REPLACEMENT NEWS

Summer - Issue 142

A pathway to breakthroughs:
Special newsletter edition on groundbreaking Alzheimer's disease research

ANIMAL FREE RESEARCH UK

Inside:

Herbie's Law
Our fabulous fundraisers
Unmasking Alzheimer's Disease
Our new research grants

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Animal Free Research UK
Formerly Dr Hadwen Trust
27 Old Gloucester Street
London WC1N 3AX

Tel: 020 8054 9700
hello@animalfreeresearchuk.org
www.animalfreeresearchuk.org

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A promising future: Our journey ahead with your support

This year has already proven particularly significant, not only because of our scientific endeavours but also due to the political landscape. The general election presented a unique opportunity for us to advocate for policies that support ethical and innovative research. Thank you to everyone who spoke to their candidates about Herbie's Law. We are so grateful for your unswerving dedication to speaking up for animals, and using your power as a constituent.

The political decisions made in the coming months will shape the future of scientific research in the UK. Our incredible Public Affairs team will ensure that our vision for animal-free research is part of this conversation.

In addition to our advocacy work, we continue to make significant strides in innovative animal-free research. I'm thrilled to announce we have recently awarded nine new grants to pioneering scientists committed to human-specific research. These grants will fund pioneering projects aimed at advancing scientific understanding in areas including dementia, breast cancer and heart disease. You can read more about these projects and meet the scientists from page 12.

These 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working hard on the frontline of modern medical research to not only advance human health but crucially prove just how outdated the use of animals truly is.

We continue to receive stories from supporters doing incredible things to raise money for Animal Free Research UK. From Nye's 450km kayak from Germany to Austria, to the amazing community in Bude, read about their fundraising achievements on page 22.

As you read through this issue, I hope you feel as inspired as I do by the progress we are making.

All our work 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 support 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

Accelerating Innovation: We've awarded new grants

Animal Free Research UK is thrilled to announce the awarding of nine ground-breaking new grants to visionary scientists dedicated to advancing humane and innovative research. These grants will fund pioneering projects in critical areas such as dementia, breast cancer, and heart disease, highlighting the transformative potential of animal-free research. This marks another leap forward in our mission to revolutionise scientific research and promote compassionate practices.

Each of these grants supports cutting-edge projects that push the boundaries of scientific discovery. From developing sophisticated 3D cell cultures to utilising advanced computational models, our grant recipients are at the forefront of modern medical research. Their work not only aims to improve human health outcomes but also to showcase the outdated nature of animal research and advocate for more effective, human-specific approaches.

This would not be possible without the unwavering support and generosity of our incredible community. Your dedication to our cause enables us to fund these vital research projects and continue our work for a future free from animal research.

Saqib Bhatti MP presses government on animal testing phase-out plans

We're pleased to see the first parliamentary question on animal testing submitted to the new Government in July. Saqib Bhatti MP asked the Department for Science, Innovation and Technology (DSIT) "what [their] planned timetable is for phasing out animal testing", and "whether [they plan] to commission an impact assessment on the proposed phasing out of animal testing".

In response, the Government confirmed that "discussions are already underway" on Labour's manifesto commitment to phase out animal testing. We've reached out to Saqib Bhatti to offer our support and will be closely monitoring further developments.

Australia leads the way: $4.5M boost for non-animal technologies

The New South Wales Government in Australia has provided $4.5 million in funding to establish the 'Non-Animal Technologies Network' (NAT-Net).

This community fosters innovative methods such as human cellular models, synthetic biology, and computer simulations to advance medical science without relying on animal testing. The network supports statewide infrastructure, foundational research projects, and regulatory frameworks, bringing together national and international expertise to accelerate the development of human-specific research models and therapies.

It is high time the UK joined these countries at the forefront of innovation. Introducing Herbie's Law would cement the UK's future-focused reputation and science superpower status.

Herbie's Law makes its first official appearance in Parliament

In July, Steve Race, MP for Exeter, submitted two parliamentary questions on our behalf to the Department for Science, Innovation and Technology. Excitingly, one of these questions asked whether an assessment had been made of the "potential merits of introducing Herbie's Law", marking the first time 'Herbie's Law' has been officially mentioned in Parliament. We'll be working hard to make sure this mention is the first of many!

