REPLACEMENT NEWS

Spring 2023 - Issue 137

ANIMAL FREE RESEARCH UK

Inside:

Pioneering research at the ARC 2.0

Animal Free Antibodies Database

Our voice in Parliament

Celebrating Women in Science

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A bold new era for a brighter future

My heart beats with the excitement that Spring signals – the sun lit and warm days putting a smile on our faces and all the opportunities and activities we have to look forward to in the months ahead.

May 27th is our flagship World Animal Free Research Day - a date that is as poignant as it was on this day 53 years ago when our brilliant charity was born. Starting from May 22nd, you will see a slew of actions to support and encourage the science community and policy makers to accelerate the uptake of modern medical research and exponentially phase out animal testing.

Make sure you check out our website and all the activities happening on our Facebook, Twitter and Instagram pages.

Our incredible Animal Replacement Centre of Excellence (ARC 2.0) at the University of Exeter is continuing to make waves in the scientific community. It is thanks to you that our trailblazing scientists are working hard on the frontline of modern medical research to not only advance human health but crucially, prove just how outdated the use of animals truly is. Read more about Dr Laura Bramwell and PhD student Merlin Davies' pioneering research and what motivates them to strive for kinder science on pages 6-11.

We are excited to announce that we have just launched the world's first Animal Free Antibody Database. This resource enables researchers to easily find animal-free antibodies to use in their research. As well as being more humane, it will lead to better experimental results and improved healthcare. You can read more about this on page 14.

Our Public Affairs team have had a busy start to the year ensuring our voice is being heard across Parliament. With your support, we have been building cross-party momentum and are determined to keep building until we achieve the change we need to see. Read highlights of the year so far on page 14.

All this activity is as ever all thanks to your unswerving support and generosity. Without you, the research that will secure a kinder science would not be taking place, and the animals who need us would lose their voice.

So on behalf of the scientists you help fund and all the animals you are fighting for, I offer heartfelt thanks. With you by our side, the months ahead are full of promise, hope and success.

With grateful thanks,

CARLA OWEN
Chief Executive

Latest News

Evidence submitted for UK Parliament Future Cancer Inquiry

Animal Free Research UK has submitted evidence for the UK Parliament Future Cancer inquiry, urging for investment in developing patient-derived tools to better predict and treat cancer.

We provided references for multiple points including:

- Animals poorly recapitulate cancer patient disease and lead to translation failure and economic burden.
- More investment is needed to develop, validate, and use patient-derived organoids combined with organ chips, 3D printing and computer modelling for better diagnosis and development of personalized medicine for cancer patient.

Human-relevant research and kinder science will lead to better treatment for cancer and all human diseases, a win for us all.

A roadmap to change based on evidence of the superiority of human-focused drug testing over animal drug testing

Liver injury is a common side effect of taking medicinal drugs. Known as drug-induced liver injury, or 'DILI', it is a stark example of where we could better protect patients by using human-focused tools that effectively predict these harmful side effects.

A group of DILI experts and stakeholders recently met at the prestigious Royal Society in London, for an event sponsored by the Alliance for Human-Relevant Science and hosted by Animal Free Research UK.

Through sharing their knowledge, recent advances and determining current challenges and unknowns, the goal was to begin building a collaborative community and a framework to drive forward the pace of change in the regulations around drug testing and DILI prevention, ultimately embedding a more human-focused, safer and effective approach.

World Animal Free Research Day - May 27

On May 27th we once again celebrate our flagship World Animal Free Research Day.

We and our growing ranks of supporters will be shining a light on the pioneering research which we fund – that which is forging a future where animals are finally replaced with modern, human relevant techniques.

We will be applauding our scientists in our Animal Replacement Centres – aka ARCs – who are pushing the latest animal-free technological and research boundaries in their unswerving quest for cures for major diseases.

We will up the ante in our mission to bring about regulatory change. On Wednesday 24th May, we'll be hosting a Parliamentary Reception at the House of Commons, calling on MPs to pledge their support for a full transition to animal-free research in the future, and to ensure an environment that supports human-specific research, development and innovation.

Supporters will be taking part in the Great West Run on Sunday 21st in the heart of Exeter, and our fabulous group in Bude, Cornwall, will be taking over their town to showcase the importance of animal-free research and rallying support from the local community.

Those are just a few of the exciting events happening, so make sure you check out our website and all activities happening on our Facebook, Twitter and Instagram pages. We'll also share highlights from the week in the next issue of Replacement News out in August.

On World Animal Free Research Day we want everyone to think big and imagine that future which is within our grasp, and help us create a brighter future – for the good of both animals and humans.

"I urge everyone to join me and Animal Free Research UK in supporting medical research that is ethical."

"Compassion for all living creatures should be the watchword for our modern society: in that enlightened world no animals are needed in vital research, especially as that very research shows that non-animal replacement science is leading to safer, quicker and cheaper treatments.

Now is the time for us to call for a complete change in the law; many UK taxpayers are demanding it and our humanity requires nothing less."

Revolutionising Research:

Building a brighter future for humans and animals

ARC 2.0 is a game-changing partnership between the University of Exeter and Animal Free Research UK that is changing the face of medical science, and saving human and animal lives.

