REPLACEMENT NEWS

May 2020 - Issue 125

UNITED
for people and animals

50 1970-2020 YEARS

ANIMAL FREE RESEARCH UK

COVID-19 Research Updates

Our *incredible* Journey & Impacts

Protect the Animal Free Future

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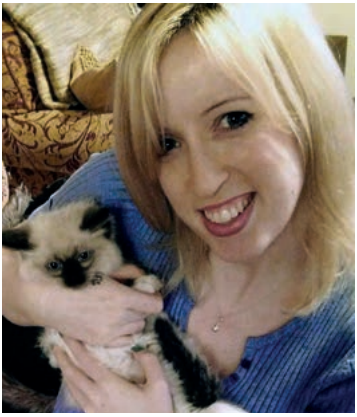
Welcome to this special edition of Replacement News, celebrating Animal Free Research UK's 50th anniversary!



On 27th May 1970, our charity was founded as the Dr Hadwen Trust for Humane Research, dedicated to Dr Walter Hadwen, a leading champion in the campaign against animal experiments in the early 1900s.

In 1971, we awarded our first grant towards the replacement of animals in medical research, funding Dr John Garvican for a study on cancer at King's College London. This first grant marked the beginning of our ever-increasing and pioneering contribution to the development of human relevant research. Your newsletter is packed with many of the highlights of the innovative research compassionate people like you have helped fund over the last 50 years.

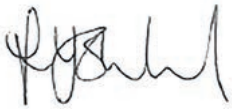
It truly is a privilege to be Chair of the Board of Animal Free Research UK – my fellow Trustees and I are so proud of all that the charity has achieved thanks to supporters like you. With all the uncertainty of these current times, it is clear humans need animal free research now more than ever.

Equally, the millions of animals still used in medical research each year need us all to do the right thing, as they have throughout our 50 year history.

This is why we will not rest until we completely end the use of animals in medical research. To do so, we need to raise £5 million in the next five years, which will help us to increase our reach and impact and ultimately save more animal and human lives. By pioneering excellent research, inspiring and supporting scientists and influencing change, we are confident that, with your ongoing support, we can achieve this shared goal in our lifetime.

I look forward to the next 50 years of pioneering animal free research together. United, we can spare countless animals and humans from suffering.

Warm wishes,



LAURA-JANE SHERIDAN
Chair, Board of Trustees

Congratulations

to Animal Free Research UK on your 50th anniversary.

I am proud to be a patron for this forward-thinking charity which has been pioneering a kinder and more effective way to carry out medical research for half a century.

My huge thanks to everybody who has kindly donated time, money and energy to support this wonderful cause, and to every scientist who has innovated new technologies and discovered life-saving treatments for human diseases without harming animals.

I have fond memories of celebrating the charity's 35th anniversary at a special gala dinner in 2005 and I look forward to a time when we can meet in person again.

Thank you for your vision of a more compassionate world where human diseases are cured faster without animal suffering. It's a future that, together, I know we can achieve in our lifetime.

with warmest good wishes
Joanna Lumley

UNITED FOR PEOPLE AND ANIMALS

Anniversaries are a time of reflection. They give us pause to look back over the years and consider what went well, what would have been even better if, and what we want to achieve next.

As I reflect on 50 years of Animal Free Research UK, I'm overwhelmed by the kindness of our supporters – you have enabled us to give £10 million in grants to fund over 260 pioneering research projects, preventing an estimated 1.6 million animals from suffering.

Your incredible generosity has funded life-saving research from dementia to diabetes, cancer to chronic pain – and now COVID-19. You are the lifeblood of animal free research, and we simply wouldn't be here without you.

But we still have a long way to go.

Since 1986, sadly millions of animals have been forced to suffer in laboratories across the UK – a third of them used in basic medical research. Their unimaginable suffering drives us forward every day to do better, to be better, to see the world through their eyes and know their pain cannot be justified.

We've made progress – the number of animals used in fundamental biomedical research is proportionately coming down over time. Yet still so many of our loved ones are living with diseases for which the treatments are simply not yet good enough.

That's why, on our 50th anniversary, we're launching our big, bold vision for the future.

By 2040 we will transform medical research and regulation so that the development of treatments for human diseases can be entirely animal free and breakthroughs achieved faster.

We won't stop until animals are no longer used in medical research.

Through our new Rapid Response fund, with your help we will fund even more life-changing animal free medical research in direct response to current and future health threats.

We'll make animal free research the gold standard, by funding excellent research and supporting a whole new generation of animal free researchers.