Both questions are due to be answered in early September:

- To ask the Secretary of State for Science, Innovation and Technology, what assessment he has made of the potential merits of introducing Herbie's Law, a practical framework to (a) enable the long-term phase-out of animal experiments in medical research and (b) support scientists with the transition to (i) computer modelling, (ii) organ-on-a-chip technology and (iii) other human-specific methods.
- To ask the Secretary of State for Science, Innovation and Technology, what steps he plans to take with (a) scientists, (b) industry representatives and (c) civil society representatives to help phase out animal testing.

A voice for the voiceless: Advocating for Herbie's Law in Parliament

The Public Affairs team has certainly been kept busy since our last edition of Replacement News in May!

When the UK General Election was announced at the end of that month, we quickly mobilised our campaign to reach as many candidates as possible with our call for Herbie's Law.

Thank you to all of our supporters who sent an email to your candidates, spoke to candidates on your doorsteps, and shared your support on social media. Over a thousand of you acted and we received hundreds of responses from candidates. We are so grateful for your dedication to speaking up for animals, and using your power as a constituent to ensure your MPs enter (or return to) Parliament knowing who we are and, importantly, who Herbie is.

The next steps

Since the forming of the new Government in July, we have been working hard to reach out across all parties to new MPs, build on previous relationships with re-elected MPs, and engage with the new Ministers and Shadow Cabinet.

We were very encouraged to see in the Labour Party's manifesto their pledge to 'partner with scientists, industry, and civil society as we work towards the phasing out of animal testing' and have been offering our support with the delivery of this commitment.

Sir Patrick Vallance.
Department for Science, Innovation and Technology Minister

It was also promising to receive a reply from new Department for Science, Innovation and Technology Minister, Sir Patrick Vallance, who said that he recognises "that new technologies raise the prospect of significantly reducing animal use" in medical research and that he "welcome[s] this development." We're wasting no time in working with all parties to accelerate animal-free science.

Private Members' Bills

The Private Members' Bill ballot usually takes place very quickly after the re-opening of Parliament, so we knew we would have to act quickly to try to encourage MPs to select Herbie's Law if they were successful.

What is the Private Members' Bill ballot?

MPs and Peers who are not Ministers are allowed to enter the Private Members' Bill ballot at the beginning of each new parliamentary session, and most do.

There is a separate ballot in the House of Commons and the House of Lords, and both provide a similar opportunity for an MP or Peer to choose a bill (draft legislation) that they would like to introduce.

Whilst Private Members' Bills rarely become law, they are effective in raising awareness of an issue and increasing support for it in Parliament.

The Peers' ballot has already taken place and whilst we had supportive messages from members of the House of Lords, those successful in the ballot are focusing on different bills. We now know that the House of Commons ballot is due to take place on the 5th September, so we'll continue to reach out to MPs to encourage them to prioritise animals in laboratories if their name is called. Once again, a big thank you to all of our supporters who have emailed their MPs about the Private Members' Bill ballot. Together, our voice is louder and stronger.

As usual, please do let us know about any interactions you've had with an MP or Peer by emailing:

hello@animalfreeresearchuk.org

So, what's next?

There's no rest for the wicked, nor for the Animal Free Research UK Public Affairs Team.

Party Conferences

From our pre-election campaign, to our post-election campaign, and now onto planning for our presence at the Labour, Conservative and Liberal Democrat Conferences this September and October, our team of two are pulling all available levers to advocate for Herbie's Law. We're very excited to be planning exhibition stalls at Conservative and Labour conferences again, where we'll be hoping our striking images of Herbie will entice policymakers over to our stand to discuss how they can support the acceleration of the uptake of human-specific technologies. With the increase in numbers of Liberal Democrat MPs in this Parliament, we felt that it was important we attend their conference this year, too.

Isobel and Darcie at the 2023 Party Conferences

Home Office Annual Statistics

The annual 'Statistics of scientific procedures on living animals' from the Home Office – delayed due to the election - are due to be released in the Autumn. As usual, we will be analysing these as soon as they are published and will update you on the findings. We'll also be working with Baroness Natalie Bennett on an event in the House of Lords that will bring together global experts in animal-free science towards the end of the year.

