Changing Lives
About the MRC

For over 100 years, the Medical Research Council (MRC) has improved the health of people around the world. We continue to do this by funding excellent research and training the best scientists to make life-changing discoveries.

The MRC is part of UK Research and Innovation (UKRI). Bringing together nine councils into a single organisation, UKRI aims to maintain the UK’s world-leading position in research and innovation.

In 2016/17 the MRC spent £755.5m on research supported by MRC funding.

Our research is global

The work we fund takes place in our own units, centres and institutes, in universities and hospitals, in the UK and all over the world.

MRC researchers collaborate with scientists in 118 countries.
The science we fund

We support research across the entire spectrum of medical sciences, from looking at genes and cells to studying people and populations.

- Infection and immunity
- Population and systems medicine
- Molecular and cellular medicine
- Global health
- Neurosciences and mental health
- Translational research

Our people

We nurture our scientists to become leaders in discovery science. Working with universities and industry, we train the next generation of researchers and support people in their careers when it matters.

In 2017, the MRC supported 1,386 students.

To date, 32 MRC-funded scientists have received the Nobel Prize.
Scientists found that rickets, a deforming and painful childhood bone disease, is caused by low vitamin D levels.

Researchers discovered that exposure to asbestos increases lung cancer risk, leading to the introduction of new safety standards.

Neurosurgeon Professor Tipu Aziz invented deep brain stimulation as a treatment for Parkinson’s disease. The therapy is now used worldwide.

The first draft of the full human genome sequence was published, under the direction of Sir John Sulston.

Scientists showed that low vitamin D levels during pregnancy increase the risk of bone fractures during a child’s life. Pregnant women are now advised to take vitamin D supplements.
Sir Harold Himsworth discovered two types of diabetes, now known as Type 1 and Type 2 diabetes.

By noticing that bus drivers were more likely to have a heart attack than bus conductors, Professor Jerry Morris linked physical inactivity to heart disease.

Magnetic resonance imaging (MRI) was invented after Sir Peter Mansfield produced images using the natural magnetic properties of cells.

Scientists learned that playing a visually demanding computer game after re-living a traumatic memory reduces negative memories.

Scientists created human kidney-like tissue within a living organism. This ‘mini-kidneys’ success suggests that we may be able to repair damaged kidneys in the future.
Scientists give Douglas back the gift of sight

Two patients treated in a pioneering clinical trial for a common cause of sight loss can now enjoy reading once again.

Over two million people in the UK live with sight loss. Age-related macular degeneration (AMD) is one of the most common causes. The condition causes worsening vision, either gradually over several years (dry AMD) or suddenly over a few weeks or months (wet AMD), having a huge impact on sufferers’ lives.

Teaming up with eye surgeon Professor Lyndon da Cruz, MRC-funded scientist Professor Pete Coffey has developed an innovative stem cell treatment. Unlike normal cells, stem cells can develop into any type of cell in the human body.

The vision loss in AMD is caused by damage at the back of the eye, behind the ‘seeing’ cells of the retina. So Pete’s team grew a ‘patch’ in the lab, using stem cells from a human embryo. In a short operation, they placed the patch over the damaged and dead cells, allowing the eye’s light detecting cells to work again and restore the patients’ vision.
Douglas Waters, 86, from Croydon, London, was one of two people who received Pete and Lyndon’s treatment at Moorfields Eye Hospital.

He developed severe wet AMD in July 2015 and received the treatment three months later in his right eye.

He says: “In the months before the operation my sight was really poor and I couldn’t see anything out of my right eye. I was struggling to see things clearly, even when up close.

“After the surgery my eyesight improved to the point where I can now read the newspaper and help my wife out with the gardening. It’s brilliant what the team have done and I feel so lucky to have been given my sight back.”

Pete explains: “We are over the moon. Two and a half years later the patients can still see. They are reading again, and Douglas, who couldn’t even see the book prior to the operation, is now actually reading the book. It is quite an exciting result.”

“We recognise that this is a small group of patients, but we hope that what we have learned from this study will benefit many more in the future,” adds Lyndon.
Renewed hope for fighting liver disease

It’s been over 20 years since the only treatment for a rare liver disease was first approved, but now sufferers have another.