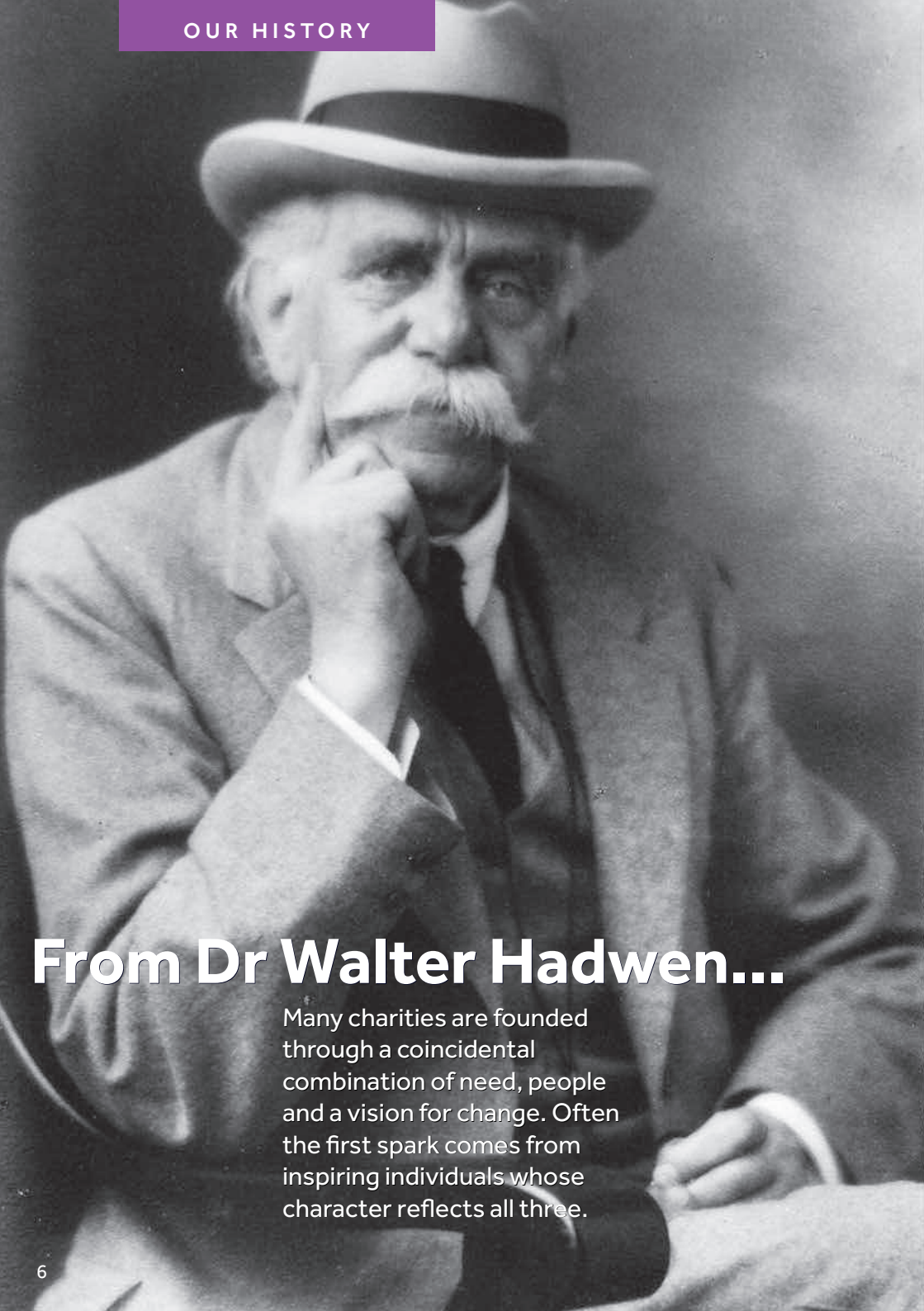
And we'll ensure animal free science is used at every stage of research by changing policy, public opinion and attitudes in academia and industry.

If we **unite**, we can achieve our vision of a world where human diseases are cured faster without animal suffering.

I hope you'll come with us on the next stage of our journey for kinder, better science.

With grateful thanks,

CARLA OWEN
Chief Executive



From Dr Walter Hadwen...

Many charities are founded through a coincidental combination of need, people and a vision for change. Often the first spark comes from inspiring individuals whose character reflects all three.

"Never doubt that a small group of thoughtful, committed people can change the world"

(Margaret Mead)

Born in 1854, Dr Walter Hadwen was one of the most inspirational pioneers to take a stand against the use of animals in laboratories. A vegetarian at 21 in 1875, he was a physician who demonstrated his love for science and compassion for all beings. A powerful orator, whose persuasive and incisive tone in advocating against animal experiements made him a pioneer of animal free medical advancements for humans.

He became President of the British Union for the Abolition of Vivisection (now Cruelty Free International) in 1904. Until his death in 1932, he remained committed to the advancement of animal free approaches. His exhaustive research led him to his resolution that the use of animals in laboratories had "*done nothing whatever for the amelioration or the cure of any human disease*". In 1970, Sidney Hicks, then president of Cruelty Free International, honoured Dr Hadwen's memory by founding the **Dr Hadwen Trust for Humane Research**. Much work still needed to be done to change the approach that science took toward the use of animals in research.

TO THE PRESENT...

Whilst we have made a significant impact during our first 50 years – and you can read more about this in the following pages – we are now stepping up a gear. As the world changes, the need for more effective treatments is increasing. It is now more important than ever that we change the debate and bring everyone together to accelerate the pace of human relevant animal free research.

...TO ANIMAL FREE RESEARCH

That's why in 2017 we changed our name to Animal Free Research UK. It's a simple message, understood quickly, that is enabling us to become an influencer at the forefront of funding research that is driving us towards an end to animal testing. Our research replaces the old techniques with new approach methodologies that are more accurate and, crucially, replace animal use. Research that can deliver faster and better treatments for humans in times of need.

We listened to our supporters and partners who told us that the name Animal Free Research UK reflected their values. This wasn't just a branding exercise. Rather, it was acknowledgement of the birth of a better, more humane 'kinder science'.

Today we invite you to join us in celebrating 50 years of kinder science by pledging to join us on this important journey – **united** we can finally replace the use of animals in medical research forever.

