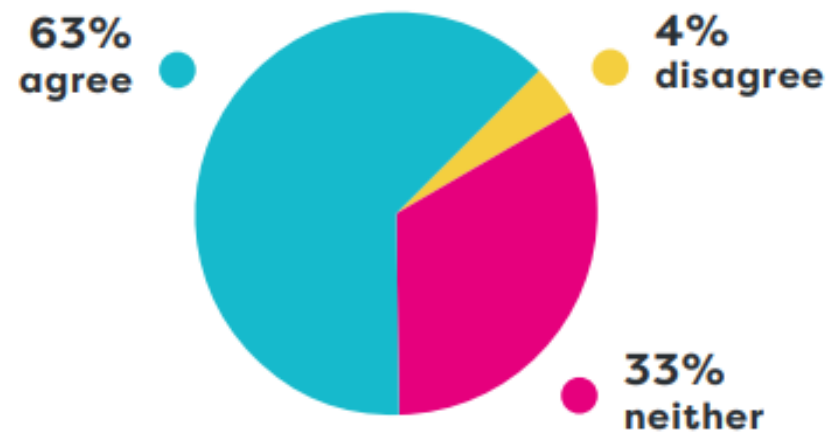




### 'People who look like me work in STEM'



### 'I know quite a lot about STEM'



### 'I feel confident using scientific evidence to make an argument'



## The 2021 Programme

For 2021 we will be running a hybrid programme with virtual and face to face elements. Due to the success of the online programme we shall still have research modules and mentoring delivered by researchers occurring online, but we shall also be asking every researcher (COVID dependant) to host a one day 'shadow a researcher' experience. This year we received 3000 applications and we would be delighted for the Guarentors of Brain would continue to support young people on our programme and deliver research modules and mentoring.

### Costs

Together we can support social mobility and diversity in STEM

**Gold: 60 students costs £40,000**

**Silver: 40 students costs £28,000**

**Bronze: 20 students costs £15,000**



In addition to writing up an impact report, we would write a blog on the support of brain researchers to promoting social mobility and diversity in STEM. We would also promote the Guarentors of Brain via social media. Your logo and link will also feature on the supporters page on the in2scienceUK website. This activity counts as evidence towards public engagement, outreach in departmental REFs and Athena Swan applications.