

Parkinson's UK policy statement

Use of animals in research

"The part of my brain which instructs my muscles to move has started to die and this affects everything I do - my ability to speak, move about and do all the things I used to. There is an urgent need for more research to understand why this is happening. Parkinson's UK is leading the search for better drugs and treatments so that I can live free from these symptoms. All people with Parkinson's need the hope that one day there will be a cure."

Martin – person affected by Parkinson's

What we believe

We believe there is an urgent need for ongoing research to advance our understanding of Parkinson's, improve treatments and ultimately find a cure. We believe the use of animals, such as rodents, fruit flies, fish, and in very rare circumstances non-human primates is currently an essential tool in this research, but we are committed to the minimum possible use of animals and to ensuring the highest regulatory standards are maintained.

Why we believe this

There is currently no cure for Parkinson's. Researchers are working to understand what causes the death of the dopamine-producing nerve cells in the brain that leads to the onset of the condition. Available treatments provide only varying degrees of relief, often cause unwanted side effects, and fail to halt the progression of the condition.

The complex research necessary to make progress will only be successful if researchers are able to use animal models¹, as part of an integrated research strategy.

What's the evidence?

The progress that has resulted from the use of animals in research

The use of animals in research has contributed to many breakthroughs in our understanding of Parkinson's and the discovery of current treatments.

Since the 1970s, the lives of millions of people with Parkinson's around the world have been transformed by the drug levodopa. This acts to partially replace the dopamine that is no longer produced in the brain due to the death of nerve cells. Research involving animals has formed an essential step in the understanding of the effect of this vital drug. Arvid Carlsson, the Swedish scientist who won the 2000 Nobel Prize for medicine, used an animal model to show that the chemical dopamine plays a vital role in Parkinson's.

Gene therapy is an exciting new approach for the treatment of Parkinson's. As required by legislation it was initially tested in animal models to ensure its safety and efficacy before it

¹ An animal model is a living, non-human animal (eg rodent, worm, fruit fly, fish) that is used in medical research to mimic aspects of a human medical condition. This allows researchers to test treatments or ideas and find out if they may work and are safe before they are tried in humans.

was introduced into clinical trials. The results of the clinical trials have mirrored that of the preclinical animal studies².

The development of many of the promising Parkinson's drugs currently in early phase clinical trials has required the use of animal models. While there have been many advances in 'test tube' based models³ there is currently no way of accurately predicting the complex, integrated response of the body to a drug, apart from using a living animal. This is the only way that we can assess how the combination of genes, body chemicals and environmental influences work and combine to influence how the drug will work. At the moment, it is impossible to investigate this fully using any other system.

Ipsos MORI polling⁴ in 2016 found that two thirds (65%) of the UK population say they can accept the use of animals in research as long as it is for medical purposes, and there is no alternative.

How is research involving animals regulated in the UK?

The UK Government has developed what are often regarded as the tightest regulations⁵ for research involving animals in the world, with the highest associated standards of welfare for the animals. This legislation permits scientific procedures when the benefits that the work is likely to bring (to humans, other animals or the environment) outweigh any pain or distress that the animals may experience, and where there are no alternatives.

All researchers who carry out studies using animals, including any that Parkinson's UK support, require a Home Office licence and their research facilities are regularly inspected by regulatory authorities.

What Parkinson's UK is doing

Parkinson's UK has invested more than £80million in a wide range of research projects looking at all aspects of the condition. We are committed to finding a cure and developing better treatments for Parkinson's.

We continue to do this by providing leadership to the international Parkinson's research community, bringing people together to focus on the most urgent challenges and communicating what progress is being made towards a cure. We work in partnership with other charities, biotech/pharmaceutical companies and researchers, and strengthen links with other neuro-degenerative research to speed up the process of developing new treatments.

We continue to support many different avenues of research, including the use of animal models to understand the basic science of nerve cells, how they work and why they die in Parkinson's.

