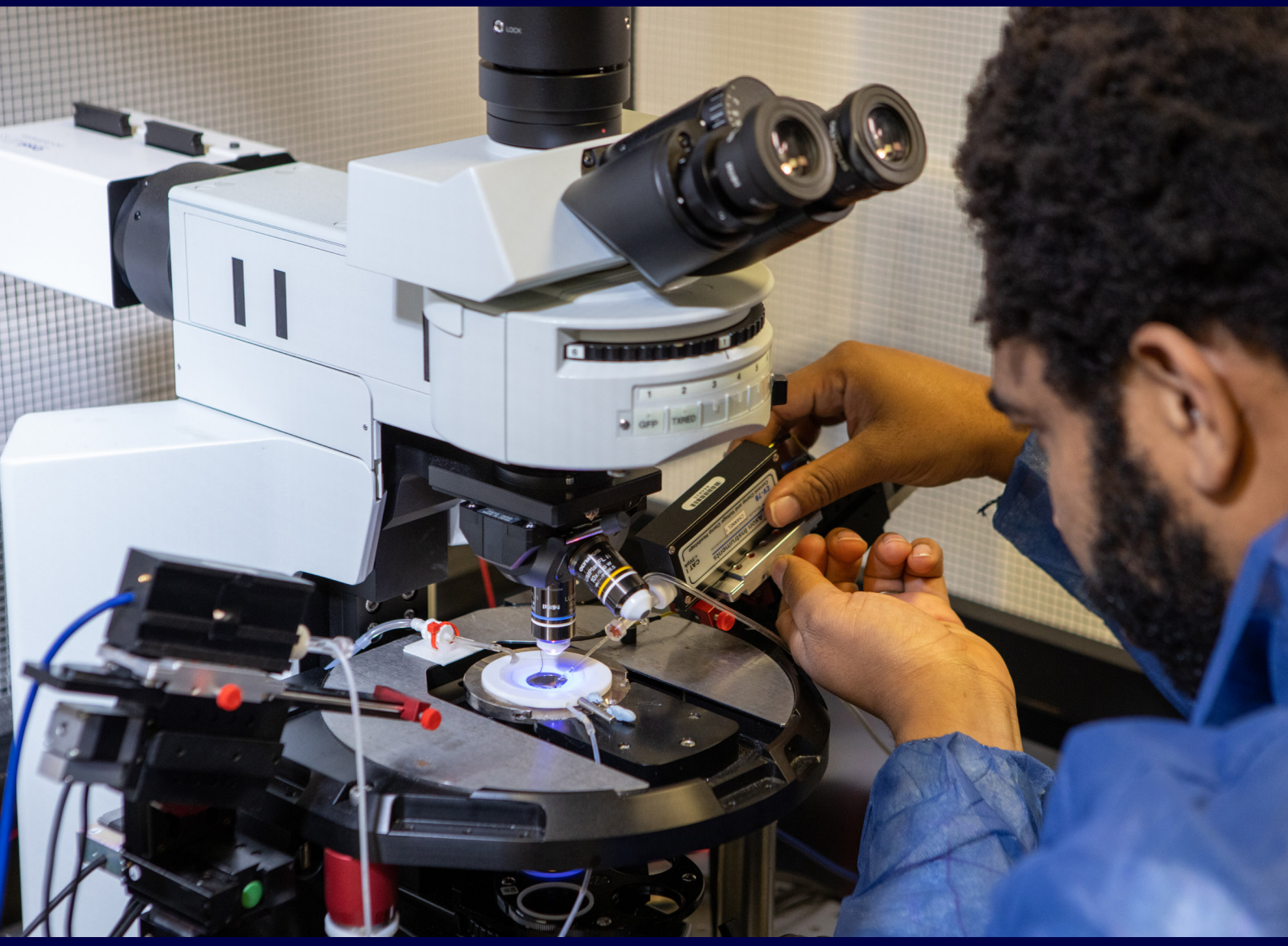
OUR RESEARCH PROJECTS 2024



PARKINSON'S UK
CHANGE ATTITUDES.
FIND A CURE.
JOIN US.

Our research focus for 2024

Parkinson's UK is the largest European charitable funder of Parkinson's research. And people living with Parkinson's are the driving force behind our research. We're currently funding over £15m towards our research grants programme across 45 projects.

We're leading the way to better treatments and together, we will find a cure. But we're not just focused on the future. We're investing in research to improve life for people with Parkinson's right now too.