Finally, we'll be continuing to present MPs and Peers with the evidence they need to convince them that now is the time to introduce legislation to support the transition to human-specific medical research. For example, our incredible grant-holders are doing amazing work in developing and using animal-free science, so we'll be inviting MPs and Peers to meet our scientists in their laboratories to see first-hand the potential of this exciting sector. We're already making arrangements for two potential 'lab-visits' and will of course keep you updated!

Thank you!

A huge thank you once again to all our fantastic supporters from the Public Affairs team, and of course from Herbie. We are always energised by your dedication, and are so grateful for your support for our Herbie's Law campaign. We truly couldn't do it without you!

Darcie Wilson
Public Affairs Officer

Our wonderful Patrons

Dame Joanna Lumley

"We truly are a nation of animal lovers, so let's prove it, and place ourselves at the forefront of innovation with world-leading legislation. Let's ensure that Herbie's call for freedom for other animals is answered.

Dame Judi Dench

"As an ardent animal lover, I am heartbroken that each year nearly 3 million animals are used in British laboratories . It's time for us to move on and embrace compassion, innovation and progress. That's why I support Herbie's Law and I urge everyone to join this crucial campaign for legislation that will see an end to the suffering of animals in laboratories once and for all.

Carol Royle

"Herbie's story is as heartbreaking as it is full of hope – destined for the laboratory but spared this terrible fate. Thankfully, there is a better way. Technologies that are based on human biology offer the best possible chance of making medical breakthroughs. I wholeheartedly support Animal Free Research UK's campaign for Herbie's Law and urge everyone to join us.

A decade of change - but why the wait?

It's going to be a journey filled with challenges and milestones. But every step we take, and every conversation had with scientists and policymakers brings us closer to a future where animals are no longer used in medical research.

Herbie's Law is going to be a long-term campaign with many progress milestones along the way, and while our hearts ache for an end to animal research sooner, we know that reaching these targets requires time, innovation and commitment.

As we want Herbie's Law to become permanent legislation rather than short-term policy, there are hurdles which must be overcome to ensure the law is accepted and utilised properly.

So why is this going to take a decade?

We understand that such a significant shift in direction, mind-set and regulation takes time. Appropriate validation (comparison against established methods) and optimisation must take place to not only prove the effectiveness of innovative animal-free New Approach Methodologies (NAMs) as robust research tools, but to also showcase the opportunities they can provide as alternatives to animal experiments.

NAMs are relatively new research technologies which are being constantly developed and refined, and they are already allowing us to make incredible breakthroughs in human-specific science without the use of animals. The "decade of change!" we are calling for as part of Herbie's Law will therefore give ample opportunity for the scientific literature to catch up and fully demonstrate the benefits and successes NAMs can achieve.

The good news is that as more scientists utilise NAMs and publish ground-breaking, human-focused results in scientific journals, confidence will continue to grow in their use over animal experiments. Over 250 papers have already been published on organ-on-a-chip so far in 2024, further increasing trust and interest in these technologies in the scientific community.

An important step towards a significant uptake in NAMs use is creating training opportunities for scientists in the use of new research tools, such as Animal Free Research UK's Organ-on-Chip Masterclass, which took place for the first time earlier this year. Training is an essential step in promoting the wider uptake of NAMs, creating experts who can go on to train others and help to establish animal-free lab groups which will ensure the growth of NAMs over the coming years.

We are asking scientists to change their methods, embrace opportunities to retrain and alter their mindsets to prioritise the use of innovative, human-specific technologies. This may be a big ask, but we have science on our side, and we will not give up.

The silent thief of memories

Dementia is not just a disease; it's a thief. It steals the past, muddles the present, and obscures the future.

Dementia is the UK's biggest killer, yet it is estimated that around 40% of people affected have not received an official diagnosis. And despite decades of research and countless animal experiments, effective treatments for dementia remain elusive.

As we currently have no cures, or ways to stop its progression, the cost of dementia to the UK is currently around £42 billion a year, however just 1.4% of these costs are spent on diagnosis and treatment, with social and unpaid care costs making up the rest. This figure is expected to rise to £90 billion by 2040.

So, what is Dementia?

Dementia is not a single disease, instead it is a term used to describe the symptoms which occur when a patient experiences a progressive decline in brain function. Nerve cells that carry messages between different parts of the brain become damaged when dementia occurs.

Over time, more nerve cells become damaged and die, so the brain becomes less able to function properly, causing the symptoms we see in dementia.

