UNIVERSITY OF
BIRMINGHAM

CONSTANTLY QUESTIONING

Quest

For over a century, the University of Birmingham has flourished by constantly questioning and re-evaluating the world and how we understand it.

Ours is a Nobel Prize-winning academic environment with Birmingham researchers at the forefront of some of the most fundamental breakthroughs across the spectrum of academic endeavour.

At Birmingham, our quest is to think in original ways, to seek different paths and perspectives, and to continually ask the most pertinent questions.

THIS IS OUR QUEST

Our founder and first Chancellor Joseph Chamberlain established the University in 1900 as *'a great school of universal instruction'*, so that *'the most important work of original research should be continuously carried on under most favourable circumstances'*.

We live, work and study in the historic surroundings of our campus that extends to 763 acres, enjoying art galleries, museums, special collections, parks and lakes.

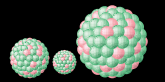
Our Joseph Chamberlain Memorial Clock Tower is known as Old Joe. At 100 metres, it is the tallest free-standing clock tower in the world.

The University contributes more than £3.5 billion to the West Midlands regional economy each year.

11 NOBEL PRIZE WINNERS

MORE THAN 100 YEARS OF RESEARCH THAT MATTERS

1922



CHEMISTRY PRIZE
DISCOVERING ISOTOPES
Professor Francis W. Aston

1937

CHEMISTRY PRIZE
SYNTHESISING VITAMIN C
Professor Sir W. Norman Haworth

1937

NOBEL PEACE PRIZE
FOUNDING THE LEAGUE OF NATIONS
Lord Robert Cecil

1960

PHYSIOLOGY OR MEDICINE PRIZE
PIONEERING ORGAN TRANSPLANTS
Professor Sir Peter Medawar

1962

PHYSIOLOGY OR MEDICINE PRIZE
REVEALING DNA STRUCTURE
Professor Maurice Wilkins

1982

PHYSIOLOGY OR MEDICINE PRIZE
UNDERSTANDING PAIN-RELIEF: ASPIRIN
Professor Sir John Vane

2001

PHYSIOLOGY OR MEDICINE PRIZE
INSPIRING CANCER TREATMENTS
Professor Sir Paul Nurse

2007

NOBEL PEACE PRIZE
UNDERSTANDING CLIMATE CHANGE
Professor Peter Bullock

2016

PHYSICS PRIZE
DEEPENING OUR UNDERSTANDING OF EXOTIC MATTER
Professor David J. Thouless
Professor J. Michael Kosterlitz

2016

CHEMISTRY PRIZE
PIONEERING MOLECULAR MACHINES
Professor Sir J. Fraser Stoddart

OUR QUEST IS TO:

CHALLENGE THE WAY
WE LOOK AT THE WORLD

CAN MACHINE PERFUSION INCREASE TRANSPLANTS BY USING LIVERS THAT ARE NORMALLY DISCARDED?

We have been at the forefront of transplants since the pioneering work of Sir Peter Medawar, who was awarded a Nobel Prize for his work on tissue grafting, the basis of organ transplants. Today, we have the largest solid organ transplantation programme in Europe and we are now testing whether livers that don't meet current transplant criteria can be made viable for transplant.

INSTITUTE OF IMMUNOLOGY AND IMMUNOTHERAPY

HOW SHOULD RAILWAYS RESPOND TO THE ECONOMIC AND SOCIAL DEMANDS OF THE 21ST CENTURY?

At the Birmingham Centre for Railway Research and Education, the largest of its kind in Europe, we are enhancing the future success of railways, improving the speed, safety, resilience, sustainability, operations and management of railways across the globe.

The Queen's Anniversary Prizes
For Higher and Further Education
2017

BIRMINGHAM CENTRE FOR
RAILWAY RESEARCH AND EDUCATION

HOW CAN WE MAKE EARLY CHILDHOOD DEVELOPMENT AND EDUCATION MORE INCLUSIVE FOR CHILDREN WITH DISABILITIES?

Birmingham is leading the way in developing an early childhood curriculum to increase the quality of education for young children with disabilities. In Malawi, we are working alongside the government in the hope of creating long-lasting change. We are promoting inclusion through multidisciplinary working, researching the role of mainstream and special schools and pedagogies, and educational achievement.

