

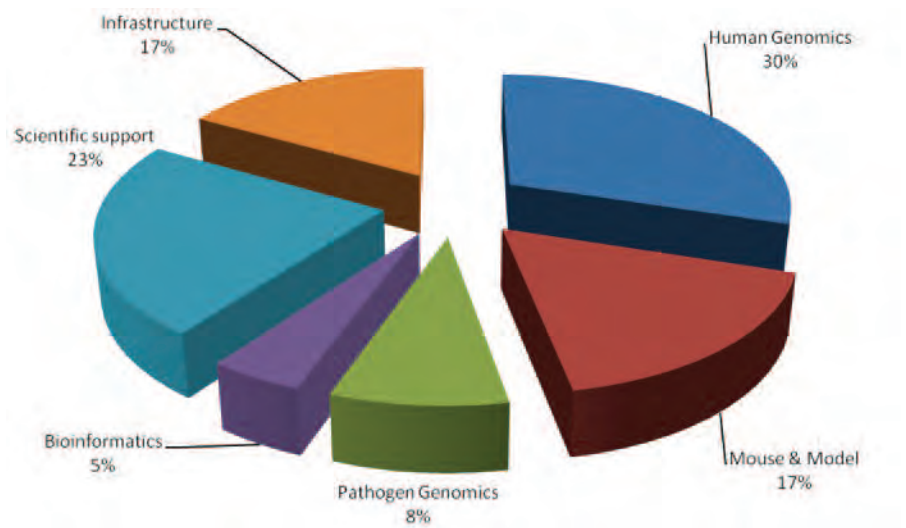
The Institute's research is founded on an ability to carry out biomedical research on a scale that is, in many cases, unmatched within Europe.

## » The Institute by numbers

### Expenditure

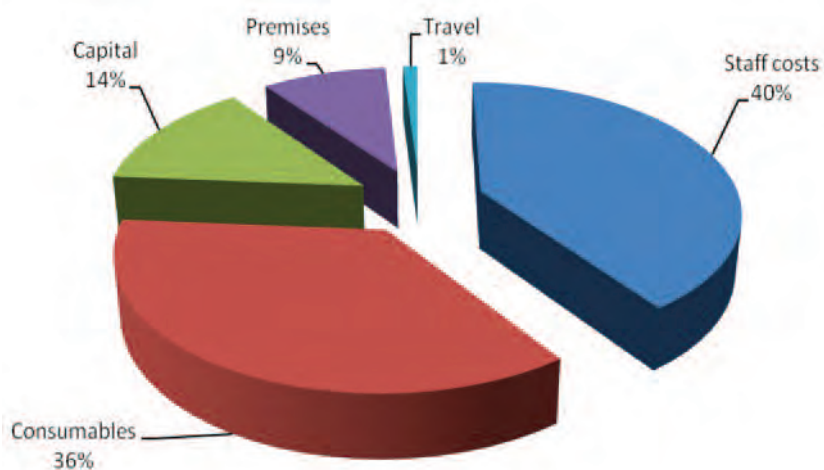
The Institute annually spends in the region of £90m of which approx 85 per cent comes from the Wellcome Trust and the remainder from other funding sources including the EU, the Medical Research Council, CRUK and the National Institute of Health (US government funding).

The split of expenditure between scientific areas is as follows:



This split reflects the level of expenditure of each of the key scientific programmes. The Scientific support and Infrastructure costs reflect the cost of running the high-throughput pipelines used by the science and running the campus and providing utilities and services.

The split of expenditure by function is as follows:



The functional split demonstrates that the largest spend of the Institute is on staff costs, but that this is less than half the total annual spend because a large portion of the Institute's operations are on its high-throughput pipelines which have proportionally higher capital and consumables spend than would be expected at other research establishments.

#### Staff profile

The Institute employs in the region of 900 individuals including 38 Faculty members, five Honorary Faculty members and a fluid population of approximately 80 postdoctoral fellows, many with their own personal fellowships. In addition, during 2009-10 the Institute's Graduate Programme had 49 students, including six clinical fellows, studying for a University of Cambridge PhD degree. At any one time the Institute is also hosting a wide cross-section of visiting scientists from collaborating institutions and laboratories around the world.