Our incredible journey towards a world free of

1975 We launch the first ever cell culture study of eye irritancy, offering an alternative to the controversial **Draize eye test** on **rabbits**

1980 The **World Health Organisation** approves a cell culture alternative to **polio vaccine tests** in **monkeys**, championed by us

1986 We help replace the 110-year old Cruelty to Animals Act 1876. **The new Animals (Scientific Procedures) Act 1986** marks a major shift in policy

1997 We help open the first UK **Human Tissue Bank**

1998 **Transcranial magnetic stimulation (TMS)** is used to replace invasive experiments on **monkeys**, and now used worldwide

2006 Our **in vitro micronucleus** test is approved to replace animals for **mutagenicity studies**

join us for more at

animal experiments

We fund the first non-animal models of **bipolar & Alzheimer's**

2012

We launch the **Animal Replacement Centres of Excellence (ARC1.0 and ARC2.0)**

2016 **2019**

Professor Lorna Harries from ARC2.0 works on a test for **COVID-19**

2020

THE WAY FORWARD

We won't stop until animals are no longer used in medical research

COME WITH US

UNITED

we can achieve our vision
and spare countless animals unimaginable suffering

animalfreeresearchuk.org/united

ANIMAL REPLACEMENT CENTRE OF EXCELLENCE 1.0

Strengthening our presence in the scientific research community to overcome barriers to animal free research

The research team
Professor Mike Philpott leads the team of researchers, which includes Animal Free Research UK funded lecturer Dr. Adrian Biddle, postdoctoral researchers Dr. Gehad Youssef and Dr. Muhammad Rahman and two Animal Free Research UK funded summer students, Stephanie Lunt and Shreya Asher.

In October 2016, Animal Free Research UK established a 5-year, £1 Million joint venture with the Blizard Institute, part of Queen Mary University of London (QMUL), to help find animal free research solutions for skin, breast and prostate cancer.

Professor Mike Philpott, Director of the **Animal Replacement Centre of Excellence** and Professor of Cutaneous Biology at QMUL, and Dr Adrian Biddle have created a unique focal point which uses cutting edge scientific research to accelerate the development of human models for human disease and help reduce the number of animals currently used in cancer research.

The **ARC** aims to further develop the most robust and applicable non-animal research methods for human cancer, addressing the limitations of both poorly performing cell based approaches and animal use. The over-dependence on mice in particular has slowed progress in cancer research and can provide misleading data. There is therefore a pressing need for human focussed non-animal technologies that have demonstrable relevance to human cancer.

Professor Mike Philpott said: **"The Blizard Institute has an international reputation for research and teaching excellence and has pioneered the development of three-dimensional models to study human diseases, particularly important when helping us to understand human skin biology and cancer"**.

ARC 1.0 shows what a difference a gift in your will can be. Our investment has been made possible by an **incredibly generous legacy from Alan and Kathie Stross**, who were long term, committed supporters of Animal Free Research UK.

ANIMAL REPLACEMENT CENTRE OF EXCELLENCE 2.0

Creating a new generation of animal free researchers who know this is the best way to cure diseases

In November 2019, three years after the first ARC was established, we co-created the second **Animal Replacement Centre of Excellence (ARC 2.0)**, based in the laboratory of Lorna Harries, Professor of Molecular Genetics at the University of Exeter Medical School.

It supports fledgling scientists to pursue research without using animals and then to inspire and mentor other young scientists in animal free techniques. A £600,000 award supports researchers to use and pioneer new methods, enabling them to commit to a career replacing animals with human cell research.

ARC 2.0 carries out research projects and studies without using animals, whilst mentoring students like Laura Bramwell, who is studying for her PhD under Professor Harries and is the first of a new wave of scientists that use animal free research in pursuit of the knowledge needed to fight diseases.

ARC 2.0 will fund scientists through the first 9 years of their career. As part of this ground-breaking initiative, they will go on to mentor others, creating a wave of animal free science. The first piece of work carried out at **ARC 2.0** in Exeter is investigating ageing and develop potential treatments to target multiple diseases of old age. All the assessments will be on human tissue cells – and no animals will be used in any of the procedures.

Professor Harries said: **"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".**

ARC 2.0 is a win-win for humans, animals and research. It will establish the building blocks to grow expertise and understanding of animal free techniques, which ultimately deliver the best and most effective treatments for more people. Most importantly, **ARC 2.0** will lead the way to a future where humane, effective animal free research will be the norm. A future where people will find it difficult to believe that animals were ever used as laboratory 'tools'. A better, kinder future.

As part of our 2019-2020 grant-giving programme, we are funding a host of exciting, new cutting-edge medical research projects that will pioneer animal free techniques

With the help of our expert independent Scientific Advisory Panel, we selected only high impact research where an innovative technology or approaches can replace the use of animals. In many cases, the animal free innovations our researchers develop to help understand one disease can then be transferred to other diseases – multiplying the impact of our research.

Animal Free Research UK – 2021 Grantmaking Programme:

Respiratory tract infections in children - every year over 33 million babies are affected, with 10% of babies in severe cases requiring intensive care. Rather than using animals, the project aims to develop a 3D model of an infant lung to test new therapies.

Finding new drugs for patients with multiple brain tumours - the project will take drugs already used for similar diseases and test them using animal free human cell culture on specific types of brain tumours to by-pass animal testing and make the drugs immediately available to patients.