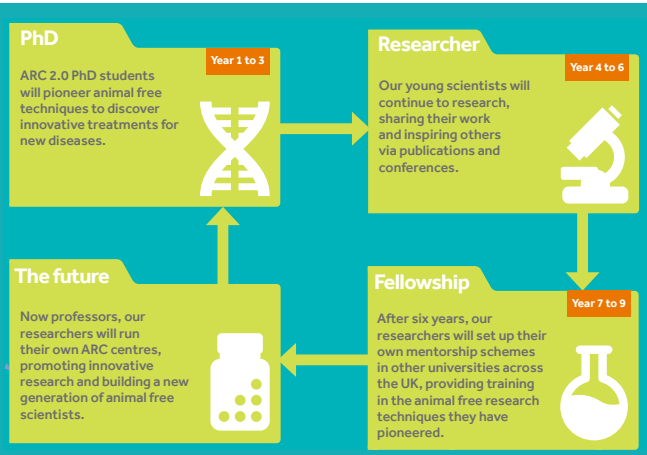
The ARC 2.0 aims to develop expertise in animal-free techniques to provide more effective treatments for humans, representing a positive development for humans, animals, and the scientific community.

And research at the ARC 2.0 is already making headlines in the scientific community with breakthroughs including Professor Lorna Harries's work on diabetes, Merlin Davies' Covid-19 project, and Dr Laura Bramwell's research on ageing.

Every year we are being approached by more research students who want to become the next generation of animal-free scientists. By supporting early career scientists, we all play a part in creating a future where no animal suffers to find treatments for human diseases, and where medical breakthroughs are discovered through cutting-edge, humane research.

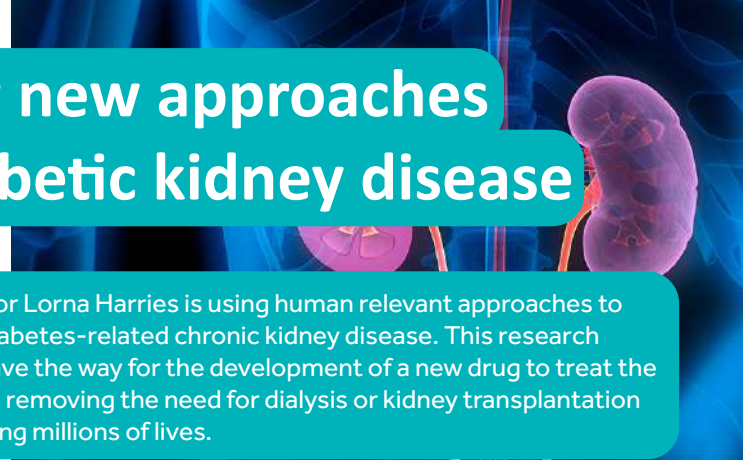
ARC 2.0 and our projects are changing the way many scientists and researchers regard using animals – and heralding a new age of humane research.

How ARC 2.0 will change the face of medical science



"We want to train a new generation of scientists who are excited to develop animal-free techniques and create a step change in the culture of research, allowing us to reduce and eventually end the use of animals in research."

Professor Lorna Harries
Head of the ARC 2.0



Uncovering new approaches to treat diabetic kidney disease

Professor Lorna Harries is using human relevant approaches to study diabetes-related chronic kidney disease. This research could pave the way for the development of a new drug to treat the disease, removing the need for dialysis or kidney transplantation and saving millions of lives.

Chronic kidney disease (CKD) is an incurable condition that causes the most diabetes-related deaths. CKD has several causes, but end-stage CKD, often followed by kidney failure, is usually caused by fibrosis, which is where tubes within the kidney become scarred, stopping them from working properly.

Huge numbers of animals are used in diabetes and kidney disease research but key biological differences between humans and animals means that findings from animal tests are often not translatable to humans and potential therapeutic targets are being missed.

Professor Lorna Harries, and her team at the ARC 2.0, have previously identified a faulty gene in pancreatic tissue, which causes cells to change form. Changes in this gene that alter its function and the proteins it codes for, can also be observed in diabetes so this gene may be a potential therapeutic target.

Lorna is growing human cells in the lab to uncover how the diabetic environment may be impacting the way this gene works and how the cells are triggered into changing into damaging myofibroblasts. She's using a genetic engineering approach to alter the faulty gene and restore its healthy function. This could stop or reverse cells changing during chronic kidney disease, thereby halting fibrosis.

This research could pave a path towards the development of a new drug for chronic kidney disease, halting or preventing fibrosis and removing the need for dialysis or kidney transplantation, saving millions of lives.

Check out Lorna's episode the Animal Free Labcast - our podcast hosted by our amazing CEO Carla.

Lorna takes us through her amazing and very successful animal-free research on diabetes and COVID-19 – exciting research science at it best.

SCAN ME

The role of sex hormones in ageing

Professor Lorna Harries and Dr Laura Bramwell at the University of Exeter, are investigating the potential for synthetic sex hormones to target and reduce cell ageing enabling clinicians to influence the diseases at their roots, rather than merely attenuating their symptoms.