Unmasking Alzheimer's disease

The most common type of dementia is Alzheimer's disease, which accounts for 60-70% of cases.

For millions of people around the world, Alzheimer's transforms everyday life into a series of heartbreaking moments, leaving families to watch helplessly as their loved ones slip away, one memory at a time.

The brain is a complex and fascinating organ, composed of billions of neurons that communicate through intricate networks. In Alzheimer's disease, these neurons and their connections are progressively destroyed. The

There hasn't been a new drug approved for Alzheimer's disease in the UK for 20 years

99.6%

The failure rate for Alzheimer's disease drugs in human clinical trials

hippocampus, a critical region for forming new memories, is often affected first. As the disease advances, other parts of the brain responsible for language, reasoning, and behaviour begin to deteriorate. This neurological breakdown is what leads to the characteristic symptoms of Alzheimer's.

The search for a cure

While there are currently some treatments that can help manage the symptoms of dementia for a period of time, there are no treatments that can stop, slow or prevent the condition.

Animals simply cannot replicate the complexity of human Alzheimer's disease

Despite decades of animal research, the search for effective Alzheimer's treatments has been fraught with challenges. The failure rate for Alzheimer's drugs in human clinical trials is a staggering 99.6%, even after promising results in pre-clinical animal tests, meaning there hasn't been a new drug approved for Alzheimer's disease in the UK for 20 years.

This is because most dementia research is carried out using mice and rats, but neither naturally develop Alzheimer's disease nor live long enough to study ageing.

This highlights a critical issue in current research methodologies: animals simply cannot replicate the complexity of human Alzheimer's disease.

The need for human-specific research

The urgent need for new approaches to Alzheimer's research has never been greater.

Imagine a world where research is driven by compassion and innovation, where the quest for cures does not come at the expense of innocent animals. At Animal Free Research UK, we are working tirelessly to make this vision a reality. By harnessing the latest advancements in technology and science, we are developing cutting-edge, human-specific models that hold the promise of breakthroughs in understanding and treating Alzheimer's disease.

That's why, thanks to your support, we have newly awarded two grants to research and unlock the secrets of Alzheimer's disease. You can read about these pioneering projects on the next few pages.

Alzheimer's disease may be a formidable foe, but it is not unbeatable. Through animal-free research, we can unlock the mysteries of this disease and pave the way for treatments that restore hope and dignity to those affected. By standing together, we can change the course of Alzheimer's research and bring about a world where memories are not stolen, and lives are not shattered.

Exploring the role of cell stress in Alzheimer's disease

Dr Patricia Ragazzon at Keele University is developing a new human cell co-culture model containing three types of brain cells, which she will use to study the link between stress and brain cell death in Alzheimer's disease.

Dr Patricia Ragazzon

Animals to be replaced: Mice, rats, fish and monkeys

It is estimated that just under a million people in the UK are currently living with Alzheimer's disease (AD).

We currently only have a small number of drugs to help manage the symptoms of AD, but none that can cure or stop the disease's progression. Therefore, we urgently need new human-specific ways to study and understand this disease, allowing us to develop new treatments for patients that are urgently needed.

The problem with animal research

Most AD research is carried out using animals, in particular genetically modified mice, but animals don't develop the characteristic features or symptoms of this uniquely human disease.

In the human brain, AD is characterised by an abnormal build-up of the proteins amyloid (forming "plaques" around the brain cells) and tau (forming "tangles" within the brain cells). Animals don't naturally develop AD as they don't develop these characteristic brain problems. Using animal experiments to study AD can lead to misleading results, causing drugs to fail in human trials even though they may have been successful results in pre-clinical animal testing. Despite these widely acknowledged problems, thousands of animals are used each year in AD research.

Please support Patricia's project today.

Your donation fuels cutting-edge, humane science

SCAN ME

A complex model

To move away from flawed animal experiments, Dr Patricia Ragazzon at Keele University, alongside her collaborators at the University of Salford and University of Manchester, is developing a new human cell culture model, growing three different brain cell types together in a method known as 'co-culture'. This technique increases the complexity of a cell-based model, making it more representative of the human body where many different cell types naturally work together to carry out the body's normal processes.