THE DEPARTMENT OF DISABILITY INCLUSION AND SPECIAL NEEDS

DEMOCRACY IS UNDER THREAT. HOW DO REGIMES RIG ELECTIONS AND GET AWAY WITH IT?

For over 50 years, our work has shaped contemporary debates in development studies and democratisation. From gender inequality, to peace, conflict and the political economy of democracy promotion, our work is innovative, interdisciplinary and policy-relevant, collaborating with researchers around the world, especially in sub-Saharan Africa, South and South-East Asia and Latin America.

INTERNATIONAL
DEVELOPMENT DEPARTMENT

400 YEARS AFTER SHAKESPEARE'S DEATH, HOW DO WE KEEP HIS LEGACY ALIVE?

William Shakespeare is widely regarded as the most influential and revered playwright and poet in the world. The University's Shakespeare Institute in Stratford-upon-Avon re-imagines the way that he is perceived and studied, pushing the boundaries of knowledge and understanding of how people interact with Shakespeare's work today.

THE SHAKESPEARE INSTITUTE

THE BARBER INSTITUTE OF FINE ARTS

The Barber Institute of Fine Arts on our campus houses a world-class art gallery and concert hall in Birmingham's finest art deco building.

IN AN ERA OF ENHANCED MOBILITY AND DIVERSITY, HOW DO WE FIND A HUMANE AND SUSTAINABLE RESPONSE TO THE MIGRATION CRISIS?

We are undertaking pioneering research in the fields of migration and superdiversity. We tackle important issues such as access to health and welfare, integration and social cohesion, discrimination and exclusion. Our work impacts in policy and practice in the UK, Europe and across the globe.

INSTITUTE FOR RESEARCH
INTO SUPERDIVERSITY

HOW DO WE DELIVER PRECISION MEDICINE TO MAKE A DIFFERENCE TO THE LIVES OF PATIENTS FIGHTING DISEASES?

With one of the greatest concentrations of scientists and doctors in the world, we are the forefront of immunotherapy and immunology. Our research includes all components of the bench-to-bedside pathway. It focuses on understanding the molecular and cellular control of the immune system and translating this into therapies and treatments for diseases including cancer, autoimmunity and inflammatory disease.

INSTITUTE OF IMMUNOLOGY
AND IMMUNOTHERAPY

HOW CAN WE INTERPRET THE STONEHENGE LANDSCAPE?

We are transforming our understanding of Stonehenge, extending the story of its cultural and natural landscape setting back to the last ice age. Through international collaboration and blending the latest technologies with archaeological excavation and analysis, we are creating a new narrative of the World Heritage Site for the 21st century.

CLASSICS, ANCIENT HISTORY AND ARCHAEOLOGY

HOW CAN BUSINESS BE ‘RE-WIRED’ RESPONSIBLY TO SECURE A FUTURE IN WHICH BUSINESS BENEFITS ALL?

A responsible business encourages and enforces positive changes for society, the economy and the environment. Working with businesses, such as Lloyds Banking Group, we are developing and creating innovative solutions to achieve responsible business success. We are working for a responsible future.

BIRMINGHAM
BUSINESS SCHOOL

THE WORLD'S FRESH WATERS ARE UNDER THREAT. HOW CAN WE CREATE SUSTAINABLE SOLUTIONS TO PREVENT A WATER CRISIS?

We are developing a supra-disciplinary research base that uses cutting-edge field, laboratory and modelling approaches. By blending expertise in Environmental Engineering, Health, Socio-economic, Cultural and Business-related aspects of water research, we address key challenges for a changing world.

WATER
SCIENCES


PUSH THE BOUNDARIES
OF WHAT WE KNOW

SEVEN MILLION PEOPLE DIE EVERY YEAR FROM TOXIC AIR POLLUTION. HOW CAN WE INFLUENCE GOVERNMENT POLICY TO CLEAN UP THE SKIES?

We are forging international and interdisciplinary partnerships to help meet the global challenge of air pollution, in order to control emissions and reduce public-health impacts. We are establishing the causes of air pollution and applying that learning to provide science advice in support of policy development.

ENVIRONMENTAL SCIENCES

HOW CAN WE PREVENT HEART FAILURE, STROKE AND SUDDEN DEATH?