Our research projects exist at different stages of the research pipeline. Some are in the early scientific discovery stage, while others are already being tested in clinical trials.

You can find out more about the terms used in this document in the key below:

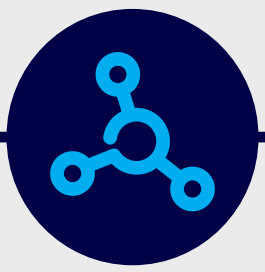
Types of research project

Cure projects work towards treatments and strategies to slow, stop, reverse or prevent Parkinson's. This includes developing new treatments, and improving diagnosis and monitoring of the condition. We are currently funding 27 projects that fit into the Cure category.

Life projects work towards treatments and strategies to improve the symptoms and quality of life of people with Parkinson's. This includes better therapies and management for issues such as falls, anxiety, and thinking and memory problems. We are currently funding 21 projects that fit into the Life category.

Stages of the research pipeline

Scientific discoveries
Researchers attempt to find out what goes wrong in Parkinson's and come up with ideas for how to fix it.



Developing treatments
Dedicated teams turn the most promising scientific discoveries into potential new treatments.

Clinical trials
New treatments that have been proven safe and effective by all other methods are carefully tested in volunteers.

Our active research grants

1	Project name	Advancements in early detection of Parkinson's (F-2302)
Lead researcher		Dr Eduardo de Pablo-Fernandez
Start and end date		September 2024 to September 2027
Location		Queen Mary, University of London
Cost		£299,237

Type: Life | **Stage:** Scientific discovery

Currently there is no definitive method to diagnose Parkinson's, meaning that it is difficult to spot he condition early. Pure autonomic failure, known as PAF, causes a drop in blood pressure when standing from a sitting position, which causes dizziness. It's been suggested that PAF may be an early sign of Parkinson's.

In this study, researchers will monitor people with PAF over a two-year period to assess how their symptoms change, and how many individuals go on to develop Parkinson's.

2	Project name	Slow-SPEED: Slowing Parkinson's early through exercise (J-2301)
Lead researcher		Professor Bastiaan Bloem
Start and end date		August 2023 to August 2027
Location		Radboud University Medical Centre
Cost		£200,866

Type: Cure/Life | **Stage:** Clinical trial

By the time recognisable symptoms of Parkinson's appear, over 50% of the dopamine-producing brain cells associated with the condition have already been damaged. That's why intervening earlier, in what is called the 'prodromal' phase of the condition (before symptoms appear), may be the key to slowing or even preventing Parkinson's.

The Slow-SPEED research project will recruit people who are at risk of developing Parkinson's or have a combination of early symptoms of Parkinson's, and ask them to take part in an exercise programme. The study aims to understand whether it's possible to use physical activity to slow the development of Parkinson's in people who are at high risk.

3	Project name	Understanding the role that genetics play in Parkinson's (F-2301)
Lead researcher		Dr Sophie Farrow
Start and end date		June 2024 to June 2027
Location		University of Oxford
Cost		£300,000

Type: Life | **Stage:** Scientific discovery 

Our understanding of what causes Parkinson's is limited. This study aims to explore how and why some changes in certain genes can increase a person's risk of Parkinson's.

Researchers will look at the genes of two types of brain cells associated with Parkinson's and identify genes which we know increase the risk of the condition. The team will then look for the presence of these specific genes in the blood, fluid surrounding the spinal cord, and brain cells of people with Parkinson's. They aim to explore how these genes can increase the risk of Parkinson's.

4	Project name	Can blood pressure medication protect some neurons from damage? (G-2303)
Lead researcher		Professor Caleb Webber
Start and end date		April 2024 to April 2027
Location		Cardiff University
Cost		£269,122

Type: Cure | **Stage:** Scientific discovery 

Some genes are associated with a higher risk of developing Parkinson's. Previous research has suggested that when a gene called AGTR1 is switched on in some brain cells called neurons, it makes those neurons more vulnerable to damage. The reason this gene turns on is thought to be caused by the system that is connected to blood pressure. And those who take blood pressure medication might have their risk of developing Parkinson's halved.

Caleb and his team will use stem cells grown in a dish to create AGTR1 neurons and study them to see if they are more vulnerable than other neurons. They will also use blood pressure drugs on these AGTR1 neurons and investigate whether they can protect them from damage.

