



Improving health through the best research

Science team strategy

Wellcome's Science team strategy

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Introduction

“Science is the belief in the ignorance of experts.”

Richard Feynman

The objective of Wellcome’s Science team for the period 2018–23 is, quite simply, to improve health through the best research.

Science changes quickly, so a strategy such as this cannot be too specific or prescriptive. Who, for example, would have imagined in 2010 the impact of CRISPR-Cas9? To provide the necessary flexibility, this strategy therefore outlines a set of principles that will guide what we do and how we do it over the next five years.

These will allow Wellcome to achieve four broad aims:

- 1) Creating knowledge
- 2) Strengthening research capability
- 3) Using knowledge effectively
- 4) Promoting an environment in which research can flourish

This strategy describes these aims and how we will achieve them.

The bulk of Wellcome’s work in this area is carried out by our Science team. But of course we do not work alone, and many of our ambitions will be achieved in partnership with our colleagues across Wellcome. And we will continue to work with other partners, including the research community, funding agencies, industry, charities and governments, to achieve our shared objectives.

My colleagues and I welcome comments on the ideas in this document. You can email any thoughts to Science@wellcome.ac.uk.

Jim Smith
Director of Science, Wellcome

Investigating the structures of signalling proteins on the surfaces of cells.
Wellcome Centre for Human Genetics,
Oxford. *Thomas Farnetti/Wellcome*



“The research work... is expected to yield much of purely technical interest which simply adds to the world’s scientific knowledge, but at the same time a very large part of such research work must have a very practical bearing on the great problems affecting the life, health and well-being of mankind.”

Henry Wellcome

1) Creating knowledge

Scientific research extends knowledge by testing and investigating ideas. As well as being valuable in itself, new understanding frequently leads, directly or indirectly, to improvements in health and to other benefits. It is hard to predict which research avenues will be the most productive, so we will continue to support the broadest range of research, and in doing so we will take risks. Our approach to creating knowledge has four broad objectives:

a) Improve our understanding of how life works

We will support research that builds a detailed understanding of biology and of how life works. This knowledge is important in its own right and can also inform future work to understand human health and disease and develop evidence-based health interventions. We will support research into any aspect of science that supports this aim.

b) Improve our understanding of health

We will support research that improves understanding of normal human development and physiology. This encompasses studies of the basic biology of tissues and organs and the complexities of diseases as well as clinical and population-based approaches. This work will provide context to what happens in disease, at the individual and population levels – including the many social and environmental influences of health and disease – and can inform the development of new drugs and treatments.

c) Use our understanding to inform better ways to maintain and improve health

We will support research that uses the full range of scientific knowledge to develop new interventions to improve health. These may include drugs, vaccines, diagnostic and health technologies, as well as population, societal, behavioural and community-based interventions, and reforms to health systems. We will support the robust evaluation of these interventions through all stages of their development.

d) Transform selected fields of research

We will work with the research community to identify areas of research that are particularly ripe for investment, whether because of need or because recent scientific or technical advances have created new opportunities. If we judge that we are well placed to make a significant difference to a field, perhaps by supporting the development of new methods, technologies or research infrastructure, then we will do so. Some such activities will best be carried out in collaboration with others, whether in the UK or abroad.



“The important thing is not to stop questioning. Curiosity has its own reason for existing.”

Albert Einstein

2) Strengthening research capability

To support the best research we must identify and support the the most able and dedicated researchers at every career stage and give them access to the best possible equipment and infrastructure. To achieve this, we have four broad objectives:

a) Build a sustainable and diverse population of talented individuals and teams to carry out research and generate knowledge

We will support researchers at key points in their careers, helping them fulfil their potential to become leaders of a diverse and inclusive research community.

b) Ensure the research community has access to state-of-the-art facilities and resources

We will invest in world-class facilities and resources to support world-class research – especially in scientific fields where we can have the most impact and where we can encourage new areas of research or routes to discovery.

c) Build research capability where it could best achieve transformational results

Progress requires expertise, so we will train people to work in scientific fields with particular potential for advances to be made – both in the UK and in low- and middle-income countries. We will particularly seek to help researchers in developing fields where career pathways are unclear or where there is little existing expertise.

d) Strengthen research capability in places where there is the opportunity to make significant local or global impact

Some locations provide unique conditions for valuable research to be done. We will invest to ensure that science can thrive in these places and result in significant improvements to health – and we will work with local partners to ensure that our initiatives are sustainable. Such places are often in low- and middle-income countries, where research potential – and the potential of promising researchers – may be limited by poor resources and infrastructure.

“Nothing in life is to be feared, it is only to be understood. Now is the time to understand more, so that we may fear less.”

Marie Curie



Laura Rodrigues, of the London School of Hygiene & Tropical Medicine, talks to women in Brazil as part of a project supported by Wellcome, looking at how the Zika virus affects babies. *Julio Bittencourt/Wellcome*

3) Using knowledge effectively

Scientific knowledge achieves its greatest value when it is readily available to be used by others. And if knowledge generated with Wellcome support can be used for the improvement of health, it should be. We and our colleagues around Wellcome will work with our researchers to make this happen. To this end we have three broad objectives:

a) Ensure that knowledge generated with Wellcome funding is accessible and usable

A condition of our funding is that researchers adopt the values of open research. We will work closely with scientists to promote openness and reproducibility and to encourage common data standards within the research community and among funders.

b) Facilitate the use of Wellcome-funded scientific knowledge to influence policy and practice

We encourage the researchers we fund to consider the political and policy impacts of their work. If their research might help in evidence-based decision making, we and our Policy colleagues will work with them to identify opportunities to influence policy makers accordingly. We expect that this help will be particularly important in resource-poor settings.

c) Make sure that Wellcome-funded knowledge is used to influence methodological and technological practice and advances

When our researchers make discoveries that can be translated into practical use, we shall help them make that translation happen. We and our Innovations colleagues will support the development of innovative techniques and approaches that may subsume and replace established methods and enable researchers to investigate new questions. This willingness to take risks and to go beyond current approaches is essential for driving rapid progress.



Ivo Elliott is working in Laos and Thailand studying scrub typhus. With Wellcome funding, he collects disease-carrying mites from rats and bandicoots in rural areas outside Chiang Rai.
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“I didn’t want to just know names of things. I remember really wanting to know how it all worked.”

Elizabeth Blackburn

4) Promoting an environment in which research can flourish

The research we support takes place in a diverse and complex social environment. We shall work with others to ensure that this environment is conducive to the flourishing of science and health research. This ensures that our funding yields the best results.

a) Initiate and promote research interactions

Because of our broad knowledge of biomedical, clinical and population science, and our extensive networks including researchers, industry, governments and other funders, we are well placed to make connections and encourage collaborations. We will bring together researchers and others with different expertise to share ideas and create new collaborations, and we will drive, catalyse and broker partnerships.

b) Influence research culture

Research culture is strengthened through the contributions of a diverse range of individuals who are allowed to operate at their best. We will work with our colleagues in Wellcome and with others to promote:

- i. the best standards of research
- ii. best practice
- iii. interdisciplinarity
- iv. inclusivity and diversity
- v. sustainability
- vi. public engagement.

Wellcome exists to improve health for everyone by helping great ideas to thrive.

We're a global charitable foundation, both politically and financially independent.

We support scientists and researchers, take on big problems, fuel imaginations and spark debate.

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