As we age, our risk of developing chronic diseases such as cancer, osteoporosis, cardiovascular disease and diabetes increases.

One of the 'hallmarks of ageing' is cell senescence. Most of our cells naturally divide, and this is how we grow, develop, and repair our tissues. Senescence is where our cells stop dividing and start to deteriorate, effectively marking the end of a cell's lifespan. Research shows that senescent cells can release chemicals which can also cause other cells to senesce, and it is the accumulation of these senescent cells that contributes to the adverse effects of ageing.

Women generally live longer than men largely because their health span is longer. After menopause, the risk of age-related diseases becomes similar to men, which suggests female hormones may play a role in targeting and slowing down cell senescence and the development of disease.

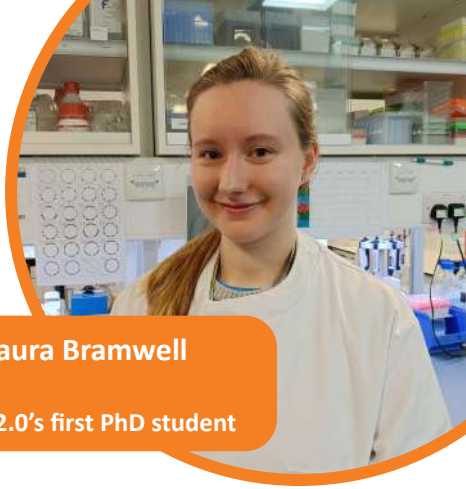
Laura is investigating the potential for synthetic progesterones and oestrogens (female sex hormones) to target and reduce cell senescence in the lab, effectively turning back the cells' ageing clock. She's treating ageing human cells grown in the lab, with plant hormones that are similar to human sex hormones to assess their influence on cell ageing.

Senescent skin cells

The team are also carrying out the first human trial of its kind to assess the potential of naturally occurring plant equivalents of human sex hormones as therapies for osteoarthritis and osteoporosis.

This research could identify targets to slow or halt cell ageing, providing a springboard for a future generation of preventative treatments for the common, chronic diseases of ageing.

Laura's journey to a kinder science



Dr Laura Bramwell

ARC 2.0's first PhD student

"A daughter of two scientists, I was interested in science and nature from the very beginning. I loved growing up in a very rural area surrounded by nature. It is such a privilege to see animals out in the wild where they belong, not in the research lab!

Like many other scientists, my initial laboratory training during my undergraduate degree used animals and I was unaware other options even existed. This changed when I began working at the University of Exeter.

My first interaction with the concept of animal-free research came from talking to Dr Nicola Jeffery and Professor Lorna Harries about their animal-free diabetes work. Their work was being funded by Animal Free Research UK and the underlying ideas stuck in my mind – animals suffer as a result of research, medical research is difficult to translate into humans, and the use of animals and animal products in research exaggerates the problem of translation. Why wouldn't we try to make our research both kinder and as human relevant as possible?

A year later, I was very pleased to become the first PhD student in Animal Free Research UK's brand-new Animal Replacement Centre of Excellence (ARC 2.0) at the University of Exeter. I subsequently completed my PhD research completely animal-free!

I am now embarking on a postdoctoral research project and continuing to use the animal-free techniques I developed during my PhD, and continuing to advocate for animal-free techniques in the laboratory.

Without Animal Free Research UK and their supporters' funding Dr Jeffery's diabetes research, I would not have had those early inspirational conversations with Dr Jeffery and Prof Harries. I have also witnessed changes in the commercial sector during my years as an animal-free researcher: companies are beginning to advertise more animal-free products and understand that the animal-free way is better for both animals and science.

I firmly believe that we should be as kind as possible to the creatures we share our world with, and believe our medical research will have an impact only if we first ensure our research is human-relevant. Medical research is driven by a need to find new therapies for human disease, so I cannot see how the improvements in translation offered by new animal-free techniques would not be worthwhile. I hope to see more human relevant research performed in the best, kindest way."

COVID-19 PROJECT

Developing a new animal-free tool to detect COVID-19

PhD student Merlin Davies at the University of Exeter is conducting a study to validate a novel, animal-free test to measure the number of active (working) COVID-19 viruses to predict clinical outcomes and quickly identify those at most risk.

Currently, routine testing for COVID-19 only measures viral fragments which are parts of the virus which have been shed. These can be infectious or non-infectious, so people can test positive for months even though they may not be an infection risk to others. This can be a problem for many people wanting to return to institutions, such as rehabilitation or work, and also for those awaiting bone marrow transplants who need a negative test before they can proceed. Measuring a person's viral load which measures an active virus, could be more useful in reflecting how infectious a person is.

Merlin Davies, who is undertaking a PhD working alongside Professor Lorna Harries, has developed a new test which involves measuring the amount of a viral genetic material. They are using leftover nasopharyngeal samples (mucus samples taken from the top of the throat) from patients and healthcare workers who tested positive for COVID-19. This viral genetic material directly reflects active COVID-19 viral load (the number of viruses that are working or 'active' within the body).

