

Creating a world-leading centre for medical
science and innovation in London

Medical Research Council

Cancer Research UK

Wellcome Trust

UCL

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Scientific vision and research strategy

UKCMRI



FACING THE FUTURE

UKCMRI will be one of the most significant developments in UK biomedical science in a generation. Its goal will be to understand the basic biology underlying human health, driving forward better treatment and prevention of the most significant diseases affecting people today.

The time is right

UKCMRI is being established at an auspicious time for medical research. New discoveries and technological advances have opened up countless opportunities to uncover fundamental biological mechanisms in health and disease.

Genome sequencing has given us new tools for understanding genetic contributions to health. Cell-based approaches are revealing how molecules function in living systems. Sophisticated animal models provide essential tools for understanding function at the whole-organism level. Bioinformatic approaches and computer modelling are becoming ever more powerful. Underlying all these advances are high-resolution imaging technologies that enable biological processes to be visualised in both space and time.

At the same time, while health and lifespan continue to improve in the UK, many challenges remain. More than one in four people will die from cancer. Heart and circulatory

disease continue to blight many lives. Difficult-to-treat neurodegenerative diseases are growing in importance as the population ages. Many infectious agents remain serious threats to health.

The roots of these and all diseases lie in the altered functioning of cells or the way they interact in the body, and different conditions often have features in common. We therefore need a better understanding of biological processes in health, so we can understand why disease develops – and how it might be prevented or treated.

A new institute

UKCMRI has been founded by the Medical Research Council (MRC), Cancer Research UK, the Wellcome Trust and UCL (University College London). It will be based on the world-class research currently being carried out at the MRC's National Institute for Medical Research, Cancer Research UK's London Research Institute and in UCL's laboratories. The Wellcome

Trust has supported numerous innovative ventures in recent years, including the Wellcome Trust Sanger Institute, which sequenced one-third of the human genome.

In time UKCMRI will grow to house some 1500 staff, making it one of Europe's largest centres of biomedical research. But the UKCMRI project is not simply about bringing together different research institutes on a single site. It has provided an opportunity to consider from scratch how a world-leading national research institute should be organised and run. UKCMRI will be an entirely new institute with a distinctive vision of how biomedical research should be conducted.

Size matters not for its own sake but because it creates the critical mass necessary for successful multidisciplinary research. Important biological questions need to be tackled using a range of methodological approaches spanning traditional disciplinary and disease-related boundaries. It also needs to

IMAGE

Frank Uhlmann, who studies chromosome segregation at Cancer Research UK's London Research Institute.

UKCMRI: SCIENTIFIC VISION AND RESEARCH STRATEGY

- UKCMRI's principal focus will be the fundamental biological processes underlying human health and disease.
- Its research will be both broad and deep – covering all areas of disease and all levels from the molecule to the whole organism.
- It will take interdisciplinary and multidisciplinary approaches to biomedical research, drawing input from chemists, physicists, mathematicians, computer scientists, engineers and others.
- It will promote a dynamic working environment with constant refreshment of ideas and personnel.
- It will drive the development and roll-out of innovative new technologies, to open new avenues of research.
- It will nurture a culture in which clinical and commercial translation is valued as highly as discovery research.
- It will build extensive networks locally, nationally and internationally, with academia, industry and the public sector.
- It will play a national role developing technologies and training scientists and technical staff for the benefit of the wider UK biomedical science base.
- It will engage with the public to build strong relationships with local communities.



UKCMRI has ambitious objectives – a global outlook, a long-term perspective and the aim of generating advances in knowledge that will make a substantial difference to the health of many people.

draw much more upon the physical sciences, including engineering, computing and mathematics.

Progress is often linked to novel technologies, and technology development can be inspired by and drive the discovery process. UKCMRI will have excellent advanced core facilities and an emphasis on technology development and diffusion.

Indeed, dynamism will be at the heart of UKCMRI. Most of its researchers will be in highly creative and productive mid-career phases, working in compact groups and establishing collaborations within the institute and externally.

UKCMRI will develop links with clinical centres, and foster a culture

that values and promotes active translation. The aim will be to drive discovery through to application. UKCMRI will blur the boundaries between 'academic', 'industry' and 'public sector' research, promoting interactions and collaborations to accelerate translation and innovation. Clinical liaison and technology transfer will be both encouraged and valued.

A national asset

UKCMRI will maintain both an international outlook and a national perspective. It will be the hub of multiple local, national and international networks, aided by its proximity to numerous clinical centres, research institutions and London's