Our multidisciplinary research brings together researchers seeking to understand the pathways accelerating arterial and heart diseases and the factors influencing cardiovascular health. From integrated approaches to managing atrial fibrillation and reducing stroke risk to equipping patients to recognise hypertension, we are a world-leading centre for the translation of the very latest scientific research findings to clinical benefit.

INSTITUTE OF CARDIOVASCULAR SCIENCES

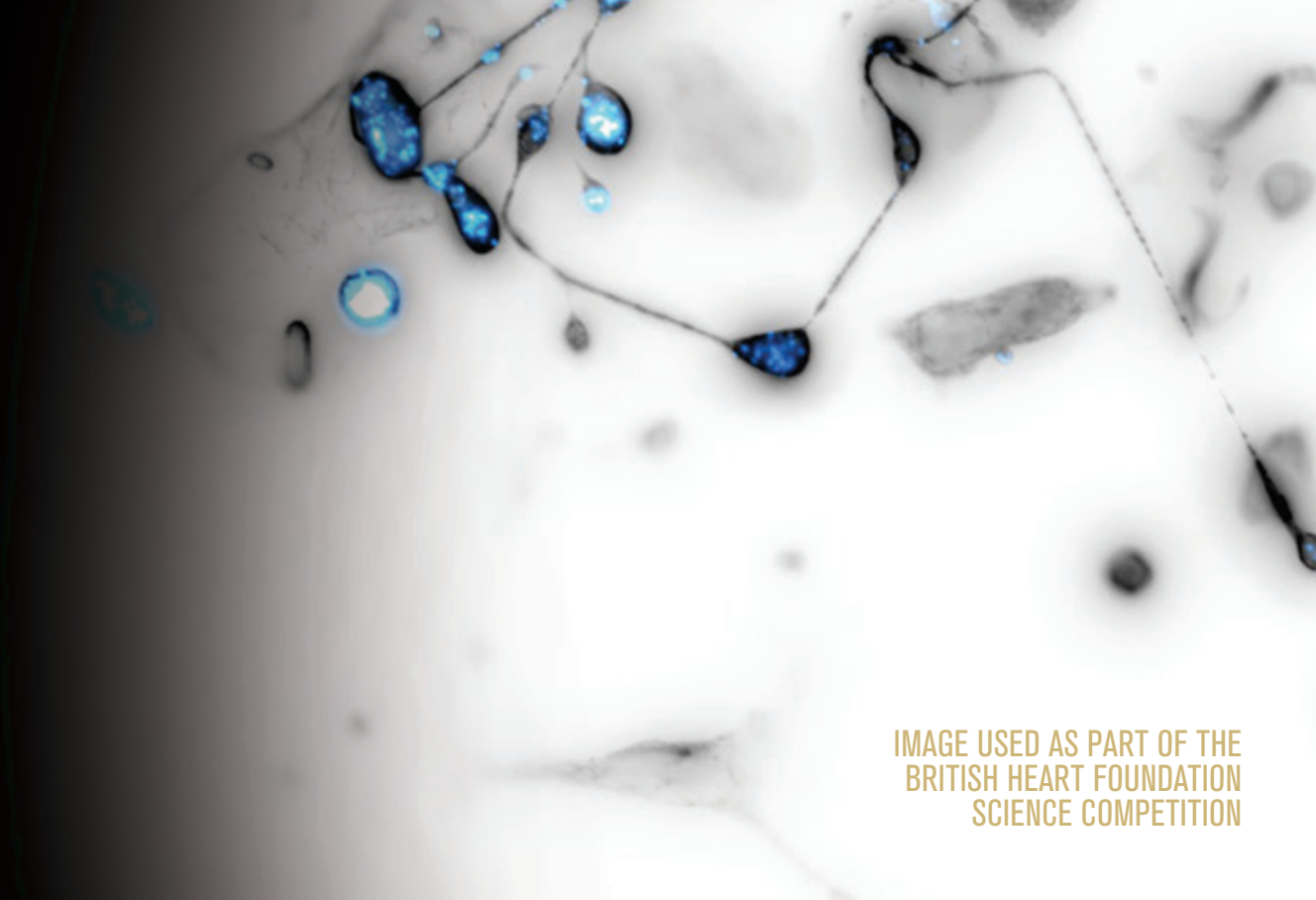


IMAGE USED AS PART OF THE BRITISH HEART FOUNDATION SCIENCE COMPETITION

HOW SHOULD WE ADDRESS THE MORAL AND ETHICAL QUESTIONS OF ISSUES SUCH AS EXTREME POVERTY, GLOBAL WARMING AND GENDER JUSTICE?