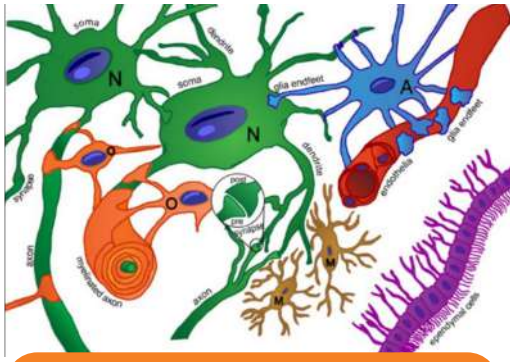


Diagram of how different cell types interact in the complex microenvironment of the human brain

Patricia will use three different types of human brain cells: neurons (cells that send messages to the body to allow it to carry out its functions), astrocytes (star-shaped cells that carry out 'housekeeping' functions throughout the brain and central nervous system) and microglia (immune cells found in the brain) and combine them to create the model which can be used to study AD development and progression.

The danger of stress

Patricia is interested in the effect that stress and inflammation can have on brain cells in AD. She will use her co-culture model to study how stress affects the development of tau tangles, one of the main characteristic features of this disease. She will induce stress to the cells in the co-culture model by adding the chemicals TBHP and formaldehyde, which cause changes in the tau protein tangles and an increase in amyloid plaque numbers, representing the advanced stages of AD.

When cells are under severe stress, they die and release toxins and other molecules into their environment, which can cause stress to other cells. This may create a damaging loop of stress, inflammation and cell death, which when combined with increased numbers of tau tangles and amyloid plaques, could lead to the progression of AD. If this is found to be the case in this model, this may provide some much-needed insight into the some of the current mysteries of AD development.

Sharing animal-free methods

This project builds on two previous Animal Free Research UK Summer Studentships (Patricia Bailey, 2022 and Imogen Carmichael, 2021), in which animal-free cell culture methods were tested and optimised.

This human cell model has many potential research uses as it is complex enough to allow us to study important brain cell processes, while still being easy to use. The methods also don't require any expensive or complicated equipment, making them accessible for any researcher worldwide to use. If other researchers began using Patricia's animal-free methods, the lives of thousands of animals destined for use in AD research could be saved each year, while providing much needed human-specific data.

“Working with animals is not going to be the answer

“My grandmother had dementia. She was one of my favourite people

Tell us about your life before animal-free research

I wasn't so much into science until I went to secondary school. I am from Argentina, so I did all my early education there. I actually wanted to be an archaeologist early on. I had this desire to discover Troy or something like Troy, but my mum said that there isn't much money in that area so I needed to find another career path.

I wasn't sure what to do. I always liked animals and I was always begging to get a pet, so we got a tortoise when I was 5 years old, and we still have one of them nearly 50 years later!

I do have this very early memory of watching a documentary, maybe a National Geographic one, of someone doing some surgery or something on a bird without anaesthesia.

“It was under the concept of animal testing, and I was horrified. That really spurred me on to do something to help animals.

In Argentina, I helped at animal shelters that rescued animals from the streets. And after much persuasion, I managed to convince my mum to let me have more animals, so we started to collect several cats. Even now I have five cats and two dogs.

After this work I still wasn't sure what to do next, but I ended up going to university in Argentina to study chemistry because I was interested in it. I then came to UK in 2002 to do my PhD.

And that's when things really started to change. At the University I saw a notice about the charity BUAV (now Cruelty Free International), and started volunteering for them. We would go into the cafeteria at the University to start collecting signatures and donations.

After my degree, I worked in various biotech companies where I learned a lot about cells and human-specific in vitro systems. I started building models of the human intestine, but I wanted to study something that was more meaningful to me.

Why did you go into dementia research?

My grandmother had dementia. At the time it was really hard because I couldn't go home to Argentina to say goodbye because as a student then I didn't have enough money. She was one of my favourite people.

There is a part that they never tell you about early dementia. And it is that they know that things are going wrong. I remember telling her that you need to exercise the brain. She was a retired Head of a primary school, so she was always very active. She would say that she no longer wanted to read because one day she would be fine and understand the words, but then other days the letters would be like soup and she couldn't understand them. She was too scared to read and find out which day it was going to be.

It was devastating to hear. I knew dementia was something I wanted to make a difference in.