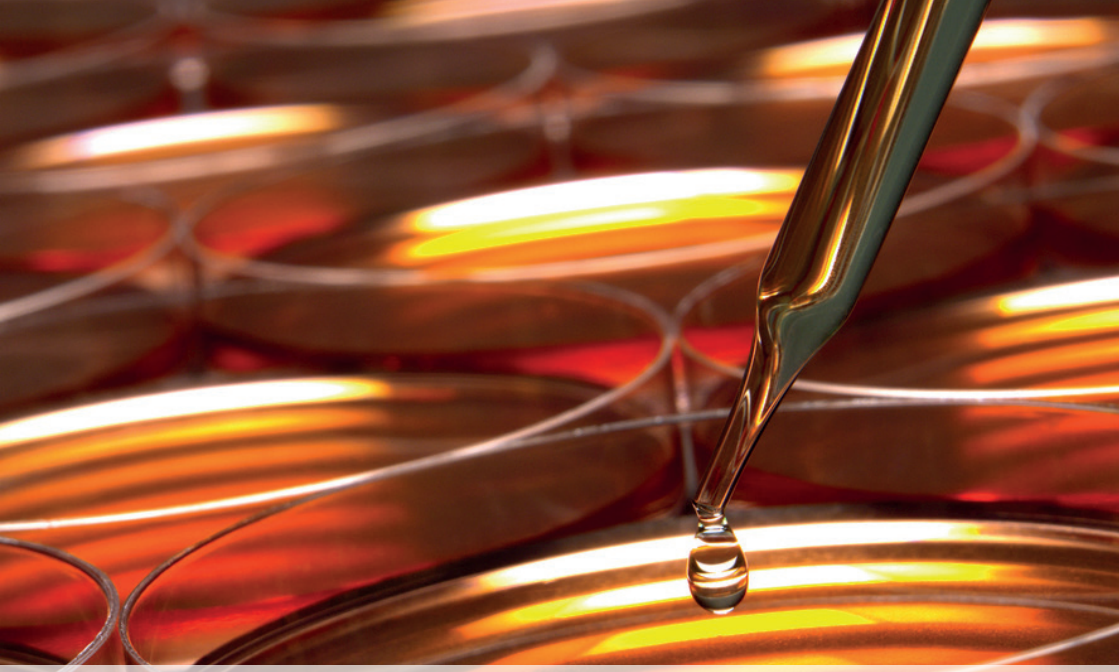
Human stem cell models to understand heart disease - this project will focus on cardiac fibrosis, one of the key causes of heart failure in approximately 900,000 people in UK. By using human cells, the researchers will better understand how to treat the disease and could save hundreds of thousands of animals' lives.

Developing a human neuro-vascular unit on a chip to study stroke - stroke is a leading cause of death and disability, yet of over 1,000 drugs tested on animals, none has been approved. Our researchers will develop a 3D mini cell culture model or 'organ-on-a-chip' which will also support research on other diseases in the future, for example Alzheimer's, MS and epilepsy.

A new 3D bone model to treat pain after fracture - whether due to trauma, osteoporosis, bone cancer or surgery pain is often hard to manage. Our researchers will develop a new human model that will allow them to replicate human conditions whilst replacing cruel and painful tests on animals.

Developing new animal free tools to research and diagnose fungal and bacterial infection - our researchers will use new artificial binding proteins to replace animal-derived antibodies in detecting a substance widely present in fungal cells.

Working towards an animal free model of human allergy - a pilot study that aims to address allergic reactions even in their most severe cases like asthma.



AT THE TIME of publication, most research laboratories are still closed and many of our scientists are working from home writing papers on their ground-breaking animal free research. Thanks to your ongoing support, we can offer project extensions and reassurance that our vital funding will continue while we slowly come out of lockdown.

COVID-19 - Through the COVID-19 Rapid Response Grant Programme, we've been busy working around the clock to ensure scientists can carry out animal free research into the virus. We believe our innovative approach is needed now more than ever, from testing to treatment to finding a vaccine.

The first project we have launched is the optimisation of a new diagnostic test by Prof Lorna Harries at ARC 2.0, which could detect whether people who have had COVID-19 are still infectious. You can read more on page 16.

In collaboration with Kirkstall Ltd we are also providing cutting-edge organ-on-a chip systems to researchers without charge, targeting animal free solutions to the COVID-19 pandemic. The projects, currently being selected, may focus on improvement of diagnostic tests, knowledge and understanding of disease development, or even testing of existing drugs which could play a vital role in finding a treatment to the coronavirus infection. We'll be sure to share more details about these pioneering projects with you in the coming months.

The more generous people like you are able donate to support this kinder science, the more we can do. **We need to significantly grow our research funding by 2025** so that we can change medical research for good and finally make animal free research the Gold Standard.

The COVID-19 Vaccine Paradox

A call to accelerate human-focussed medical research

by **Professor Amanda Ellison**

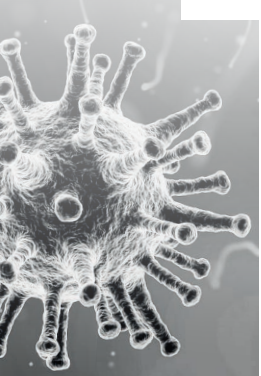
We find ourselves in a time of global health emergency, one that will challenge our healthcare, social fabric and economy for years to come. The choices we make now are borne out of great and immediate need. There are however patterns emerging in the scientific response that will have far reaching consequences for how we progress medical science in the future.

the most humane approach is to bypass animal testing altogether

Whilst there is now a seemingly daily stream of news about the latest heart-breaking tests on monkeys and other animals in attempts to find a COVID-19 vaccine, Moderna Therapeutics, one of the first companies to begin research into the virus, trialled a vaccine in humans in parallel to animals – a break from the linear process requiring animal trials before clinical trials. The University of Oxford also trialled COVID-19 vaccines in humans without the usual preceding animal trials. Given that both vaccines use pre-existing technologies and contain components known to be safe to use in people, the opportunity to fast-track trials straight into humans has been approved.

Sadly vaccines are ordinarily tested in at least two species of animals – usually mice or rats, followed by dogs or other animals – in preclinical studies in an attempt to test safety and effectiveness for humans, *before* permission is granted to proceed to human trials, taking up to two years to complete. This data essentially informs how these animals respond to the target treatment; the cost of this insight is their suffering. An unavoidable consequence is the potential rejection of treatments failing these tests because they are ineffective or unsafe in animals. However, they might be perfectly safe in humans and vital to the breakthroughs humanity urgently needs. Herein lies the paradox.