Our Centre for Global Ethics is an international hub of interdisciplinary research, impact and engagement. Researchers are working across global ethics with focus areas on justice and development, environment and health, gender justice, and conflict and security.

THE CENTRE FOR GLOBAL ETHICS

WHAT CAN WE LEARN ABOUT THE ORIGIN OF OUR UNIVERSE FROM THE DISCOVERY OF GRAVITATIONAL WAVES?

We have worked on the Advanced LIGO project since its inception and were part of the team that discovered gravitational waves. We are now researching a new generation of gravitational-wave detectors, pioneering ideas in precision measurement at the quantum level.

INSTITUTE OF GRAVITATIONAL WAVE ASTRONOMY

THE LAPWORTH MUSEUM OF GEOLOGY

The Lapworth Museum of Geology holds a fine and extensive collection of fossils, minerals and rocks. Dating back to 1880, it is one of the oldest specialist geological museums in the UK.

FACED WITH INCREASING POPULATIONS, URBANISATION GROWTH AND CLIMATE CHANGE, HOW WILL WE TACKLE THE FUTURE GLOBAL DEMAND FOR COOLING?

Effective cooling is essential to preserve food and medicine. It underpins industry and economic growth, and is key to sustainable urbanisation as well as providing a ladder out of rural poverty. We are changing the way we deliver, consume and think about energy with 'Clean Cooling': the provision of cooling through efficient and sustainable means.

BIRMINGHAM ENERGY INSTITUTE

WHAT DO SEISMIC STUDIES OF THE SUN AND STARS TELL US ABOUT OUR OWN SOLAR SYSTEM?

We are leading international work on using stellar resonances to characterise the stars around which newly discovered planets have been found. By studying the 'music' of these host stars we can answer questions such as how big are the planets that have been found around the stars and how might those planets be capable of harbouring life?

ASTEROSEISMOLOGY

FACED WITH AN AGEING POPULATION, HOW CAN WE REDUCE THE DISEASE BURDEN IN OLDER PATIENTS?

Our discovery scientists, clinicians and patient partners are working together to develop novel treatments for a range of age-related diseases. They are transforming the way chronic, debilitating and life-threatening conditions are prevented and treated. By tackling the fundamental biological mechanisms that drive the pathology across different age-related diseases, most notably inflammation, we are contributing to the challenge of healthy ageing.

INSTITUTE OF
INFLAMMATION AND AGEING

HOW DO YOU RAPIDLY AND SAFELY TRANSLATE CUTTING-EDGE SCIENCE INTO IMPROVED PATIENT CARE?

We are home to one of the largest clinical trial clusters in Europe and have been delivering trials expertise across a wide range of diseases, clinical settings and trial designs for over 40 years. Patients and the public are working in partnership with our academics and clinical teams to shape the future of healthcare research.

THE CADBURY RESEARCH LIBRARY

The library holds a rich, extensive collection of rare books, manuscripts, archives and photographs, including the Birmingham Qur'an manuscript.

WHAT DOES RESEARCH INTO ANCIENT TEXTS, REVEALING AGE-OLD BELIEFS AND LIFE ACROSS THOUSANDS OF YEARS, MEAN TO OUR WORLD TODAY?

We have a long history of researching ancient texts and manuscripts from antiquity to the early modern period in History and Cultures, Languages and English Literature. Using specialist expertise and new technologies, we put these texts in context and discover what they mean to our world today. Our researchers dated a Qur'an manuscript to the period between AD 568–645, close to the time of the Prophet Muhammad.

INSTITUTE FOR TEXTUAL
SCHOLARSHIP AND ELECTRONIC EDITING

FORESTS ARE UNDER THREAT FROM DEFORESTATION, CLIMATE CHANGE, PESTS AND DISEASES. HOW RESILIENT ARE OUR FORESTS AND WOODLANDS TO OUR CHANGING ENVIRONMENT?