5	Project name	Can reducing stress help protect brain cells? (G-2302)
Lead researcher		Professor Jonathan Lane
Start and end date		January 2024 to January 2027
Location		University of Bristol
Cost		£338,038

Type: Cure | **Stage:** Scientific discovery

Cells in the body become stressed when they are exposed to damage or toxins, which stops them from working properly. This can trigger a cell defence mechanism called the integrated stress response (ISR). In Parkinson's, triggering the ISR can lead to cell death in one area of the brain.

Another response to cell stress is the autophagy process, which breaks down cell waste. Research suggests that the ISR and autophagy work together.

Jonathan and his team will study human brain cells in the lab to understand how the two processes work together in Parkinson's, how cell stress and the ISR affect the cell to cell communication process, and whether existing drugs that target the ISR can help protect brain cells in Parkinson's.

6	Project name	Developing new imaging techniques to study differences in the brain in Parkinson's (G-2301)
Lead researcher		Dr Christian Lambert
Start and end date		November 2023 to November 2026
Location		Institute of Neurology, UCL
Cost		£283,132

Type: Cure | **Stage:** Scientific discovery

Diagnosing Parkinson's is hard, as it can look different for everyone. This suggests it can be caused by different things in different people. A non-invasive method of measuring progression called quantitative MRI (qMRI) can detect small, individual changes in brain structures that are affected in Parkinson's.

In this project, Christian will assess 95 people for the first seven years of the condition and study changes in the brain. This could help develop tools to accurately diagnose Parkinson's earlier and techniques to identify and understand the different causes of Parkinson's.

7	Project name	Investigating a wrist-worn device to help control tremor (H-2301)
Lead researcher		Professor Stephen Jackson
Start and end date		November 2024 to November 2026
Location		University of Nottingham
Cost		£141,780

Type: Life | **Stage:** Developing treatments/Clinical trial

One of the most common movement symptoms experienced by people with Parkinson's is a tremor. Tremors can lead to difficulties carrying out day-to-day tasks and restrict a person's independence.

Previous research has demonstrated that delivering rhythmic electrical stimulation to a nerve in the wrist via a wrist-worn device can reduce the severity and frequency of unwanted movements in people with Tourette's syndrome. Researchers now want to investigate whether this method could reduce and manage tremors experienced by people with Parkinson's.

8	Project name	Understanding the role of supporting brain cells in Parkinson's (G-2201)
Lead researcher		Dr Gavin Hudson
Start and end date		May 2023 to October 2026
Location		Newcastle University
Cost		£324,406

Type: Cure | **Stage:** Scientific discovery

In the brain, different types of cells must work together to communicate messages and send instructions to other parts of the body. When someone has Parkinson's, communication between cells is more difficult, as one particular type of brain cell, the neurons, get damaged and are lost over time. But not much is known about how the other cells in the brain are affected.

The team at Newcastle University will use brain tissue samples from people with Parkinson's to try and understand the changes to a different type of brain cell, the astrocytes, which usually help support the work of the neurons. This research could help improve understanding of how different types of brain cells are impacted in Parkinson's.

9	Project name	Improving recycling to reduce brain cell death (G-2006)
Lead researcher		Professor Sandip Patel
Start and end date		November 2021 to August 2026
Location		University College London
Cost		£282,374

Type: Cure | **Stage:** Scientific discovery/Developing treatments

Researchers are still piecing together why dopamine-producing brain cells are lost in Parkinson's. One line of evidence is that the recycling centres that break down waste within cells aren't as efficient in people with Parkinson's, which can stop brain cells from functioning properly. Researchers have found that a protein called TPC2 may be involved in the dysfunction of the recycling process.

This research project aims to understand more about the role of this protein in brain cell death by using a fruit fly model of Parkinson's and cells that have come from people with the condition. The researchers will also begin to test drugs that target TPC2 to boost recycling in the cell to see if this can help protect brain cells.

10	Project name	Investigating how changes to the cell recycling system affect cell communication in Parkinson's (G-2202)
Lead researcher		Dr Dayne Beccano-Kelly
Start and end date		February 2023 to July 2026
Location		Cardiff University
Cost		£324,695

Type: Cure | **Stage:** Scientific discovery

The brain is made up of many different types of cells that can communicate with one another to perform specific jobs. This communication is vital to control how people speak, move, think, and feel. One way of making sure that brain cells can communicate effectively is to keep the cells free from a build up of waste products, using a recycling system. However, researchers believe that this recycling process might not work properly in Parkinson's. The researchers want to understand how problems with the recycling system can prevent cells from communicating with each other effectively. This knowledge could help identify ways to target and treat the fundamental changes that are contributing to Parkinson's in the brain.