Merlin is validating the test to show it works effectively and can be used routinely in the NHS. He's measuring active viral load in hospital patients to assess if it accurately predicts clinical outcomes and also testing if healthcare workers have a higher viral load than the general population.

The current tests for the virus that causes COVID-19 include ingredients derived from animals, such as bovine serum albumin, a protein extracted from the blood of cattle. Merlin and his team have modified the test, so it is completely free from animal ingredients.

As well as indicating if a person is infectious, viral load information, when combined with other health data such as age, signs and symptoms of infection and drug treatment, could help predict who is most at risk of developing COVID-19 and becoming severely unwell.

Merlin - the next generation of scientist driving change

Merlin Davies

"My earliest memory of my interactions with animals is from about 4 years old. Sharing a home with these companion animals from an early age taught me that animals do have personalities, can love, and feel pain. Even at that young age, I was never perfectly comfortable with the concept of animals being used other than to love and bring joy. I guess somewhere deep down this motivates me to seek to protect all animals. And yes, that even includes spiders!

When I was 15, I was diagnosed as type 1 diabetic. There is nothing like a selfish and deeply personal reason to be hooked on a topic. Since then, I knew I wanted to study human physiology. As part of my A-levels I got involved in an education-related medical research project. Following that I knew only research would satisfy my curiosity.

So, I leapt at the chance to attend the Animal Free Research UK Summer Student Programme in 2018 as part of a research internship with Professor Harries. Already being a passionate environmentalist and conservationist, working with like-minded individuals drew me to the most noble of causes. Advancing humanity shouldn't cost us our moral compass. Longevity for one species shouldn't equal the suffering of another. Animal-free research has also proven on many occasions to be safer and more accurate for treating and understanding human disease – as well as enabling clever new technology to be discovered and created. For me, if we can work in the kindest possible way, we should at least try.

Being part of the Summer Student Programme crystalised my opinions. My experience of working with Lorna has been incredible and gave me the chance of integrating into my career the sense of compassion and love I have for animals.

I'm now a member of the ARC 2.0 team at the University of Exeter currently working under Professor Lorna Harries on the animal-free test for COVID-19. Because of the significant progress we are making, I have been offered this unique opportunity to complete a 3-year PhD to further our understanding of why age and metabolic disease are such bad risk factors for COVID-19 infection, and to investigate new, animal-free approaches to finding new treatments for improving the response of an ageing or compromised immune system any virus, including the one that causes COVID-19."

World's First Animal Free Antibodies Database

Animal Free Research UK will be launching the world's first, Animal Free Antibody Database. This resource enables researchers to easily find animal-free antibodies to use in their research. As well as being more humane, it will lead to better experimental results and improved healthcare. This unique and long-awaited resource is unifying and strengthening our global community of scientists and embedding a cultural shift away from using animal-based methods and tools.

What are antibodies?

Antibodies are proteins in our immune system that protect us from potentially harmful invaders (such as bacteria, viruses, parasites or fungi). They work by finding their target, binding to it and triggering a chemical cascade of events that eliminate the invader.

Animal-derived antibodies used as biomaterials

Antibodies are widely used in science and medicine for:

- Diagnosis (for cancer, sexually-transmitted diseases, genetic diseases, COVID-19)
- Therapies (for cancer, Alzheimer's disease and rheumoitoid arthritis)
- Substance and abuse testing
- Fertility and pregnancy testing
- Food safety and contamination testing
- Vaccines
- Detecting proteins and molecules in cells to identify them (using imaging and other cell counting techniques)

To produce these antibodies, animals such as mice, rats, rabbits, goats, sheep, dogs, horses, or cows are injected with a particular foreign particle, which triggers the animal to produce antibodies to fight it. They may be repeatedly bled so that the levels of antibody can be monitored until enough has been produced within its body. The animal is then killed, and its blood collected so that the antibody can be extracted.

Why use animal-free antibodies instead?

There's an array of ethical, scientific, economic and practical advantages of using animal-free antibodies over those from animals. Firstly, there would be a huge impact on replacing animal experiments. According to the European Centre for the Validation of Alternative Methods (ECVAM), around 1 million animals die through antibody production each year in Europe. ECVAM recently published recommendations for the phase out of animal-derived antibodies, stating that "... EU countries should no longer authorise the development and production of antibodies through animal immunisation, where robust, legitimate scientific justification is lacking"

Reports increasingly demonstrate that animal-free antibodies (made using bacteria, plants or synthetically-produced) are more versatile and effective and can find their target more effectively. In addition, unlimited identical 'clones' can be created cheaply, meaning more repeatable and therefore reliable experiments, something that's not possible when animals are repeatedly immunised. Better scientific results will lead to improved treatments, diagnostics and health management for people. There are also cost benefits with animal-derived antibody production leading to an annual loss of $800m (just over £650m) to the biomedical research community.

Why do researchers still use animal-derived antibodies?

Reliance on traditional methods may be ingrained through training, and some researchers may hold misconceptions that the technology is too primitive to replace animals, and not as effective. Some researchers may be concerned about the impact of changing products on their research and want to keep to what is familiar. In most cases, lack of awareness about the existence and advantages of animal-free antibodies (and where to find them) are the main barriers to change. That's where the animal-free antibody database comes in.