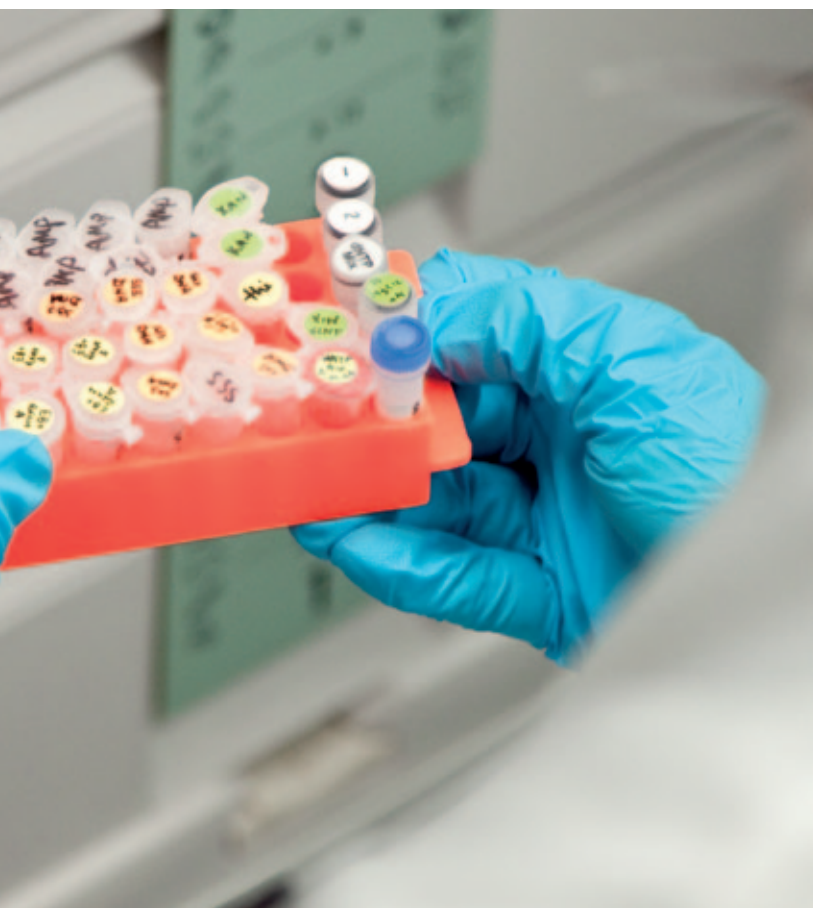
national and international railway terminals. Globally, it will become one of the world's leading biomedical research institutions.

UKCMRI will play an important national role. It will recruit from a global pool of talent, providing an opportunity for researchers to develop their careers in the UK. Through collaborations, UKCMRI will build extensive links throughout the UK medical science base. A key role for UKCMRI will be to train scientists and technicians at all levels to the highest standards, preparing them for leadership roles in other biomedical research institutions within the UK.

In the longer term, UKCMRI will help to establish collaborative networks linking research across the country. In addition, it will act as a hothouse for new technologies that can be diffused to other sites, along with the expertise needed to exploit them.

IMAGE

Genetic manipulation of yeast cells in the Telomere Biology laboratory, London Research Institute.



A singular vision

UKCMRI will be one of the most significant developments in UK biomedical science for a generation. It has ambitious objectives – a global outlook, a long-term perspective and an aim of generating advances in knowledge that will make a substantial difference to the health of countless people. It has behind it the UK's main Government agency for biomedical research, the country's leading cancer charity and, in the Wellcome Trust, Europe's largest endowed charitable foundation.

To achieve its objectives, UKCMRI will need to be imaginative and to take risks. It will put its faith in researchers who have the best ideas, the ability to think creatively, the inclination to work collaboratively, and the drive to turn promise into reality.

In this way, UKCMRI will play a key role in creating the foundation of knowledge on which this century's improvements in health will be based.

MRC NATIONAL INSTITUTE FOR MEDICAL RESEARCH

Founded in 1913, the MRC National Institute for Medical Research (NIMR) is renowned for its research in a diverse range of fields, including developmental and stem cell biology, structural biology, neuroscience, immunology and infectious disease. With existing strong links to UCL, NIMR is the largest MRC unit, housing almost 600 scientific staff, fellows and PhD students. Its Director is Jim Smith.

CANCER RESEARCH UK LONDON RESEARCH INSTITUTE

The Cancer Research UK London Research Institute (LRI) has an international reputation for its research in the basic biology of cancer. The institute's broad research programme covers three areas – genomic integrity and the cell cycle, cell regulatory mechanisms, and tissues and tumour biology. The LRI was born out of the principal research facilities of the Imperial Cancer Research Fund, founded in 1902 as the first specialist cancer research charity in the UK, following the creation of Cancer Research UK in 2002. With some 500 scientists, the LRI is the largest core-funded institute in Cancer Research UK's portfolio. Led by Richard Treisman, the institute operates at laboratories at Lincoln's Inn Fields in central London and Clare Hall in Hertfordshire.

UCL

UCL is one of the world's leading research universities, with nearly 2000 researchers in the biomedical sciences alone. UCL has great strengths in the physical sciences and mathematics, and promotes interdisciplinary interactions among its many institutes. UCL Medical School forms part of its School of Life and Medical Sciences, led by Professor Sir John Tooke.

THE WELLCOME TRUST

The Wellcome Trust is a global charity, committed to realising the full potential of biomedical research to improve health. It was created in 1936 on the death of Sir Henry Wellcome. The Trust has made a major contribution to science over the decades: supporting outstanding researchers and building world-class research environments in universities and other institutions. In addition to contributing to the cost of building UKCMRI, the Trust has expressed its intention to fund research within the institute.