Scientists, led by Professor Dave Jones at the University of Newcastle, developed the new drug Ocaliva, which is now approved as a new treatment.

Primary biliary cholangitis (PBC) affects around 20,000 people in the UK. It can be well controlled, but in about 40% of patients this isn’t possible. The liver becomes damaged over time until eventually a liver transplant is the only option.

Dave’s research provides an alternative for these patients, who are often young people with their lives ahead of them. Access to a database of nearly 7,000 patients with the disease (set up by the MRC Stratified Medicine Initiative) was a real game-changer.

“PBC is a rare disease and access to the NHS data and systems, and the capacity to recruit cohorts across the UK, allowed us to do something that no other country can do,” explains Dave.

In addition to the benefits of the drug itself, Dave explains how his research has opened the floodgates for more to follow: “The success with Ocaliva led to lots of other companies becoming involved, with the effect that a disease that had no industry interest or trials for years now has multiple companies interested and 64 trials worldwide.”
Creating a happier future for children with arthritis

Eilean MacDonald has suffered from arthritis since she was 18 months old. Now a teenager, she’s helping scientists pick the right treatment, first time, for future patients.

I was only a toddler when doctors diagnosed me with juvenile idiopathic arthritis (JIA). At first I was lucky with few symptoms, but then my arthritis worsened. I was prescribed methotrexate but the side effects were awful.

I had to endure this for two years before receiving my current medication adalimumab, which works brilliantly. Nevertheless, I’ve had several painful surgeries, been on crutches for two years and I’m currently awaiting another surgery. Dealing with the pain and fatigue is hard, especially when trying to be a normal teenager!

But I’ve had positive experiences too. I’m the patient lead on the CLUSTER study, a five-year MRC-funded project following 5,000 children with JIA to create a simple test that will lead to personalised treatment.

Being involved in CLUSTER is so important. You’re not just a patient, you’re part of something much bigger. Future kids with JIA could have the right therapy handpicked for them, meaning they won’t have to go through what I have.
Skills and careers

Are you interested in research? A career in science can be exciting, challenging and fulfilling. Medical research can be especially rewarding as the knowledge gained with each new discovery could save lives.

You will inevitably encounter difficulties but face them with optimism. Seek advice from your mentors!

After a long career break, **Dr Alessia David** returned to research as a Clinical Research Fellow at Imperial College London.

Being a research assistant means you can go in whatever direction you want. It doesn’t have to be just a stepping stone if a PhD isn’t for you.

**Kevin Clark** is a Flow Cytometrist, based at the MRC Weatherall Institute of Molecular Medicine.

Reflect on whether what you are doing is what you really want to do and, if not, be ready to change your goals.

**Dr Sera Aylin Cakiroglu** is a Postdoctoral Research Fellow at the Francis Crick Institute.
Seeing the change my research has made to people’s lives is fantastic.

Global health researcher Professor Janet Darbyshire helped develop treatments for tuberculosis and HIV

“Seeing the change my research has made to people’s lives is fantastic.”

One of the things I love most about science is the opportunity to follow your nose.

Dr Donald Davidson is an MRC Senior Non-Clinical Fellow, researching inflammation at the University of Edinburgh

“I love most about science is the opportunity to follow your nose.”

I wake up and I’m excited to go to the office and do research. Apparently, I even talk about my research in my sleep!

Matt Lee is a PhD student at the MRC Integrative Epidemiology Unit

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Explore career options through our Interactive Career Framework:
mrc.io/cl18-careers
Get involved

Want to participate in a medical study? Keen to help our researchers out with their research? There are many ways you can take part in and support medical research.

If you’re interested in learning more about the latest research, come along to the MRC Festival of Medical Research.

Find out more: mrc.io/cl18-takepart

The Medical Research Foundation is the charitable foundation of the MRC and aims to advance medical research, improve human health and change people’s lives. Find out how you can get involved: www.medicalresearchfoundation.org.uk

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The MRC is part of UK Research and Innovation

Published May 2018.

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