How does the animal-free antibody database work?

The database is free and accessible to all. Animal-free antibody suppliers can easily, and freely, upload their entire catalogue of animal-free antibodies and reach researchers looking for these antibodies to use in their research. If a researcher can't find the antibody they want, they are directed to suppliers who can 'custom-make' animal-free antibodies.

To encourage a cultural shift away from animal-derived antibodies, there is also a myriad of information on the scientific, practical and economic advantages of using animal-free antibodies. Researchers can also read testimonials from animal-free antibody users and link to a forum on our Community of Practice to share experiences and expertise. The suppliers can also gauge demand for their products (which reports show to be high), and also instil motivation within the biotechnology sector to shift towards animal-free methods and tools.

"This database will be a big advance towards the facilitation of human relevant research. Sourcing animal free antibodies can be difficult and antibody origins can sometimes be opaque. This resource will make it much easier for researchers to source appropriate antibodies for their specific research questions."

Prof Lorna Harries, ARC 2.0

Public Affairs News

Our Public Affairs team have had a busy start to the year ensuring our voice is being heard across Parliament. With your support, we have been building cross-party momentum, and we are determined to keep building until we achieve the change we need to see. Below are just a few highlights of the year so far:

Lab Visits

Hosting laboratory tours for parliamentarians is an important way for us to showcase the potential of the innovative animal-free science we're funding across the UK. In January, we led a group of engaged government officials around our flagship ARC 1.0 at Queen Mary University of London. More recently, we were delighted to host Birmingham, Selly Oak MP Steve McCabe at the University of Birmingham's Healthcare Technologies Institute so he could learn more about the cutting-edge research we fund there through the lifETIME CDT project – a programme that supports researchers to develop and use human-specific methods to find new drugs and treatments for patients.

Forced Swim Test

We submitted detailed evidence to the Animals in Science Committee (ASC) on the use of the Forced Swim Test. This cruel procedure involves dropping mice or rats into a container of water from which they cannot escape and is sometimes still used in mental health research.

Public Affairs Director Isobel Hutchinson wrote a powerful piece with a personal angle calling for the end of the use of this test. You can read the full article on page 16.

APPG AGM

We kicked off the new year with the Annual General Meeting for the All-Party Parliamentary Group (APPG) on Human Relevant Science, which we provide secretariat support for, together with our colleagues at the Alliance for Human Relevant Science. This group, established in 2020, is made up of MPs and Peers who wish to advocate in Parliament for the uptake of human relevant science in the UK. In January, we were delighted to welcome Martyn Day MP as Chair, and Tan Dhesi MP, Baroness Susan Hayman of Ullock, and Andrew Selous MP as Vice Chairs. Alex Sobel MP, Chris Stephens MP, and Rachael Maskell MP were established as Officers, and Caroline Lucas MP, Kenny McAskill MP and Liz Saville Roberts as Members. With membership confirmed, the APPG on Human Relevant Science are looking forward to an exciting year ahead.

Debate petition

In early January, following a petition calling for a ban on commercial breeding for laboratories, a debate was held in Parliament that focused on the use of animals in research. All 11 MPs who contributed to the debate spoke in favour of moving away from animal experiments, whilst disappointingly the Home Office minister advocated for the continued use of animals. Nevertheless, it was a positive debate with cross-party support for a move away from animal use and recognition of the benefits of animal-free research. After working to brief MPs behind the scenes beforehand, we were pleased to hear our material used in the debate, as well as by the House of Commons Library in their briefing papers. We were also proud to have our name mentioned specifically, as well as our ARC 1.0 at Queen Mary University of London.

Parliamentary Questions

Parliamentary Questions are a great tool to raise awareness of the use of animals in research and the benefits of new innovative technologies in Parliament whilst finding out key information to help our work.

So far this year, 4 questions have been submitted on our behalf via our community of engaged parliamentarians and, of these, we have had two responses. Rachael Maskell MP received an answer from the Home Office on how many project licenses were granted for the Forced Swim Test since 2018, and Wera Hobhouse MP was answered by the Department for Science, Innovation and Technology on funding for human-specific research into mental health disorders. In the pipeline to be answered are questions relating to the approval process for using animals in research and supporting the use and growth of human-specific research methods.

What's next?

We're planning our Parliamentary Reception to mark World Animal Free Research Day. We'll be calling on MPs to pledge their support for a full transition to animal-free research in the future, and to ensure an environment that supports human-specific research, development and innovation. You'll hear more on this soon...

The Forced Swim Test has no more place in tackling mental illness than asylums or lobotomies

As someone who has been dealing with mental health issues for most of my adult life, I am all too aware of the urgent need for medical progress in this field. I suffered from anorexia as a young adult, and after a break of almost a decade, have been dealing with eating problems again in recent times. I've grappled with various anxiety related disorders over the years, and having been through a fourth round of Cognitive Behavioural Therapy, I am on the road to recovery, although it's never a straightforward process.