I had a colleague that was working on dementia, so we would chat sometimes, and I always kept an eye on what she was doing. When I came to Keele University, I started looking at dementia and used my varied experience including my Chemistry background which gave me a different mindset on how to analyse something.

We live longer and if we're expected to work into our 70s, we need to do something about dementia. The current treatments are not working, so we need to go back and start again. What are we missing in here?

What advice would you give to aspiring animal-free researchers?

I love being in the lab and love spending as much time in there as possible. And I love training students and teaching them how to use microscopes and about the importance of human-specific research.

Our work is about advancing. And you see that with our students. They want something different and to progress and do something that will not involve animals. It's great to see them come with new ideas, and approach things in a different way. It's inspiring to see.

I would advise any student to read lots of research news, coming from industry and academia. Always challenge anything you think it is not right, and don't be afraid of asking for advice.

What do you do outside of the lab?

I like to watch the birds in the garden, as we have installed several feeders. I love going for walks with my two big chihuahuas, and spending time with my five cats. And of course, I love to spend time with my family.

Using human 'mini brains' to unlock the genetic secrets of Alzheimer's disease

Dr Tom Piers at the University of Exeter is developing animal-free 3D human organoid 'mini brains' to study how neurons (brain cells) communicate with each other. These organoids could not only replace animal experiments, but could also help us discover new opportunities to intervene at an early stage of Alzheimer's disease development, before irreversible damage is done to the brain.

Dr Tom Piers

Animals to be replaced: Rats

Understanding brain cell communication

During the development of Alzheimer's disease (AD), communication between neurons (brain cells) is disrupted so they can't send messages, causing them to die. Over time, this cell death leads to shrinkage of the brain and the development of characteristic AD symptoms such as memory loss.

Determining how and why these changes in neuron communication occur is important for us to understand how this complex disease starts and progresses throughout a patient's life. New interventions that can be used in the early stages will be critical to slowing and stopping the progression of the disease, before it can cause life-changing effects.

A widely acknowledged problem

Thousands of animals are used each year to study neurodegeneration, however most animals don't naturally develop AD, so they cannot fully reflect what happens to the human brain in AD.

The scientific and ethical issues related to the use of animals to study neurogenerative diseases are well known throughout the scientific community, however despite these problems it is estimated that over 200,000 animals are still used in the UK each year in this field of research.

Please support Tom's project today.

Your donation fuels cutting-edge, humane science

SCAN ME

Animal-free alternatives

Advances have been made in recent years in the development of new approach methodologies (NAMs) that can replace the use of animals, such as human cell models of the brain and equipment such as electrical probes that can record cell activity and communication.

In this project, Dr Tom Piers and his collaborator Dr Daniel Whitcomb will use their expertise in these new technologies to study the very early changes in how neurons communicate with each other.

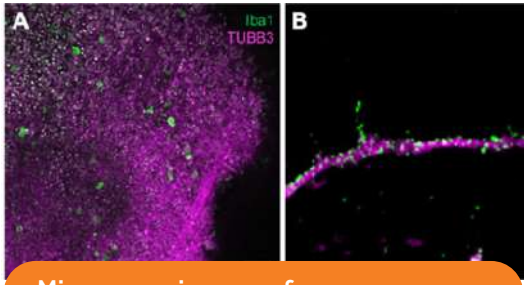
'Mini brains'

Tom has developed a 3D 'mini brain' organoid model made of brain cells, which also includes microglia (the immune cells of the brain). These organoids are grown from human stem cells (special cells that can be reprogrammed to become any type of cell in the body) and can be used to study neuron activity with state-of-the-art recording techniques.

The team will use the organoids to study how the presence of the immune cells can affect the neurons' ability to communicate.

This technology has the potential to significantly reduce the number of animals used in this area of research and acts as a bridge between the lab and the clinic, allowing new drugs to be tested on the organoids, replacing animal experiments to provide human-specific results.

A further advantage of using 'mini brains' is that the early stages of AD development can be studied, helping us to pinpoint opportunities for early intervention and the creation of drugs which could stop disease progression.



Microscope images of a neuron grown from human stem cells. Pink cells are neurons and green cells are microglia (immune cells found in the brain)

Transitioning to animal-free science

Cells grown in 3D need a structure to help support them, known as a scaffold, however these scaffolds are often created using animal-derived materials such as Matrigel, a product derived from mouse tumours. Thomas will trial the replacement of Matrigel with an animal-free alternative called GrowDex, and will compare the activity and outputs of the animal-free organoids to those his group have previously grown using animal-derived biomaterials.