#### Publication data

From October 2009 to September 2010, the Institute published 290 original research articles, 85 of which were in journals with an impact factor greater than 10. Using the SCOPUS subject area classification of journals, the focus of these papers were:

- 70 per cent on biochemistry, genetics and microbiology (203 papers)
- 48 per cent on medicine (138 papers)
- 17 per cent on immunology and microbiology (50 papers)
- 13 per cent on agricultural and biological sciences (37 papers)
- 4 per cent on neuroscience (20 papers).

Of these 290 papers, 80.4 per cent involved collaborations with other institutions:

- 9.0 per cent with Cambridge-based collaborators
- 47.7 per cent with UK institutions
- 12.0 per cent with institutions in the USA
- 20.4 per cent with European institutions
- 10.9 per cent with institutions in the rest of the world  
(a paper may reflect collaborations with more than one location).

Over 2009, the median impact factor score for all the journals in which we published was 5.7 (not all journals we published in have an impact factor).

The Sanger Institute provides a range of opportunities for researchers during the early stages of their scientific careers.

## ➤ Educating and training the next generation

Educating and training the next generation of scientists remains central to the Institute's mission. We run a variety of schemes and programmes catering for individuals at different career stages – including a thriving graduate programme; an established programme for our Postdoctoral Fellows; partnering with the University of Cambridge and Addenbrooke's Hospital in a variety of clinical research training schemes; and offering short-term work placements to undergraduates and sixth formers. Study and training opportunities span biological and computational disciplines.

### Graduate Programme

We attract high-calibre individuals from around the world onto our four-year PhD programme. Our students are registered at the University of Cambridge and participate fully in Institute life. Besides being fully integrated into their research group they engage in a wide range of activities (seminars, courses and lectures) both at the university and at the Institute. There has been greater awareness of the importance of training clinical graduates at all levels in the Institute and our participation in the Cambridge Wellcome Trust PhD Programme for Clinicians has helped us to increase our cadre of clinical PhD students from two to six during 2009/10.

On an annual basis, our students link up with fellow students at the European Bioinformatics Laboratory, co-located on the Wellcome Trust campus, to organize the Sanger-EBI Cambridge PhD Symposium (eSCAMPS). This event is now in its fourth year and brings together students from the many institutes and departments within the University of Cambridge's Graduate School of Life Sciences.

We continue to keep a record of all the graduate students that have trained at the Institute. We have around 100 graduate student alumni to date, at least nine of whom hold Faculty positions across the world and at least a further 60 of whom are working as senior scientists or post-doctoral researchers in academia or in industry.



Radoslaw Lach

A new Sanger Institute PhD student-led initiative this year was a three-day retreat. This provided an excellent opportunity for the students to learn more about one another's work and interact as a cohort.

### Postdoctoral Fellows

We aim to provide a first-class and well-resourced learning environment in which our postdoctoral fellows can acquire the knowledge and skills they will need for a successful career in science. Many of our fellows have their own independent funding and are positively encouraged to seek support in this way. As with our students, we recruit internationally, resulting in a rich and diverse group who contribute at many levels.

We support our postdoctoral fellows through a dedicated career model and the provision of a range of training and other development opportunities, overseen by a joint committee comprising faculty members and fellows.

We provide access to career guidance through the University of Cambridge Careers Service to ensure that our fellows have access to the best possible advice when planning their next career move.

### Opportunities for clinicians

The Institute has a growing cadre of clinical scientists and welcomes applications from medics (and vets) at all stages of their clinical training. Opportunities range from:

- undergraduate placements for medical and veterinary students;
- taking time out from clinical training to study for a PhD either through the Institute's core programme or through one of the joint schemes with the University of Cambridge;
- continuing research training as a postdoctoral fellow;
- for higher qualified individuals, establishing independence via a recognized intermediate or senior clinical fellowship.

### Student placements

We place particular emphasis on encouraging young people to consider a career in science and, to this end, we welcome interest from students at all levels who wish to gain hands-on experience of working in a scientific research environment while studying. Every year we host a number of undergraduate summer students, offer work experience opportunities for 15-18 year olds and longer placements for sandwich students as part of their degree course.

Further information on all our education and training opportunities can be found on our website: <http://sanger.ac.uk/workstudy>.



We are involved in a broad spectrum of projects to stimulate interest, encourage informed debate, and foster a community of researchers that can engage audiences effectively with biomedical science.