I know that this experience is far from unique, since 1 in 4 people in England will suffer from a mental health problem each year. Fortunately, awareness of mental health issues is growing.

An area that has gained much less public awareness, however, is the hopelessly crude and outdated nature of animal-based research into mental health disorders.

Using animals to research mental illness is deeply counter-intuitive, given the obvious importance of being able to verbally describe symptoms. In fact, scientists acknowledge that the problems in translating results from animal-based research to human patients are likely to have contributed to the lack of progress in this area.

A particularly troubling example of mental health research on animals is the 'Forced Swim Test'. This test, which dates back to the late 1970s, involves dropping mice or rats into a container of water from which they cannot escape. At first, they will swim, but after a while they will stop struggling, stay immobile and float. Comparing this test with the state of mental health treatment in the UK at that time highlights just how outdated it is. In the late 1970s, the large-scale closure of asylums had not yet taken place, and some lobotomies were still being performed. While such establishments and techniques have happily been consigned to history, the Forced Swim Test has not.

Unbelievably, this test has been used as a model for depression in humans. While my own encounters with depression have been secondary to anxiety disorders, and I haven't experienced the debilitating symptoms that many people endure, I am confident that the feelings of despair and failure that I am familiar with are nothing like what must be experienced by a mouse or rat who is suddenly dropped into a situation of immense physical stress. In fact, it has been suggested that the 'floating' behaviour does not represent the animal 'giving up' in despair, but rather a learned behaviour that helps them to conserve energy.

72% of survey respondents felt an emotional burden as a result of carrying out animal research

A growing number of scientists now accept that this test is hardly an accurate model of depression in humans. Yet the test is still sometimes used as a means of screening new antidepressants. The theory goes that drugs which reduce the amount of time the animals spend floating and immobile, are the ones which have the best potential for treating depression in humans. Unsurprisingly, there is a wealth of evidence to suggest that this test is not a reliable predictor of whether new antidepressants will be safe and effective in people. This includes an analysis of 47 potential new antidepressants that were given to animals subjected to the Forced Swim Test, which found that none of them were later considered safe and effective treatments for depression in humans. In fact, several major pharmaceutical companies have already abandoned the use of the test.

A further strand to this distressing story is the effect that carrying out animal experiments can have on the people involved. For example, a preliminary study in Poland found that 72% of survey respondents felt an emotional burden as a result of carrying out animal research, and 63% experienced stress.

Fortunately, modern, animal-free techniques offer a much more ethical approach to mental health research and provide results that are directly relevant to human patients. Approaches include the sophisticated use of human cells and tissues and organ-on-a-chip technology. Non-invasive approaches to recording brain activity, such as electroencephalography (EEG) can provide valuable data which has even more potential when combined with analysis using artificial intelligence. Another promising area is re-purposing existing drugs, which are already known to be safe in humans, for their potential in treating mental health disorders.

There has never been a better time to overhaul mental health research and ensure that it is human relevant, fit-for-purpose, and offers the best possible chance of tackling conditions that can make everyday life feel difficult to cope with. The Government has recently commissioned a review of the Forced Swim Test and should take this opportunity to immediately stop allowing it to take place. Instead, it should provide practical support and funding to help researchers transition to the use of cutting-edge, human relevant techniques. This more enlightened and compassionate approach will bring us closer to a brighter future for both animals and people.

By Isobel Hutchinson,
Public Affairs Director

Celebrating women & girls in science

Did you know that women are typically given smaller research grants than their male colleagues? And that female researchers' work is underrepresented in high-profile journals, and they are often passed over for promotion?

A significant gender gap has persisted throughout the years at all levels of science, technology, engineering and mathematics (STEM) disciplines all over the world.

Yet women have led ground-breaking research into public health, vaccines, treatments and innovative technology. History is full of women who made tremendous contributions to science.

The world needs science, and science needs women and girls. So, join us in celebrating those who are leading innovation and inspiration in the scientific world.

Here are just a few of the brilliant women scientists from Animal Free Research UK and around the country:

Professor Lorna Harries
ARC 2.0

"I am proud to be a woman in science. As long as I can remember I have been fascinated by how biological systems work, what can go wrong with them in disease, and what we can do about it. Although there have been improvements over the past decade, career progression in the scientific arena is still more challenging for women.

I have been lucky in my career to have been surrounded by excellent female role models and supportive people who were invested in my development. Because of this, I have never considered that anything is out of my reach because of my gender.

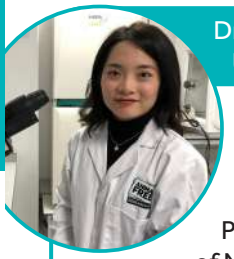
It's a wide world out there, and there is so much work left to do! We need everyone who is curious and motivated to help us find the answers, regardless of who they are or where they come from."

Dr Lorna Ewart,
Emulate Inc

Lorna is Chief Scientific Officer at Emulate Inc, the leading provider of next-generation organ-on-a-chip models, where she provides strategic guidance and oversight of the scientific vision, partners with government agencies to achieve regulatory acceptance and collaborates with key customers to advance adoption of this technology.