Even when people are involved in the trial and an effective treatment is identified, it can still take a further 18 months



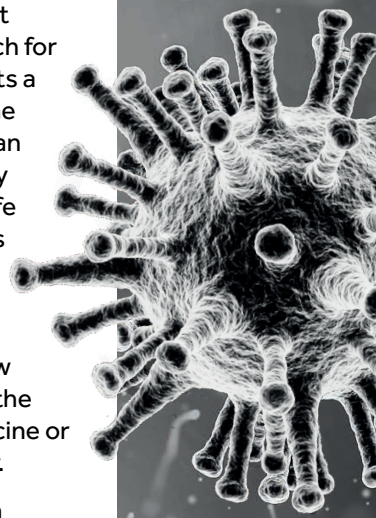
before a vaccine is deemed valid and safe in the longer term through Phase II and III trials, which trigger further animal experiments before the treatment is finally approved.

However, myriad human relevant technologies are now available, including 3D human 'lungs-on-a-chip' that accurately reflect human biology and enable study of the disease in human tissue. There has never been a more pertinent moment to embrace these new approach methodologies, which would save precious lives and time, and avoid the unreliability inherent in extrapolating from species with very different immune systems.

Through the collection of interdisciplinary patient information, we can also begin to understand who the virus attacks outside of age and disease markers and develop a predictive model for each candidate vaccine as to who they will work for, when, for how long and why. Developing better understanding of differences between ethnic groups and genders for example, or efforts that bring us closer to personalised treatments is where time and expertise must now be focussed. Such investigations are uniquely human, without recourse to animal experiments which are simply not relevant to anything other than understanding the mechanism of action in that animal.

Utilising human relevant approaches in the search for a COVID-19 vaccine sets a powerful precedent. The emergency has forced an appraisal of what is truly necessary to deliver safe and effective medicines as quickly as possible. As well as being cruel, traditional animal-based tests are too slow and unreliable to meet the ambitious goal of a vaccine or treatment within a year.

We now need the vision to adopt this approach for all human illnesses – from coronavirus to cancer, dementia to diabetes. Something good can come from the COVID-19 emergency.



COVID-19 test could determine whether patients are

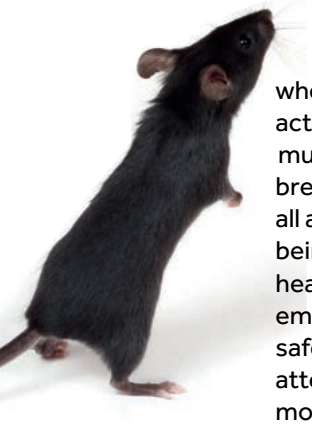
A new test which could detect whether people who have had COVID-19 are still infectious is under development

Thanks to your support, we are currently funding Professor Lorna Harries at the University of Exeter and her team, who are optimising a test that aims to detect **how much** active virus an infected person is harbouring – known as viral load. Unlike current tests which measure both inactive (non-infectious) and active virus, the team is refining a test that could tell users not only whether they are carrying active virus, but also how much. This could be a ground-breaking development for all as the lockdown period is being lifted, allowing frontline health care workers and those employed in care homes to safely return to work and attend to the needs of the most vulnerable.

Professor Harries, who also leads the Animal Free Research UK Centre of Excellence (ARC 2.0) at the University of Exeter, said: "Currently, people with COVID-19 can recover completely, yet still test positive. That's because the tests detect any genetic material left over by the virus after it is inactivated by the immune system. If successful, this new test will specifically look for active virus, even in relatively small quantities, and tell us how much of it is present. It would be incredibly useful in helping people safely to return to frontline duties, or patients return to care homes."

The test is developed with support from the Royal Devon and Exeter NHS Foundation Trust and will analyse the genetic material sub-genomic RNA, which is only present if the virus is active and the

A novel way to treat human diseases without animal suffering



still infectious

patient is potentially infectious. It is an adaptation of a test which recently featured in the journal Nature, which was developed to determine where in the body the virus was most concentrated.

In the future, researchers hope to develop a mathematical model to combine with the test to be able to better predict which patients are at risk of complications from COVID-19. The calculation will be based on factors such as their age and health histories, combined with the concentration of virus in their bodies.

Professor Neil Gow, Deputy Vice-Chancellor for Research and Impact at the University of Exeter, said: "It's really exciting that this test has the potential to provide a much-needed service in the fight against COVID-19, and that its development is possible without using animals. We're committed to innovative ways of reducing the use of animals in research."

The results of this project will be even more needed in the future should there be a second wave, or if the virus is seasonal. We want key healthcare workers to stay safe and be able to provide the amazing level of care required during a pandemic. We also want people in care homes to be safer and be the first to be supported in case of a return of the infection.

We are immensely proud that, thanks to our supporters and science experts, Animal Free Research UK could contribute to a swifter resolution of this pandemic with a more effective, animal free diagnostic test. This devastating virus is bringing out the best of humanity's collective genius, ramping up novel ways of understanding, testing and treating human disease using human relevant research without animals suffering, an example of what should be the rule rather than the exception.

MEET the team

Prof Lorna Harries is Professor in Molecular Genetics at the University of Exeter. She was awarded the Diabetes UK RD Lawrence Prize Lectureship in 2011. Lorna is a STEMnet ambassador and leads the research at ARC2.0.

Dr Merlin Davies is a doctor in Medical Science from the University of Exeter, where he studied molecular genetics. Merlin attended our first Animal Free Research Summer School.

Professor Geoff Pilkington

We are in the midst of a major pandemic. Such major outbreaks seem to occur about every 200 years, while we have in recent years experienced a number of epidemics based largely around mutation of viruses.

Although infectious diseases are, according to WHO, largely under control due to vaccine programmes, this current outbreak relates to a novel pathogen, COVID-19, an aggressive form of coronavirus - a group of viruses which have been recognised for some time now.

