

PhD & MPhil training:

The Wellcome
Sanger Institute postgraduate
training programmes
1993-2023





Introduction

We have hosted and trained PhD students since our foundation in 1993. Our postgraduate programmes are a key part of the scientific strategy of the institute. Their goal is to develop a steady flow of highly motivated scientists with the core skills, experience, imagination and outlook necessary to become future leaders in genome research.

Our PhD programme currently enrolls twelve PhD students per year through a four-year programme. We also hosts two Wellcome PhD Training Fellowship for Clinicians students, to provide medically qualified individuals with genomics training. Our MPhil programme enrolls three Master's students per year who complete a fully-funded one-year research MPhil in Genomic Science, which was established at the Institute in 2016 and is specifically aimed at equipping students from low- and middle-income countries with the knowledge and experience needed to move on to competitive PhD programmes.

Our PhD and MPhil training programmes provide an environment that enables students to conduct genome research at scale. Being a student at the Sanger Institute also presents an opportunity to be part of a campus that hosts one of the greatest concentrations of genomic and biodata researchers in the world. Students get the chance to engage with our strategic partner institute EMBL-EBI, the small and medium sized companies that are located on campus, as well as the wider Cambridge biomedical network. Students are encouraged to take active roles in our numerous national and international collaborative research initiatives, with the aim of exposing them to large-scale collaborations early in their careers and helping them to build their own collaborative networks.

The Sanger Institute is a University of Cambridge Partner Institute and all successful Sanger Institute PhD and MPhil students graduate with degrees from the University of Cambridge.

By September 2023, 375 PhD students and 39 MPhil students have studied at the Sanger Institute.

PhD Programme

We actively seek and encourage diversity in our student intake, both in terms of country of origin and academic background. The programme is competitive and attracts applicants from all over the world. Typically, half of the applicants are from UK and EU, with the other half from the rest of the world. Over the past 10 years, we have received more applications overall from women than men, a trend which is reflected in the success rates of those applicants in gaining a place on the programme; resulting in a female to male ratio of 69:53.

There are over 40 applications per studentship, and shortlisted candidates attend face-to-face interviews with faculty members at the Institute PhD Open Day.

Most students receive their PhDs within four years. Analysis of the 96 PhD students in the 2013-2017 intakes indicates the average 4-year submission rate of 88%, with all years meeting the 70% 4-year submission rate expected by UK Research Councils, which we use as a sector standard.

MPhil Programme

Our MPhil programme is open to 15 partner research organisations, which include the home institutions of Sanger's International Fellows, the Africa and Asia Programmes, MRC overseas units and the International Centre for Diarrhoeal Disease Research in Bangladesh.





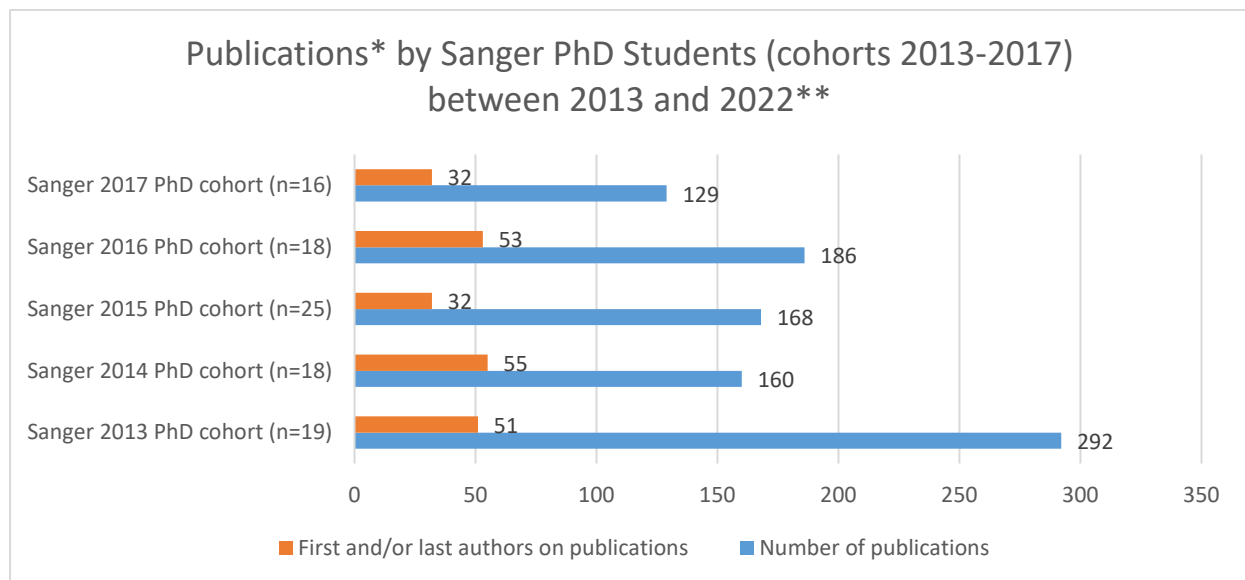
The close involvement of partners in the development of MPhil projects deepens our collaborative links with partner organisations.