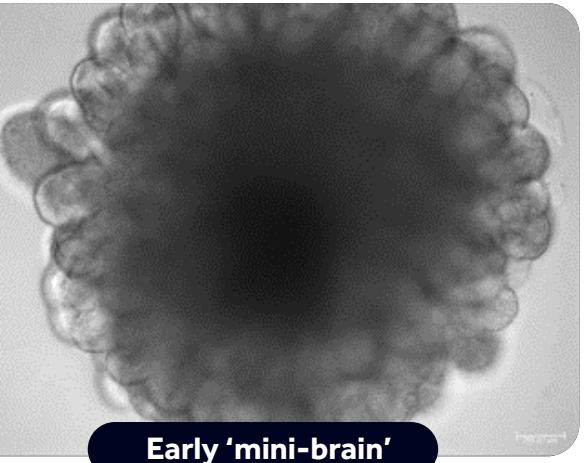
Sharing methods with researchers to increase uptake

Tom estimates that by using human 'mini brains', around 200 rats could be saved each year, in his lab alone. If this model was used by other research groups, this number could rise exponentially with thousands of animal lives saved each year, all the while bringing us closer to developing new treatments which are urgently needed.

> My goal is to be part of the journey towards finding cures for countless individuals affected by neurological diseases

How do you believe your project will impact your field of research?

Developing reproducible and translational human models is pivotal for the future of neurological research. The shift towards synthetic and animal-free products is a transformative step in the right direction. This work is essential for creating complex 3D models that can be reliably reproduced in laboratories worldwide, paving the way for groundbreaking advancements in understanding and treating neurological diseases.



Early 'mini-brain'

How could your work reduce the number of animals used in this area of research?

Our research aims to eliminate the need for animals in the production of cell culture supplements. These supplements are extensively used in cell and organoid cultures. By developing and characterising animal-free versions of these crucial models, we hope to significantly reduce the reliance on animals. The widespread adoption of these alternatives could lead to a substantial decrease in the number of animals used in these processes each year.

Why do you think researchers continue to use animal experiments in Alzheimer's disease research when the drug failure rate is so high?

Several factors contribute to this continued reliance on animals, despite the high failure rate of Alzheimer's drugs in clinical trials. One of the primary reasons is the lack of viable complex system alternatives. However, the development of human-induced pluripotent stem cells (special cells that can be reprogrammed to become any cell type in the body) and direct reprogramming is beginning to turn the tide. These advancements offer more accurate and appealing alternatives to using animals, which have repeatedly failed to replicate human disease progression effectively.

> Don't be afraid to experiment and push the boundaries of traditional research methods

> The widespread adoption of these alternatives could lead to a substantial decrease in the number of animals used in these processes each year.

Why is animal-free research important to you?

Removing animal-based products from human biological research is crucial for enhancing the integrity and translational impact of our studies. By focusing on human-specific models, we can ensure that our research is more accurate and applicable to human conditions, ultimately leading to more effective treatments and better outcomes for patients.

What advice would you give to aspiring researchers or students interested in animal-free research?

Embrace the latest biotechnological advances and be open to integrating new animal-free products into established protocols. You are at the forefront of a revolution in human model system biology, and the potential for innovation and discovery is incredibly exciting. Don't be afraid to experiment and push the boundaries of traditional research methods.

What do you like to do outside of the lab?

Outside of the lab, I love spending time with my family and friends in the beautiful landscapes of Devon. One of my favorite activities is teaching my daughter to overcome her fear of cold water and waves, enjoying the natural beauty and challenges of the seaside.

What are your future plans and career aspirations?

I aspire to have a long and impactful career in science, contributing to teams that bring hope to those suffering from some of the most debilitating diseases. My goal is to be part of the journey towards finding cures and improving the quality of life for countless individuals affected by neurological diseases.

A new era in research:
Our latest grant recipients

In addition to the new grants you have just read about from Patricia and Tom, we are thrilled to announce the awarding of a further seven new grants to support pioneering research projects that push the boundaries of scientific discovery.

Our grant holders are set to explore cutting-edge, human-specific reasearch to tackle conditions including cancer, heart disease and rare neurological diseases.