Interestingly, COVID-19, like avian flu and others before it, is a zoonosis - a pathogen which passes from species to species causing disease in the human host. With this new pandemic, the policy of self-isolation and social distancing is wise and should be practiced with vigilance.

The following measures are, however, necessary for a resolution of the current situation: the development of an **antigen assay** in order to establish who has contracted the virus; an **antibody assay** to establish whether individuals exposed to the virus (with symptoms or not) have developed immunity. Finally, an effective **vaccine** to protect against the disease.

The problems associated with this 3-step process are:

a. That the **antigen tests** purchased and assessed by government have been found wanting. Along with their unreliability, one of the major problems with these are that they are **qualitative** and **do not assess** the viral **load** (amount of the virus within individual patients) nor do they identify the presence of ***active*** virus.

b. That the **antibody tests** should also be **quantitative**, inasmuch as they need to determine whether recovered patients have partial or total immunity (i.e. with partial immunity they may be subject to contracting the disease a second time).

c. That an **effective vaccine** should be developed as rapidly as possible to protect vulnerable individuals (e.g. the elderly), those with pre-existing medical conditions and compromised immune systems, and of course,

front line care workers who are at greater risk of exposure. Here the vaccine must be both effective and safe. The various pre-clinical tests in vaccine development are currently time consuming and inevitably involve animal testing. Such testing if replaced by new approach methodologies, including sophisticated human 3D *in vitro* models, the time to development and implementation could be drastically reduced and be more human relevant.

The research being carried out by Professor Harries and her team addresses the first of these stages in developing a *quantitative test of active virus* expressed as viral load. This will have a significant impact on clinical decisions and will lead to informed practice in employment of staff, exposure of the public and the utilisation of antibody testing and a potential vaccine.

The impact of the project is considerable and uses an existing methodology adapted to the COVID-19 specific study. The diverse knowledge base and skills sets in Professor Harries' multi-disciplinary team, combined with direct access to patient samples previously collected in clinical settings, make this a much needed research project, which will add value to the suite of tools required to successfully manage our way out of this pandemic.

> TO END THE PANDEMIC A NEW COVID-19 **DIAGNOSTIC TEST** IS **URGENTLY** NEEDED

SCIENTIFIC ADVISORY PANEL

Our Scientific Advisory Panel (SAP) brings together a diverse range of scientific expertise and knowledge. The panel helps drive forward our strategic vision of funding animal free solutions that are human-relevant and remove animals from laboratories for good.

Professor Mike Philpott (Chair)
Mike has over 30 years of research experience in developing human models of disease. During his PhD he created the first method to successfully isolate and grow human hair follicles in the laboratory – now widely known as the 'Philpott model'. He continues to champion human models of disease as Professor of Cutaneous Biology and Head of the Animal Free Research UK Animal Replacement Centre at Queen Mary University of London.

I am strongly committed to developing animal free models of human disease.

Dr Stephen Dunne
Stephen is a lecturer in psychology at the University of Sunderland, with research skills and experience in cognitive neuroscience. As an early career researcher, Stephen's research focuses on the development, implementation and experimentation of rehabilitation paradigms for sufferers of stroke and brain injury.

The use of animals in science is an outdated and unnecessary process. Human-relevant methods provide a more valid and ethical approach to scientific research.

Professor Lorna Harries
Lorna holds a personal Chair in Molecular Genetics at the University of Exeter College of Medicine and Health. She has interests in the regulation of gene expression and how this impacts human diseases such as type 2 diabetes and other age-related disorders.

I am delighted to work with Animal Free Research UK to ensure that we fund cutting edge research of direct relevance to human diseases, which can be more readily translated to the clinic.

Dr Malcom Wilkinson
Malcolm studied Physics at Oxford but is now a specialist in medical and biomedical devices and former CEO of Kirkstall Ltd. He is co-author on several papers on in-vitro models of toxicity and a contributing editor of a recently published book on in-vivo. He is a champion for the use of leading-edge technology to replace animal testing for the development of safe drugs, nutraceuticals, chemicals and cosmetics.

There are outstanding scientific and ethical reasons to move to animal free research. We need to reduce the time and money we put into misleading animal models of disease and focus on human based biology.

Dr Martin Clift
Martin is an Associate Professor at Swansea University Medical School and current chair of the UK In Vitro Toxicology Society. His research focus is on developing advanced in vitro lung models of both the upper and lower airways. He further utilises these systems to deduce the mechanistic toxicological and immunological implications of inhalation exposure to (nano)particles and fibres. He is also Editor-in-Chief of Fibres, Associate Editor of the Journal of Nanobiotechnology and an Editorial Board member for a number of journals within his field.

Supporting researchers to progress within the exciting, constantly expanding field of animal replacement research is a fantastic opportunity.

Professor Geoff Pilkington
Geoff has spent his entire career in brain tumour research and champions the use of re-purposed and re-formulated drugs in the treatment of cancer to fast-track them into the clinic. He believes that animals are poor representations of human disease and so his research focus has been the development of 3D all human models for the study of brain tumours.
He recently 'officially' retired but continues working as an international neuro-oncology consultant and Emeritus Professor at the Brain Tumour Research Centre at the University of Portsmouth.

I am passionate about the use of all human in vitro models in medicine and so I am delighted to bring my experience and knowledge of all-human studies to the Animal Free Research UK Scientific Advisory Panel.