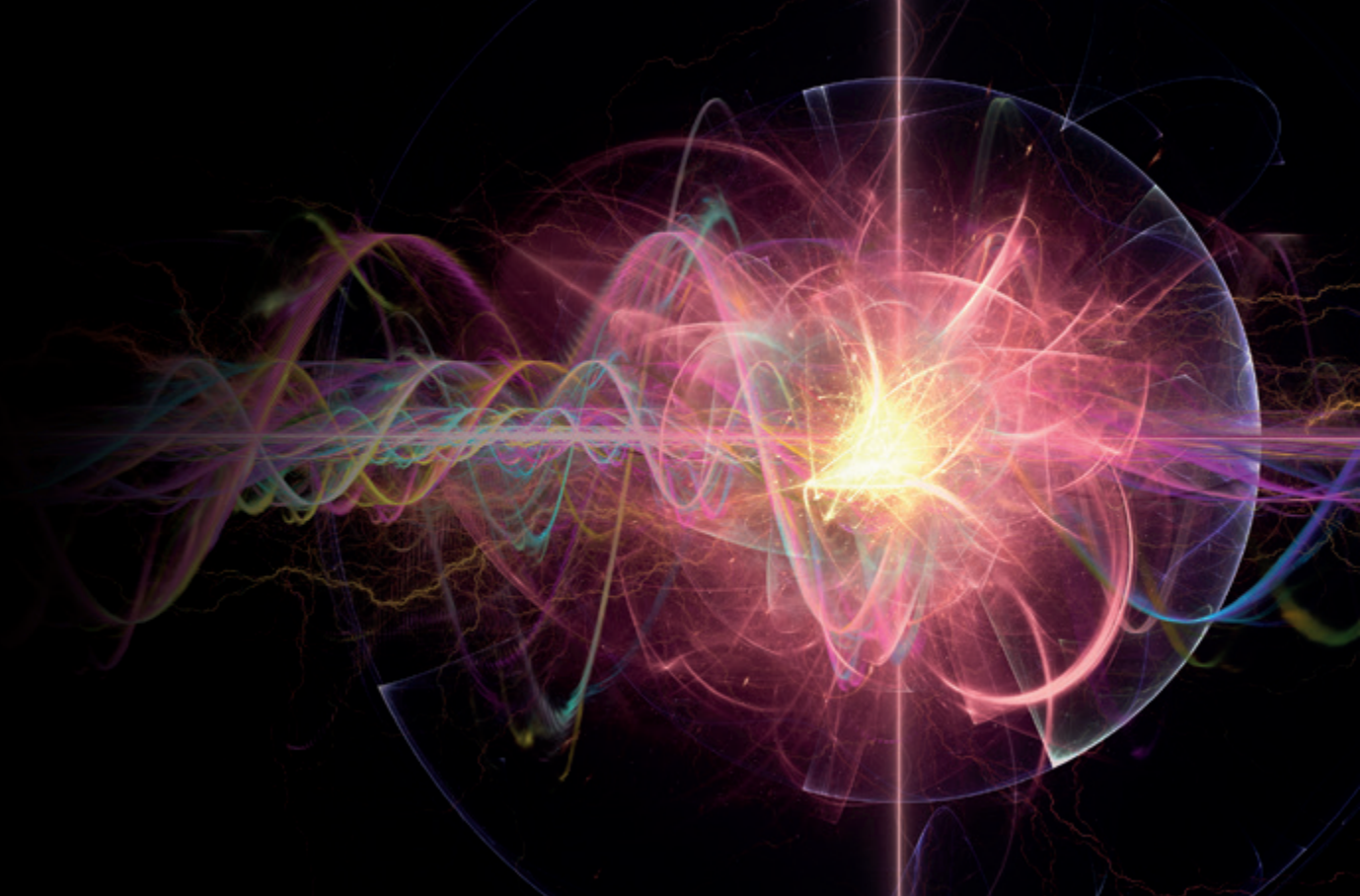
We are providing the fundamental science, social science and cultural research on woodlands and forests necessary to enable 'one-planet' sustainable living. The Birmingham Institute of Forest Research (BIFoR) has built a 'next generation' Free-Air Carbon Dioxide Enrichment facility to study the impact of rising carbon dioxide levels in mature oak woodland.