"Just one year ago, almost to the day, I stepped into my new role of Chief Scientific Officer of Emulate. Over 20 years of therapeutic development prepared me for this position, but this new opportunity came with its own set of surprises. One of them was just how many messages were sent my way, particularly from young women in STEM, who said how much they viewed me as an inspiration for their own careers.

I had my own female role models in science growing up of course, but to now be in a position where I can mentor and empower the next generation of female leaders is an honor and responsibility my younger self never would have expected."



Dr Kate Nguyen
University of Nottingham

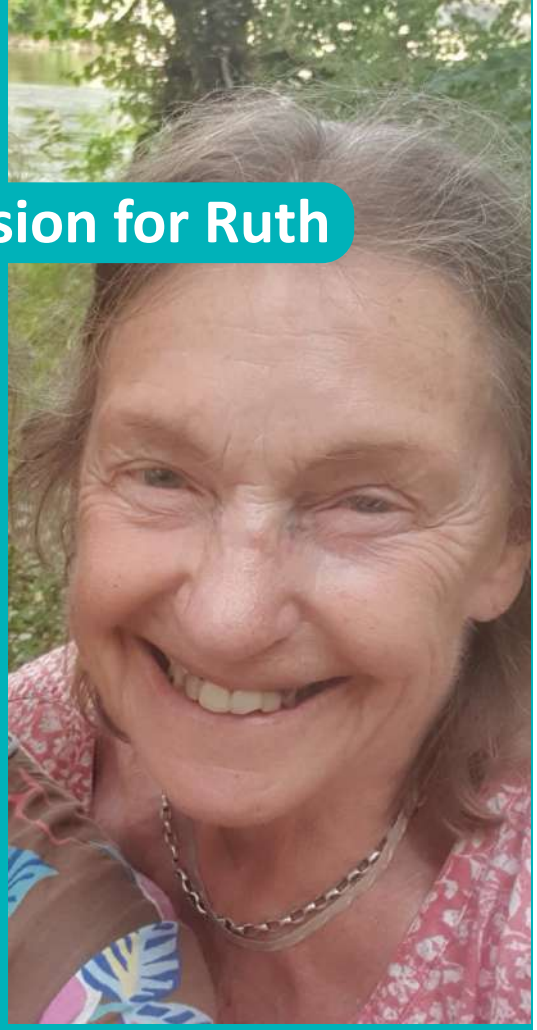
Kate is currently part of the Animal Free Research UK funded Mini Hearts Project at the University of Nottingham, where she is developing 'mini-hearts' by using human stem cells to help discover new drugs which could one day lead to ways to treat and help protect patients suffering from cardiac fibrosis

"When I was given the opportunity to do my PhD in stem cell technology, it was a turning point for me. My PhD work focused on applying stem cell technology in studying heart disease and innovating new therapy. I am now working on a project funded by Animal Free Research UK focusing on using stem cell models to create 'mini-hearts' to help find new treatments and protect those with cardiac fibrosis, without animal suffering.

Initially, I faced cultural challenges studying in the UK and I have worked hard to change preconceptions of women from my culture and gain the self-confidence to become an ambassador for women in STEM from minority backgrounds.

It is very reassuring to see the great efforts being made to ensure women can be supported in STEM subjects. From my experience, it is clear to me that having support from male colleagues has been a critical step forward for improving research culture for women. I look forward to seeing these positive changes continue."

Animal Welfare – a longstanding passion for Ruth



Ruth has been a life-long animal welfare advocate having inherited an awareness from her family. In this article she explains why she has decided to leave a gift in her will to us.

"I first heard the word 'vivisection" from my family when I was a child. I believe they were affiliated to the Anti-Vivisection Society and that is the one I supported back in the late 195O's, as a young woman.

There is a painting by Sir Joseph Wright in the National Gallery which depicts an experiment depriving a chained Parakeet of oxygen. I am sure many a child has been saddened to see it, but that was when I felt I wanted to do something to help voiceless creatures.

I grew up with recued domestic animals and have never been without at least two. I have always tried to defend the underdog, hate bullies, and detest violence to man and especially beast.

Although humanity is capable of great cruelty it is also able to be amazingly good. To encourage the latter is what I see Animal Free Research UK as doing - replacing animals in research, encouraging, and supporting human-relevant minded scientists in their particular field.

I believe that like the ingredients of a food product are shown clearly, the type of animal used in existing pharmaceutical products should also be apparent. I hope that the use of animals in school science classes will stop and alternative methods adopted. I also hope that scientific journalism will be more vocal about cases where successful animal experiment has led to sad failure in human cases."

What will you leave behind?

What legacy would you like to leave to future generations?

During our lifetime we each support charitable causes that are close to our hearts - those with which we share our values and beliefs. We see cruelty or injustice - and we are compelled to connect with likeminded people who also want a more compassionate future to become a reality.

The same is true after life: leaving a gift in your will is simply a continuation of those same values and experiences held so dear during life.

Because of this, and wanting to provide for family or friends, your will is one of the most important legal documents you will ever sign – and one of the most heartfelt demonstrations of support that an individual can make to a charity.