11	Project name	Improving balance through physical activity and brain training (H-2203)
Lead researcher		Dr Qadeer Arshad
Start and end date		January 2024 to July 2026
Location		University of Leicester
Cost		£198,360

Type: Life | **Stage:** Clinical trial

Physical activity can be beneficial for people with Parkinson's in a number of different ways. Previous studies have shown that exercise and brain activity training can be used to improve balance.

Qadeer and his team are interested in how a specific exercise regime may be able to help improve balance, and reduce falls, for people with Parkinson's. They'll do this by measuring brain activity using a non-invasive device while people take part in a game specifically designed to help improve balance.

12	Project name	Investigating genes which could be involved in Parkinson's (G-2304)
Lead researcher		Dr Kathryn Bowles
Start and end date		December 2024 to June 2026
Location		University of Edinburgh
Cost		£213,263

Type: Cure | **Stage:** Scientific discovery

Comparing differences in genes between people with and without Parkinson's can help identify clues that could be linked to the development of Parkinson's. By doing this, Kathryn and her team identified that people with Parkinson's had much fewer copies of a gene called LRRC37A2 than those without the condition.

LRRC37A2 is found in supporting cells in the brain, but it's not clear what its main job is. The team will look into how this gene might be involved, which could pave the way for new treatments for Parkinson's to boost the levels of the gene.

13	Project name	Growing brain cells to test new therapies (F-2201)
Lead researcher		Dr Charmaine Lang
Start and end date		April 2023 to April 2026
Location		University of Oxford
Cost		£149,970

Type: Cure | **Stage:** Scientific discovery

Parkinson's symptoms occur due to the progressive loss of brain cells which are responsible for producing the vital brain chemical dopamine. While there are a number of theories suggesting why this happens, it's difficult to study what exactly is going on in the brains of people with Parkinson's.

This project aims to get round this by taking skin cells from people with Parkinson's, and growing them into different brain cells in a dish in the lab. They will then study these cells and see if they can boost a process within the cells which may be able to protect them from damage. This could help identify a new target to help develop future treatments for Parkinson's.

14	Project name	Exploring the use of augmented reality for improving mobility in Parkinson's (H-2303)
Lead researcher		Dr Julie Jones
Start and end date		April 2024 to April 2026
Location		Robert Gordon University
Cost		£105,666

Type: Life | **Stage:** Developing treatments/Clinical trial

Many people living with Parkinson's experience difficulty walking. This can increase the risk of falls and the fear of falling, which can greatly impact a person's quality of life. Mobility can be improved through rehabilitation programmes with a physiotherapist, however these programmes are often too short and require individuals to continue exercising unsupervised at home.

This study aims to investigate a new approach: using an augmented reality (AR) device, called Reality DTx® by StrolII. The portable AR glasses allow the wearer to interact with activities and exercises that aim to help improve mobility.

15	Project name	Understanding Parkinson's progression (J-2101)
Lead researcher		Professor Michele Hu
Start and end date		August 2021 to February 2026
Location		University of Oxford
Cost		£733,389

Type: Cure/Life | **Stage:** Scientific discovery

Since 2010, the Oxford Parkinson's Disease Centre has developed a world-leading research programme. This has included establishing the Discovery cohort, which follows people with Parkinson's over time to help understand how the condition progresses.

This project will allow the researchers to continue their work with the Discovery cohort, building the understanding of different symptoms, so we can work towards earlier prediction of certain symptoms, personalised interventions and better treatments.

16	Project name	Using mice to see how toxic protein moves from the gut to the brain (G-2204)
Lead researcher		Professor Maria Grazia Spillantini
Start and end date		February 2023 to February 2026
Location		University of Cambridge
Cost		£214,067

Type: Cure | **Stage:** Scientific discovery

Clumps of a toxic protein called alpha-synuclein are commonly seen in the brains of people with Parkinson's, and have been associated with the development of the condition. But it's not clear how these clumps begin to form. One line of research suggests that they might first appear in the gut, before travelling to the brain.

Maria and her team will explore how these clumps might move from the gut to the brain, and where else they might go. They also want to see if the bacteria in the gut changes as the clumps form, and whether it could be possible to use this to monitor how Parkinson's is progressing.