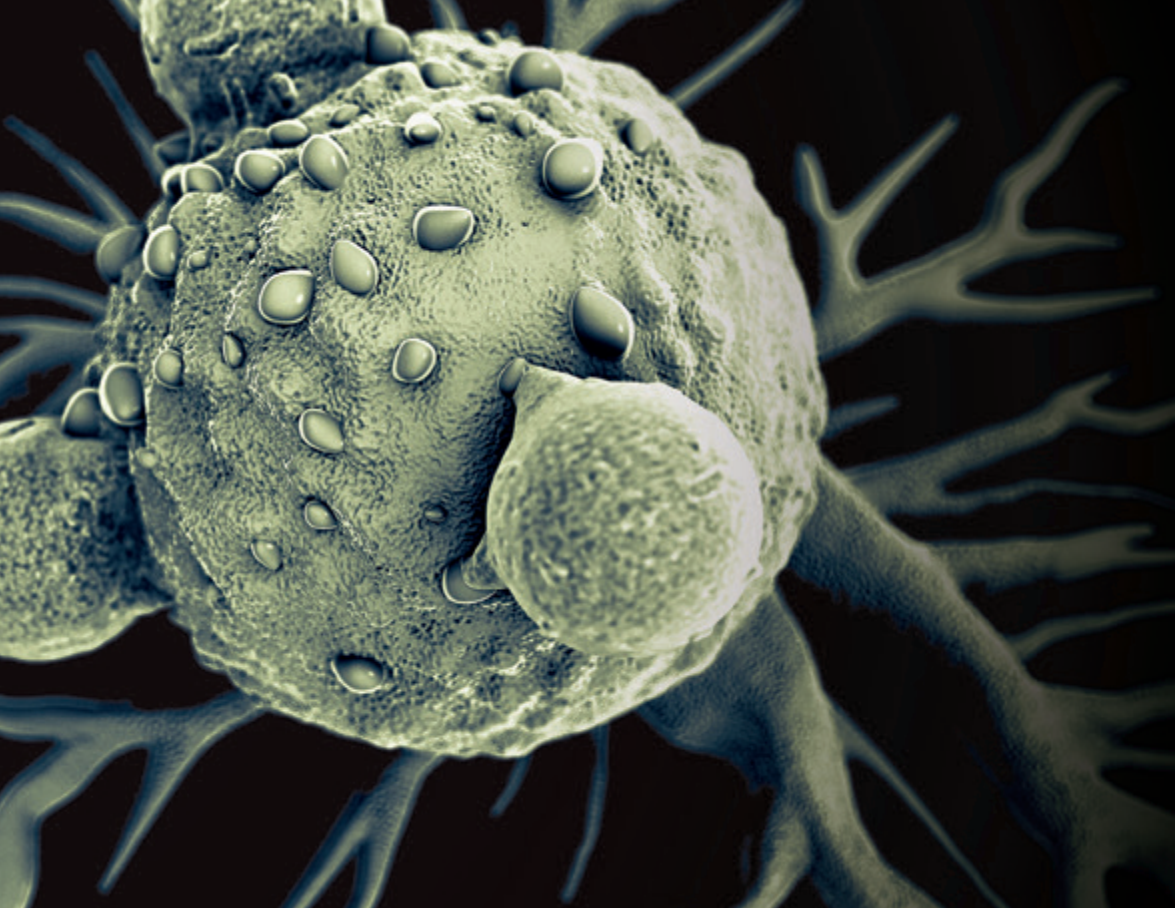
BIRMINGHAM INSTITUTE
OF FOREST RESEARCH

QUANTUM TECHNOLOGY REVOLUTIONISES HOW WE MEASURE GRAVITY, LIGHT AND TIME. HOW WILL QUANTUM SENSORS ENABLE THE IMPOSSIBLE?

By exploiting the extreme sensitivity of quantum sensors, a consortium led by our physicists is working with industry to bring to the marketplace technology that will enable them to look accurately and non-destructively at many scenarios, from monitoring water levels in aquifers in drought-prone areas, and providing a non-invasive way of measuring brain activity, to further research into dementia.

QUANTUM TECHNOLOGY HUB
FOR SENSORS AND METROLOGY





HOW CAN WE USE OUR UNDERSTANDING OF THE GENETIC BASIS OF MALIGNANT DISEASE TO HARNESS THE IMMUNE SYSTEM AND CONTROL CANCER GROWTH?

