

NEWS RELEASE

OXFORD MARTIN SCHOOL, University of Oxford

EMBARGOED FOR RELEASE UNTIL: 01:00 on Thursday 31 May 2012



A novel recipe for intellectual innovation

Exploiting the power of modern genetics; developing vaccines without needles; computing inspired by biology; and safeguarding future human security are research questions to be tackled by new teams joining the Oxford Martin School through a £6.4 million competition, the School announced today.

Six new research programmes will commence in October, following a highly competitive process. With over 330 individual applications from across the University of Oxford, academics were clearly eager to push the frontiers of interdisciplinary research. Ultimately the successful teams addressed the School's key criteria: promoting academic excellence; addressing issues of a global scale; ensuring a real-world impact beyond academia; and developing innovative interdisciplinary research.

In announcing the awards, Professor Ian Goldin, Director of the Oxford Martin School, said: "We need fresh approaches that break out of academic silos if we are to address mounting global problems. The Oxford Martin School drives collaboration among academics from a wide range of disciplines to address some of the most pressing challenges of this century. By bringing in these new teams of physicists, mathematicians, social scientists, philosophers, biologists, zoologists, medics and others I am confident that we can build on the extraordinary existing research being undertaken by the Oxford Martin School. Our research community now encompasses over 300 scholars working to identify novel approaches to tackling the challenges of the 21st century."

The six new projects will involve over 70 academics from 17 different departments across the University of Oxford. The projects are:

- 1) **Viral infections** – exploiting the unprecedented power of modern genetics to understand the clearance of viral infections such as HIV and Hepatitis C.
- 2) **Resource stewardship** – radically rethinking global resource stewardship to consider the tensions within an increasingly crowded world, accountable to future generations.
- 3) **Quantum technology** – learning directly from biological systems to develop quantum computing which will revolutionize current information processing capacity with impacts for climate predictions and drug discovery.
- 4) **Vaccines** – transforming vaccines against globally important diseases such as influenza, and developing innovative needle-free delivery technologies.
- 5) **Human rights for future generations** – designing a new framework for human rights to deal with the unprecedented and unpredictable factors affecting the welfare of future generations.
- 6) **Complexity, risk and resilience** – improving the resilience of critical global systems – food webs, the internet, the global financial system – in the face of growing risk and uncertainty.

END

NOTES FOR EDITORS

About the Oxford Martin School:

The Oxford Martin School is a unique, interdisciplinary research community of over 300 scholars working to address the most pressing global challenges and opportunities of the 21st century. Founded at the University of Oxford in 2005 through the vision and generosity of Dr James Martin, the Oxford Martin School has grown into a global centre for interdisciplinary scholarship and thinking about the future. The School aims to develop new approaches to some of society's most intractable questions. Research is organised via four core themes: health and medicine; energy and environment; technology and society; and ethics and governance. The Oxford Martin School's Director is Ian Goldin, University Professor of Globalization and Development.

<http://www.oxfordmartin.ox.ac.uk>.

Further descriptions of the new projects:

Viral infections

We live in exciting times for the treatment of viral infections. Ever more anti-viral drugs are being approved and new, cheap ways of reading gene sequences let us "watch" as events unfold inside infected people. The goal is to better understand how to cure chronic viral infections with individually tailored treatments that rid the host of the virus. Individually-tailored therapies will undoubtedly start as a rich-world phenomenon, but experience with HIV therapies has taught us that initially expensive technologies can, in time, be rolled out into the poorest countries. Working specifically on Hepatitis C and HIV which infect 200 million people worldwide, this research will exploit genetics, immunology and mathematical biology to develop innovative ways to clear these chronic viral infections.

Led by: Professor Angela McLean and Professor Rodney Phillips

Resource stewardship

Resource stewardship in a world approaching 10 billion people is one the defining challenges of the 21st century. This group will look at the impediments to effective use and conservation of global resources, including individual self-interest leading to overconsumption, lack of information about resource availability and limits, and institutional inability to make use of available information. Looking specifically at freshwater resources and land-use, the team will combine ethics and governance with the natural sciences to provide multi-dimensional tools for better resource allocation decision making.

Led by: Professor Myles Allen; Professor Jim Hall; Professor Steve Rayner; and Professor Kathy Willis

Quantum technology

Nature's apparent capacity to efficiently process quantum information has inspired this research team to understand nature's secrets and to replicate them, creating the building blocks of future quantum computers. With implications for complex questions such as predicting climate or physiological function, quantum computers could be capable of modelling systems currently too challenging for today's supercomputers.

Led by: Professor Vlatko Vedral and Professor Dieter Jaksch

Human rights for future generations

Armed conflict, poverty and environmental change are some of the most urgent challenges to human security. This program of research will examine the extent to which human rights can address these inter-connected challenges, both for current and future generations. The research, which will be conducted by experts in law, politics and ethics, aims to design a new framework of human rights, together with appropriate institutions, to address these challenges. In particular, it will attempt to find ways of reconciling the often conflicting interests of current and future generations.

Led by: Professor Sandra Fredman; Professor Simon Caney; and Mr Dapo Akande

Vaccines

The team aims to combat diseases which are genetically adept at outwitting our immune systems. New-generation vaccines would tackle globally important diseases and pandemics including dengue, influenza, malaria and MRSA. New needle-free delivery technologies will enhance the public health impact of immunisations, whilst also considering the regulatory and societal questions raised by new vaccination approaches.

Led by: Professor Adrian Hill; Professor Andrew Pollard; and Professor Christoph Tang

Complexity, risk and resilience

Growing complexity is the hallmark of the 21st century, with important implications for the fragility or resilience of critical economic, social, ecological, and technical systems. This research team looks at how increasing complexity can generate unanticipated outcomes, thwarting our efforts to evaluate or manage systemic risks. Improving the resilience of systems that underpin all aspects of life and the environment – food webs, the internet, the global financial system – will be a key priority of this research in the face of growing risk and uncertainty.

Led by: Dr Felix Reed-Tsochas

For further information or to arrange interviews with academics, contact:

Alison Stibbe, Head of Communications, Oxford Martin School

tel: +44 (0)1865 287434

mob: +44 (0)7825 931579

email: alison.stibbe@oxfordmartin.ox.ac.uk

Julia Banfield, Communications Officer, Oxford Martin School

+44 (0) 1865 287429

+44 (0) 7972 284146

email: julia.banfield@oxfordmartin.ox.ac.uk