"Thankfully, the wheels are now turning towards humane methods of research and I want to be a part of that change, even after my life has ended, so leaving a legacy to Animal Free Research UK is the best way for me to achieve that."

Rosemary, a committed proud supporter and legacy pledger.

After providing for your friends and family, we hope you'll consider including a gift in your will to Animal Free Research UK. Thank you.

For more information about Leaving a Legacy, please visit our website:
www.animalfreeresearchuk.org/leave-a-legacy

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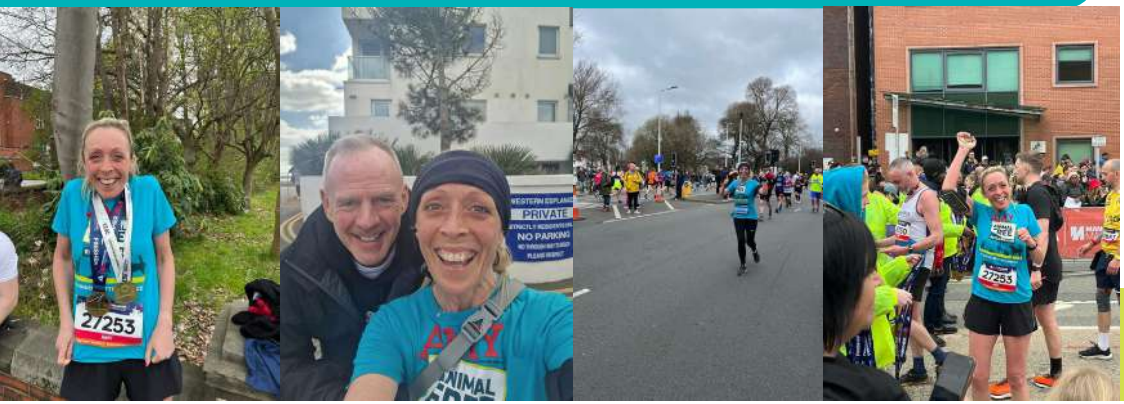
Should you wish to discuss this further or have any queries relating to leaving a gift in your will, please contact legacies@animalfreeresearchuk.org

FABULOUS FUNDRAISERS

Amy's double marathon for a kinder science



"I did it!! 2 marathons, 2 weeks apart! Struggling to find the words to sum up what it means to me but think the pictures from the finish line do most of the talking.

Legs are broken but I woke up with the biggest smile and happy heart this morning. 3 months of sacrifice, sobriety, support from the amazing Tom Stockley and sheer, gritty determination has got me over the finish line TWICE and I'm really really proud of myself.

By helping me raise funds for the pioneering work Animal Free Research UK are doing, you will help to put a stop to the use of animals in laboratories

I've given my all to complete this challenge, and I want to thank you all from the bottom of my heart for your support."

Absolutely incredible Amy! Your grit and determination is an inspiration to us all. And Amy even got into the local Brighton newspaper after meeting Fatboy Slim along the route.

As we write this, Amy has absolutley smashed her £2,000 fundraising target, but there's still time to show your support for Amy:

www.justgiving.com/fundraising/amy-stockley3

CHALLENGE FOR CHANGE

YOUR CHALLENGE, YOUR WAY

Fancy taking on your very own challenge? Do a challenge of your choice...whatever it may be, you choose. Whatever your age or ability, you can take part. The main thing is to get active, have fun and fundraise. There is no fundraising target, we just ask that you raise as much as you can!

You can take action for animals by taking on our Challenge for Change!

www.animalfreeresearchuk.org/challengeforchange

Sign up for one our official charity fundraising places at the Big Half or the Great Scottish Run!

The big Half

3 Sept 2023
Half marathon
London

The Big Half 2023 takes place in central London and the unique route includes iconic landmarks, starting at Tower Bridge and finishing by the Cutty Sark in Greenwich.

Soak up the incredible atmosphere of this epic half marathon.

www.animalfreeresearchuk.org/the-big-half-2023

great scottish run

1 Oct 2023
Half marathon
Glasgow

With a city centre start and finish, this half marathon is a celebration of everything that makes Glasgow truly great: inspiring urban architecture, green spaces, history, music, strength, spirit and, of course, great people, personality and humour.

www.animalfreeresearchuk.org/great-scottish-run

Scan the QR code to find our more about Challenge for Change and all other fundraising events and activities.

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OTHER WAYS YOU CAN HELP

You're everyday shopping can make a real difference with

easyfundraising

Sign up to Easy Fundraising and see your favourite brands donate to Animal Free Research UK whenever you shop with them.

Easy Fundraising turn your daily shopping into every day magic! They partner with over 7,000 brands who will donate part of what you spend and it won't cost you any extra.

And so far our amazing supporters have already raised nearly £8,500 for Animal Free Research UK!

Visit **www.easyfundraising.org.uk** to find out more and register!

Make your birthday even more meaningful and set up a Facebook birthday fundraiser asking friends to donate as an alternative gift.

giftaid it

Add GiftAid to make your donations go even further! If you are a UK taxpayer, we will receive an extra 25p for every £1 donated!

Welcome to the Animal Free Research UK shop!

shop.animalfreeresearchuk.org

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