We are proud to support these visionary scientists in their quest to revolutionise medical research and save lives - both human and animal.

Check out these fantastic projects!

Exploring the connection between dementia and abnormal heart rhythm

Animals to be replaced: Cats, dogs, mice, rats, horses, rabbits & monkeys

Dr Adjanie Patabendige at Edge Hill University is developing a human cell model of the blood-brain-barrier attached to a pump system to study the link between atrial fibrillation (irregular heartbeat) and an increased risk of brain damage, stroke and dementia.

Using brain-on-a-chip to study rare neurological diseases

Animals to be replaced: Mice

Dr Giulia Massaro at University College London is developing a 'brain-on-a-chip' platform to test drugs for a rare neurological condition called neuronopathic Gaucher disease, which currently has few treatment options.

Replacing mice with tumour organoids for breast cancer research

Animals to be replaced: Mice

Dr Cinzia Allegrucci at the University of Nottingham is growing human organoids that have the genetic mutations found in triple negative breast cancer (TNBC - the most aggressive type of breast cancer), to test new treatments.

Breast cancer organoids for patient-specific cancer research

Animals to be replaced: Mice

Dr Jennifer Ashworth at the University of Nottingham is developing animal-free scaffolds to help grow breast cancer organoids (mini organs) in an environment that realistically replicates the conditions found in the human body.

Using bone-on-a-chip to study the spread of breast cancer

Animals to be replaced: Mice

Professor Gwendolen Reilly at the University of Sheffield is using an organ-on-chip model of mature human bone with immune cells to study how breast cancer metastasises (spreads) to the bone and which patients are most likely to be affected.

Repurposing surgical waste for bowel cancer research

Animals to be replaced: Cows, mice & rats

Dr Nick Peake at Sheffield Hallam University is developing scaffolds which can support the growth of bowel cancer organoids (mini organs) using human tissue 'clinical waste' that is usually discarded from bowel surgery.

Developing a 3D model to study interactions in irregular heartbeat

Animals to be replaced: Mice & rats

Dr Rebecca Burton at the University of Liverpool is developing a complex multi-cell 3D co-culture model to study the relationship between the heart, brain and connective tissue in patients with cardiac arrhythmia (irregular heartbeat).

At Animal Free Research UK, we are deeply grateful for the unwavering support of our incredible community. Your generosity enables us to fund groundbreaking research like these new grants, and drive meaningful change in the world of medical research. We couldn't achieve these milestones without you.

Together, we are transforming science.

FABULOUS FUNDRAISERS

Bude group turns the town turquoise

On Saturday 25th May the Bude group marked World Animal Free Research Day. In total 21 businesses took part and the group also set up a stall in the town. Community Ambassador Steph Jones-Giles said:

"It was a busy day in town with the rain holding off until later in the afternoon. We had a terrific turn out and there was a glorious sea of turquoise across Bude and beyond. I am so very grateful to all who took part."

We raised a total of £449.51 on the day, and we have lots of exciting events in the calendar and are hoping to raise another £4,000 this year which will take us to our next target of £60,000."

Nye's 450km kayak for a kinder science

"In the past I have done many stupid things in order to raise money for the incredible work of Animal Free Research UK. Back before COVID I ran over 300km through the Sierra Nevada on my own, lugging my camping gear along with me. The following year I had planned to attempt to kayak the length of the Danube on a solo expedition but unfortunately the pandemic meant the trip had to be postponed. I am very pleased to say that several years later I am back to tackle a chunk of it.

I will be attempting to kayak the 450km from Regensburg (Germany) to Vienna (Austria). I'll be travelling solo, carrying my camping gear and clothes in the canoe with me."

Other ways you can help

You're everyday shopping can make a real difference with

Give as you Live Online

Want to help us raise even more for FREE? Well, now you can just by shopping via **Give as you Live!**

When you shop at over 6,000 top stores including John Lewis & Partners, Expedia and Marks & Spencer via Give as you Live Online, they'll turn a percentage of your spend into free funds for us!

Simply sign up, search for the retailer and start shopping. It's that simple!

Get started today!

www.giveasyoulive.com/join/animalfreeresearchuk

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

SCAN ME

A gift for the future

What is your legacy going to be?

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 like-minded 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.

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

SCAN ME

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