Dr Dania Movia
Dania is a Senior Research Fellow at the Trinity Translational Medicine Institute of Trinity College Dublin, Ireland's leading university. She also lectures in the molecular medicine MSc at the School of Medicine. Dania was awarded an MSc in Chemistry and Pharmaceutical Technologies at University of Trieste (Italy) in 2007 and a PhD in Chemistry at Trinity College Dublin in 2012. As principal investigator for a grant funded by the Johns Hopkins' Center for Alternatives to Animal Testing, co-principal investigator in the EU Horizon 2020 Biomaterial Risk Management (BIORIMA) project and reviewer for the European Innovation Council, she is an EU expert in cancer and alternatives to animal research.

It is about time we stop curing cancer in animals, and we start finding how to do it in humans.

how to CHANGE THE

by **Carla Owen**

Animal research has long been controversial, but recently it hasn't captured the public imagination in the way issues like climate change have. One obvious reason is environmental campaigners' success in mobilising the international community to set CO^2 emissions targets – and the subsequent collective failure to meet these.

It has taken young climate activist Greta Thunberg to point out the error of our ways, arguing that to combat climate change we need to change our political and economic systems. Her 'system change not climate change' slogan is visible in climate strikes across the world.

We too can learn from Greta as we work to replace animals in medical research.

System change

I don't mean overthrowing the entire system when I talk about system change! Rather, systems are tools to help us learn about and transform uncertain and complex situations like animal research. Thinking systemically means looking at the bigger picture and appreciating all perspectives. This can help us act in ways that give us the best chance of making changes that have our desired impact.

The escalation trap

For too long, both sides of the animal research debate have operated solely from their own perspectives and failed to see the bigger picture. The conversation has been emotive and divisive where preserving one life has implied the sacrifice of another, pitting animal lovers against animal researchers – with neither coming off well.

This is known as the 'escalation trap' – where group A takes action that is interpreted as a threat by group B, which causes B to react by also taking action. If this action is interpreted as a threat by group A, then A takes further action, and so on.

It is easy to see how this has happened. With devastating numbers of animals forced to suffer in experiments, animal lovers like us have called for an end to unethical animal research. This has brought about public criticism of animal research which has caused animal researchers to become entrenched in their position that their work is the gold standard in science, leading to increased animal use, causing animal lovers to shout louder.

Whilst the instinct is understandable, the crucial questions are is

DEBATE

this helping animals in laboratories, and is it curing diseases more quickly? The answer to both is surely 'not as much as we hoped'.

Changing the conversation

So how can we diffuse this situation? My answer is we disrupt the system by changing the debate. Rather than a misleading choice between ethics and science, we must shift the focus onto working together to deliver research which produces results for humans without animal suffering.

You'll already know about the pioneering animal free research that operates on these principles. It's the work forward-thinking people like you have been supporting us to achieve for 50 years. Yet more needs to be done so that everyone - animal lovers, scientists, decision-makers – can start a new conversation that overcomes the escalation trap and helps bring about system change, not suffering.

Here is how we're working with three diverse partners to achieve just that.

Kirkstall

Kirkstall Ltd is a biotechnology company that provides cutting-edge organ-on-a-chip technology to leading research labs with a focus on drug development and safety testing. We teamed up with them in May to provide this technology to research teams to help replace the use of animals in the fight against COVID-19.

Alliance for Human Relevant Science

We helped found the Alliance for Human Relevant Science in 2017 to bring together charities, industry partners and academics to accelerate innovation in research. By collaborating, we are supporting better science for better health, saving animal and human lives by improving safety and efficacy testing, and saving money through human relevant research.

Breast Cancer UK

Breast Cancer UK works to prevent breast cancer through education, scientific research and policy change. Together we are funding research at the University of Aberdeen to identify an effective strategy for preventing breast cancer – without using animals. Our researchers are exploring if hormone disrupting chemicals in the environment are making people more susceptible to breast cancer.

since 1970

your IMPACT for animals

1.6 million animals prevented from suffering

£10 M in grants

£6.25 to replace 1 animal in research

260 projects funded

Mice, rats, rabbits, cows, dogs, pigs, sheep, hamsters, monkeys, guinea pigs, chickens, cats and horses replaced in experiments

Research performed in cancer, neurological diseases (including Parkinson's, Alzheimer's), drug testing, diabetes, heart disease

68 institutions funded

94 summer students introduced to animal free research since 2012

2 new ARCs established (2016 and 2019)

Our research is carried out across the UK

TODAY

For every **£1** you give:

89p will directly support charitable activities

11p will generate new funds for animal free research

We are investing over **£750,000** in research in 2020:

- **10** PhD studentships
- **7** pilot projects
- **7** postdoctoral research posts
- **6** rapid response projects for COVID-19
- **2** ARCs
- **1** lecturer in Animal Free Research
- **1** strategic research project

FUTURE

- **£1 M** raised for our RAPID RESPONSE FUND by 2022
- **£2.5 M** in grants awarded in 2023 replacing 100,000 animals in medical research
- At least **26** new animal free research projects completed by 2023
- **3** Animal Replacement Centres (ARCs) established by 2025
- **100s** of professionals belong to our Animal Free Research Community of Practice by 2030
- **£10M** in grants awarded in 2033 replacing 500,000 animals in medical research
- **7** Animal Replacement Centres (ARCs) established by 2035
- Development of treatments for human diseases can be entirely animal free by 2040

FABULOUS Fundraisers

Animal Free Research UK is generously supported by a group of dedicated volunteers led by our inspiring Community Ambassadors. With their efforts, we can fund novel research which replaces animals in laboratories for good.

"I am so very proud to be a Community Ambassador for this amazing charity. **I see no purpose to animals in laboratories**. I appreciate the charity spending the money raised wisely with positive mindset and solution focused. I admire that."

STEPHANIE JONES-GILES & the BUDE Group

Steph, our Community Ambassador in Bude, joined with her first fundraiser back in 2006, walking from Penzance to Falmouth on the coastal path. 10 years later, in 2016 she officially established the Bude Group. Since then, more people have joined the group in some amazing activities, raising awareness and funds close to £30,000 to date and going strong!