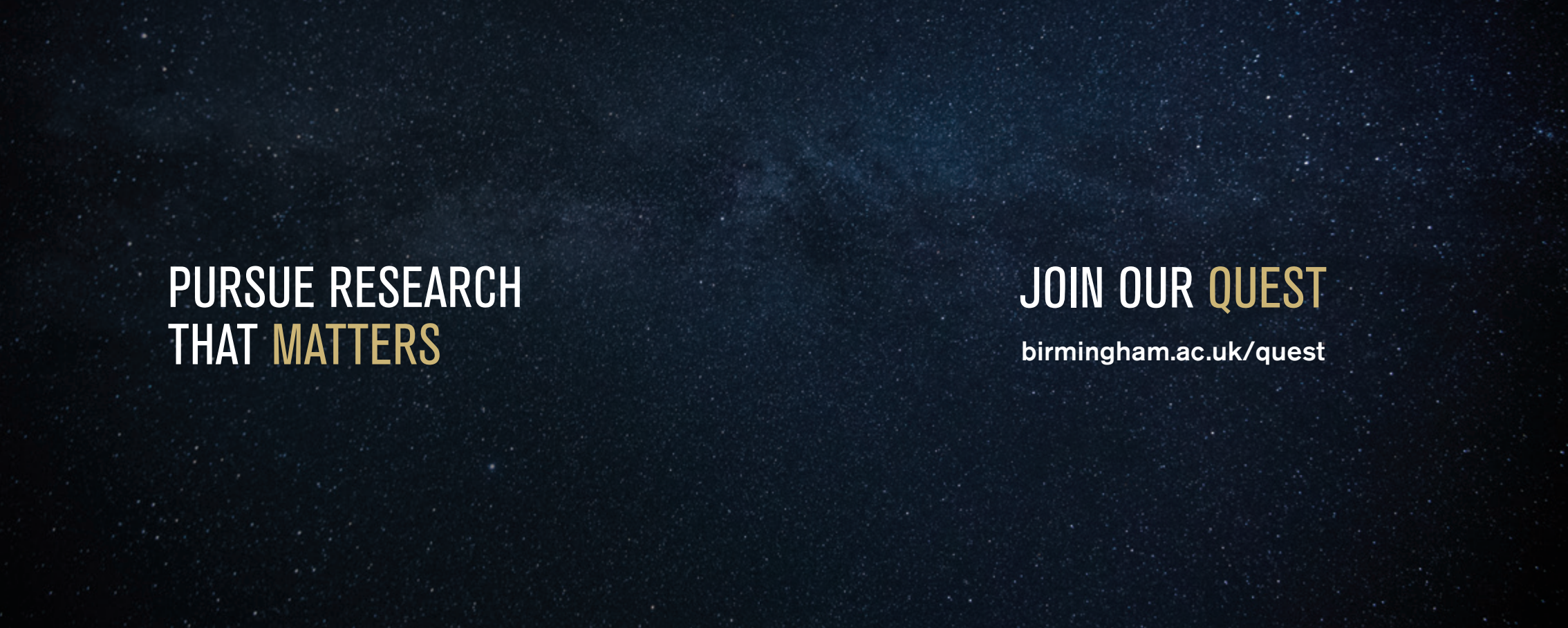
We are making a powerful contribution to understanding how genetic abnormalities within cancer cells lead to disease, with world-leading researchers in the areas of cell and molecular biology, immunology and virology. Our extensive research programme brings together scientists and clinicians to define basic mechanisms of cell and molecular biology, to determine how the normal programme of cell growth and differentiation is usurped in cancer.

INSTITUTE OF CANCER AND GENOMIC SCIENCES

HOW CAN WE DELIVER WORLD-LEADING MULTI- AND INTERDISCIPLINARY RESEARCH TO ADDRESS THE PRESSING CHALLENGES THAT AFFECT HUMANITY AT A GLOBAL LEVEL?

The Institute for Global Innovation has four defined challenge areas ranging from gender inequality and resilient cities to water challenges and 21st-century transnational crime. We are combining expertise from across the University to build innovative collaborations to address these issues.

INSTITUTE FOR
GLOBAL INNOVATION


PURSUE RESEARCH
THAT MATTERS
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