## ➤ Communication and public engagement

### Enhancing our offer

While continuing to offer on-site experiences for more than 1500 visitors from schools and community groups, we have focused on developing video and stand-alone educational resources to enhance and extend programme activity.

Our videos – including a showcase of the on-site visit programme, a direct-to-consumer testing case study and an overview of issues raised by genome research – can now be seen on the YourGenome YouTube channel, together with our most popular animations. We also created a short instructional video with Faculty member Alex Bateman to help people use his popular origami DNA activity.

To expand our range of stand-alone materials, we have developed a range of contemporary topics on our public engagement website: [www.yourgenome.org](http://www.yourgenome.org).

These originated from scientific meetings at the Wellcome Trust Conference Centre: Genomic Disorders and Evolution, Brain, Behaviour and Intelligence. New animations and researcher pages have been designed to assist Applied Science education audiences. We also launched a Facebook and Twitter presence to provide teachers and curious adults with resource updates and a selection of genome research-related news.

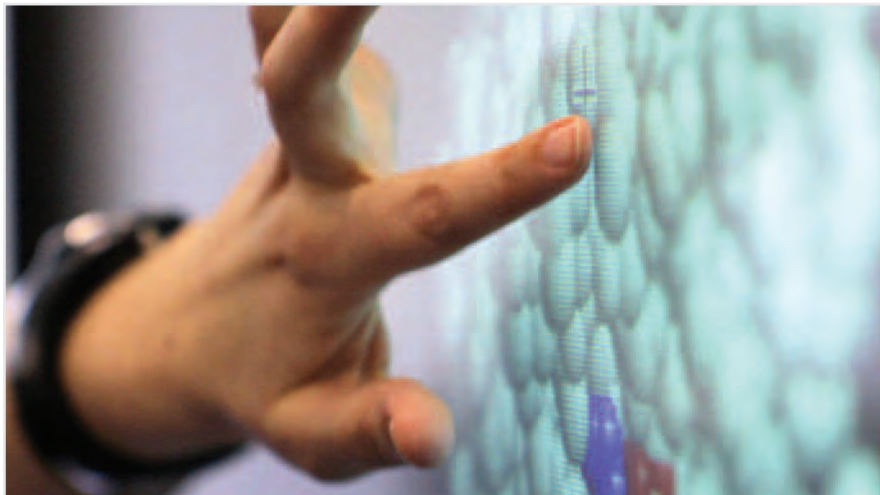
### Collaborations

Work with the informal learning sector has continued through the Wellcome Trust-funded exhibition *Inside DNA: a genomic revolution*. In 2009-10, *Inside DNA* – a collaboration with At-Bristol science centre and Ecsite-UK – travelled from Glasgow to Dundee and on to Sheffield, while satellite exhibits toured with BBC's *Bang Goes the Theory*. The Public Engagement team updates the content of the exhibition and programming package and participates in staff training at regional venues to provide an ongoing insight into contemporary research.



Genome Research Limited

To assist teachers and students, we have launched a Facebook and Twitter presence to keep them informed of new resources.



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More than 20 PhD second-year students and eight Postdoctoral Fellows have completed our science communication skills courses.

Through the Network of Science Learning Centres – particularly the National (York) and East of England centres – we have continued to offer teachers contemporary science updates and the opportunity to interact directly with researchers.

Closer to home, more than 30 Sanger Institute and European Bioinformatics Institute (EBI) volunteers have continued the tradition of engaging with approximately 1500 visitors at our DNA and Diversity activity area during Science Saturday at the Cambridge Science Festival. This year we also coordinated the production of a set of trails through the Biology Zone to help visitors find activities appropriate to their age and interest.

### Support for researchers

More than 20 second-year PhD students from the Sanger Institute and the European Bioinformatics Institute (EBI) completed our Developing Science Communication Skills training sessions this year. This year, science communication skills courses were offered and run for eight Postdoctoral Fellows.

To assist researchers in communicating their science, the Public Engagement and the Media and PR teams have continued to collect stock footage of Institute research activities, including the electron microscopy unit, mosquito facility and updated sequencing pipelines.



Genome Research Limited

Our instructional origami video helps people create their own DNA helices. The video features the hands and guidance of Dr Alex Bateman.



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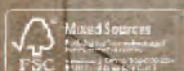
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