This is the future of research and I plan to be part of seeing this change before the end of my life.

As the University of Exeter is close to Bude, the group is keen to provide support to the COVID-19 and ARC2.0 projects. We want to thank Melissa Roberts, Errin Netley, Jackie Diffey, Penny Baxter, Team Nos Nom (Jo, Juliet, Laura, Mike), Curtis Wilson and many, many more for their enthusiasm and support.

Once again, we wish to extend our heartfelt thanks to ALL volunteers – mentioned here or not – who have so generously contributed time and effort in the last 50 years.

Thank you!

> Fundraising for charitable purposes is not just an incidental act we happen to be involved in. It is a practical expression of our core values and our desire to create a kinder, more just world. **I believe passionately in the work of the Animal Free Research UK** and I have been raising funds for them for a number of years."

REV FEARGUS O'CONNOR & the LONDON Group

Reverend Feargus O'Connor is one of our greatest supporters who has raised over £53,000 in funds on behalf of Animal Free Research UK, mostly through his role as Chair of the Animal Interfaith Alliance which includes Catholic, Anglican, Quaker, Jain and Hindu members amongst a number of religions.

I am delighted that the Interfaith Alliance expressed support for Animal Free Research UK and an ongoing commitment to encourage people of all religions, and none, to support this charity.

Special mention goes to Pat Maxwell who has been one of our familiar faces always welcoming, informing and engaging at Kensington Town Hall for the Animal Aid Christmas Fayre for a few years.

> I truly believe that medical research can and should be conducted without the use of animals, and I am extremely proud to support such a fantastic charity whose primary aim is to fund and promote the shift away from animal research towards ethical and human-relevant alternatives."

REBECCA SHEPHERD BEDFORDSHIRE, BUCKINGHAMSHIRE and NORTHAMPTONSHIRE

A consummate volunteer for several causes, Rebecca joined us in January 2018 as Community Ambassador based in Northampton. Since joining she has raised over £6,500. A scientist, environmentalist and animal advocate, **Rebecca never passed an opportunity to establish new connections for the charity, stay up to speed with the advances of animal free research and always ready to take new challenges.** Her latest feat was to take the 2.6 Challenge to Save UK Charities, "climbing" her home's staircase as many times as the number of steps needed to reach the peak of Mount Everest! Most importantly, smashing her target in just 3 days, Rebecca was the first to jump at the opportunity of raising money for the COVID-19 project at the University of Exeter. Thank you!

Protect the Future: what's your legacy going to be?

Animal Free Research UK is in this for the long run but we need to know you're with us - united. To transform medical research for animals and for families alike, we rely on a special dedicated group of supporters who remember us with a gift in their will.

Did you know? Last year 58% of our income came from legacy gifts

Legacy gifts are vitally important to us as Animal Free Research UK receives no government funding. We are only able to carry out our vital work because people like you care about others, care about animals and believe in making the world a better place through kinder science. Legacies enable us to plan into the future to seek out and fund the most cutting-edge methods to replace the use of animals in experiments.

A legacy gift is also a wonderful way to celebrate your life, keep your memory alive and continue to help those causes that are important to you even after death. Can we count on your kindness, foresight and support with a legacy gift?

Using animals in laboratories causes unimaginable suffering for many species to aid one species, whilst bringing shame on the human race.

We must become the change we want to see in the world

Mahatma Gandhi

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, our long standing proud supporter and legacy pledger

For more information about Leaving a Legacy, please go on our website at **www.animalfreeresearchuk.org/leave-a-legacy/** and fill in your details to either download a copy of our legacy guide or request a copy to be sent to you through the post.

If you receive a pension, we may also be able to help you with the costs of writing a will. Should you wish to discuss this further or have any queries relating to leaving a gift in your will, please contact us via email at **hello@animalfreeresearchuk.org** or call us 020 8054 9700.

Thank you.

Amazon Smile

If you shop at Amazon, you could help raise valuable funds for us at no extra cost to you! Simply use the AmazonSmile link below and select Animal Free Research UK as your charity to support. We will then receive a donation every time you shop.

We've already received a whopping **£30,000** from AmazonSmile, so it's a great way to raise much-needed funds from the comfort of your home.

Please ask your friends and family to sign up too.

smile.amazon.co.uk/ ch/1146896-0

EasyFundraising

If you don't shop at Amazon, you can still support Animal Free Research UK when you shop online. You can turn your everyday online shopping into donations for us by registering with EasyFundraising.

You can shop at thousands of online retailers and raise funds for us at the same time – at no extra cost to you!

easyfundraising.org.uk/causes/animalfreeresearchuk

THANK YOU!

I have been so encouraged to see the amazing work that has been achieved thanks to Animal Free Research UK's unwavering commitment over the last 50 years.

Things may not change as fast as we wish, and yet one must remember that they are indeed changing, that people are becoming aware that big questions cannot be answered any longer by exploiting animals in laboratories.

At a time when each of us is looking to the scientific community for new solutions to new diseases, we can all play a part in supporting life-saving medical research. Animal Free Research UK is giving a much-needed glimmer of hope that progress is being made on behalf of animals and humans.

Change takes time – and with it persistence and courage. One day soon, I hope, animals will be free and humans will benefit. As Schopenhauer once said: **"The final stage is that the changes will be accepted as self-evident"**.

Now more than ever, we must push for a world where research is undertaken without using animals – for the benefit of us all.

CAROL ROYLE
Patron

Large *or* small,

leaving a gift in your will can make

a BIG difference.

If the time is right, please consider leaving us a gift in your will.

Thank you.

Download your free legacy guide at animalfreeresearchuk.org/leave-a-legacy/