² Bartus RT (2013) 'Parkinson's Disease Gene Therapy: Success by Design Meets Failure by Efficacy' *Molecular Therapy*; 22(3): 487-497

³ Beevers JE (2013) 'Induced pluripotent stem cell (iPSC)-derived dopaminergic models of Parkinson's disease' *Biochemical Society transactions*; 41.6: 1503-1508

⁴ Ipsos MORI, Attitudes to animal research in 2016. Available at: <https://www.ipsos.com/ipsos-mori/en-uk/attitudes-animal-research-2016>

⁵ For more information see the Home Office website on the regulated use of animals in research: www.homeoffice.gov.uk/science-research/animal-research

As a member of the Association of Medical Research Charities (AMRC), we support their statement on the use of animals in research⁶ and are committed to the '3 Rs' principle to reduce, replace, and refine. This means:

- **Reducing** the number of animals used in experiments
- **Replacing** their use with alternative methods where possible
- **Refining** techniques to maximise animal welfare

We always consider the 3R's in our peer review, and support the 3R's in our research grants terms and conditions.

Parkinson's UK is committed to being open and transparent about the research we fund that involves the use of animals. We have signed a Concordat⁷ on openness on the use of animals in research in the UK which sets out our commitment on being open about how and why we use animals in our research. The Concordat comprises four Commitments, each underpinned by practical steps that we can take. These include:

- **Commitment 1:** We will be clear about when, how and why we use animals in research
- **Commitment 2:** We will enhance our communications with the media and the public about our research using animals
- **Commitment 3:** We will be proactive in providing opportunities for the public to find out about research using animals
- **Commitment 4:** We will report on progress annually and share our experiences

To minimise the need to use animals Parkinson's UK supports the use of novel experimental approaches. These include the development of nerve cells generated from the skin cells of people with Parkinson's. We also fund the Parkinson's UK Brain Bank, which supplies donated human brain tissue for Parkinson's research. This allows us to understand more clearly what happens when nerve cells die.

Our grants for research involving animals

The most commonly used animals in Parkinson's UK funded projects are rodents (rats and mice), although fruit flies, microscopic worms, zebrafish, and in very rare circumstances non-human primates are also used.

- All Parkinson's UK research grants seek to answer an important question that will improve our understanding of the causes of, or the development of treatments for Parkinson's.

⁶ You can find the statement here: <https://www.amrc.org.uk/Pages/Category/research>

⁷ You can find the Concordat here: <http://concordatopenness.org.uk/>

- When a researcher submits a research proposal that will use animals, they are required to justify this in detail and explain why there are no alternative approaches that can be used to answer the question.
- We require applicants to have a Home Office licence to carry out the work before they start their projects. This process includes an assessment that the necessary animal welfare standards are in place.
- All our research grants undergo a thorough peer review by leading researchers, which tests that the '3 Rs' strategy is being upheld. The AMRC audited⁸ our peer review process in 2011 and awarded us a certificate of good practice to show we fully met the five key principles of peer review.
- When we receive an application for funding that involves the use of non-human primates (or any other higher animal), the research must comply with the NC3Rs guidelines and is sent to them for independent, specialist review.
- If there was a reason to fund a project in another country that involved animal work we would expect the research to adhere to both local law and meet our expectations of good quality animal research, including demonstrating the three Rs.

Acknowledgement

We are grateful for the advice and guidance of our Policy Panel and Research Support Network in shaping this position paper. The Policy Panel consists of people with experience of Parkinson's who meet on a regular basis to help guide the charity's position on a range of policy issues. The Research Support Network brings together people who want to get involved in research and raise funds and awareness for Parkinson's research.

Further information

Please contact the Policy and Campaigns team on **020 7963 9394** or email campaigns@parkinsons.org.uk.

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⁸ You can find the AMRC's principles of peer review here: <https://www.amrc.org.uk/principles-of-peer-review>