In addition to the three core-funded MPhil students, we also accept MPhil students who have been awarded their own funding. Since 2016 we have hosted 29 MPhil students in eight cohorts, with nine having been externally funded. The vast majority submit their thesis within the expected 12 months.

Impact of our postgraduate programmes

A useful metric of the success of our programmes is the research articles that our postgraduate students publish arising from their work at the institute, and on through the rest of their careers. Postgraduate students at the institute have been first or last author on a substantial number of research papers (Figure 1), demonstrating the important role their research projects have in delivering our scientific strategy, and the opportunities the institute provides for students to take leading roles in research projects.

Ninety five of the ninety six PhD students who joined the PhD programme between 2013 and 2017 have become published authors. The bibliometric analysis (Figure 1) provides an insight into their publications.



* Includes articles and reviews

** Includes publications while at Sanger, and after completing their PhD and moving into other roles elsewhere.

Source: SciVal, data up to 7th September 2022

Figure 1. PhD cohort publications and first/last authorship positions.

We encourage our PhD students to engage with the wider scientific research community by regularly presenting at national and international scientific meetings.

Career destinations

A recent analysis of our PhD and MPhil alumni demonstrated that after completion of their training, students successfully pursued a range of career paths.

- 62% have pursued research careers in academia, industry, pharmaceutical companies, or start-up companies, and 29% are working in senior roles.



- 6% are medical, veterinary, MDPHD and MBPhD students (medical degrees with a PhD component), or working as clinicians.
- Our alumni have taken up roles in world-leading research institutions including Harvard University, University of California, Berkeley, Stanford University, University of Oxford, Imperial College London, the Broad Institute, the Crick Institute, the Gurdon Institute, the London School of Hygiene and Tropical Medicine, and companies such as Illumina, GSK, Syngenta, AstraZeneca, Novartis and Roche.
- 40% of our alumni have pursued opportunities outside research including in software development, data science, management consulting, scientific and technical sales, medical communications, law and patent law, and academic outreach and training.
- Many PhD students have been involved in the filing of patents and/or the development of spinout or start-up companies.

MPhil student alumni

- 84% from the 2014-2020 cohorts have pursued further study as PhD students, with nineteen having been accepted onto PhD programmes in the UK, EU, and Africa.
- Two have pursued medical training as part of MBPhD or MDPHD programmes and two have taken up research assistant roles.

Student satisfaction

In 2019 we undertook an in-house survey of our alumni, with 98% of respondents reporting that they use skills learnt during their postgraduate training (scientific and/or transferable) in their current role. The unique opportunity to work on science at scale, the variety of skills learned, and the high level of support available were highlighted as particularly useful aspects of their training experience.

Conclusion

Our postgraduate programmes are nurturing the next generation of leaders in genome research. The five most recent PhD cohorts to have completed their training demonstrate an exceptional publication record. Their career outcomes speak to the success of the programmes in equipping our students with the skills required to pursue careers in competitive academic and industry roles, or, in the case of the MPhil students, to enable them to successfully secure PhD positions. As such, it is unsurprising that our postgraduate programmes remain highly attractive to prospective students from all over the world.