17	Project name	Managing facial masking using a virtual reality device (H-2304)
Lead researcher		Dr Fiona French
Start and end date		January 2024 to January 2026
Location		London Metropolitan University
Cost		£124,461

Type: Life | **Stage:** Developing treatments

In Parkinson's, due to the lack of dopamine in the brain, movement symptoms are common and can include difficulties moving the muscles in the face. This leads to fewer facial expressions, a symptom known as facial masking.

The project aims to collect detailed information about facial muscle movements of people with and without Parkinson's. The researchers will use this information to develop and test a portable headset that uses virtual reality to encourage people with Parkinson's to move their facial muscles. The device could help manage and improve facial masking in Parkinson's.

18	Project name	Predicting Parkinson's (PREDICT-PD) (G-2102)
Lead researcher		Professor Alastair Noyce
Start and end date		December 2021 to December 2025
Location		Queen Mary, University of London
Cost		£509,250

Type: Cure | **Stage:** Scientific discovery/Clinical trial

It's unclear exactly what causes someone to develop Parkinson's, but it's thought to be a combination of genetic and environmental factors. The PREDICT-PD study wants to better understand these risk factors to help identify people who might have a higher chance of developing the condition.

The project has already recruited 10,000 people to help identify some of the early signs of Parkinson's. The team will now gather more results from smell tests, DNA collection and finger-prick blood tests.

The more we know about the early stages of Parkinson's, the closer we'll be to finding better treatments and a cure.

19	Project name	Increasing mental health support for people with Parkinson's (H-2202)
Lead researcher		Dr Jennifer Foley
Start and end date		November 2023 to November 2025
Location		University College London
Cost		£199,165

Type: Life | **Stage:** Developing treatments

Parkinson's can be associated with mental health issues such as anxiety and depression, which can severely impact people's quality of life. However, there are not enough people who are currently qualified to deliver specialist mental health support for people with Parkinson's.

Jennifer and her team are developing a treatment programme that can be delivered by non-experts to address mental health issues, along with booklets for those who attend the sessions. They will do this by working with people with Parkinson's and non-specialist health professionals to allow more people to be able to receive support.

20	Project name	Is alpha-synuclein protective before it causes damage? (G-2305)
Lead researcher		Professor Tilo Kunath
Start and end date		October 2023 to October 2025
Location		University of Edinburgh
Cost		£160,885

Type: Cure | **Stage:** Scientific discoveries

The development of Parkinson's has been closely linked to the buildup of a protein called alpha-synuclein, which can form clumps in brain cells and stop them functioning. Research has focused on reducing levels of alpha-synuclein in the brain. But little is known about the normal function of this protein.

Tilo and his team want to find out more about the normal job of alpha-synuclein. They will investigate whether it plays a role in the body's defence against viruses and environmental stress, and if it increases during an immune response.

Results could help improve our understanding of how alpha-synuclein can start to cause damage in Parkinson's, and new ways to treat it.

21	Project name	Harnessing the brain's self-cleaning system in Parkinson's (F-1902)
Lead researcher		Dr Ian Harrison
Start and end date		November 2019 to September 2025
Location		University College London
Cost		£445,694

Type: Cure | **Stage:** Scientific discoveries/Developing treatments

The gradual build-up of toxic proteins is thought to play a major role in damaging brain cells in Parkinson's. The glymphatic system, a recently discovered brain-wide pathway, works to remove waste products from the brain. Previous research has shown that sleep, exercise and low levels of alcohol may help the glymphatic system to clear out toxic proteins in mice.

This research will build upon these promising findings and investigate whether boosting the glymphatic system with drug-like molecules can help protect brain cells.

22	Project name	Testing a new potential drug to stop protein clumps (K-2301)
Lead researcher		Professor Maria Grazia Spillantini
Start and end date		January 2024 to July 2025
Location		University of Cambridge
Cost		£139,817

Type: Cure | **Stage:** Scientific discoveries/Developing treatments

For most people with Parkinson's, clumps of a troublesome protein called alpha-synuclein start to cause damage to the cells in the brain. If researchers can find ways to stop the protein clumping together, it might be possible to reduce the amount of damage, and in turn prevent cells dying.

This research project will use a newly developed drug to try and prevent this protein buildup in mice which have symptoms of Parkinson's. The project aims to find out if the drug has the desired effect on the mice.

If successful, the drug could be put forward for further research as a possible new Parkinson's treatment.

23	Project name	Keep On Keep Up exercise programme for people with Parkinson's (H-2201)
Lead researcher		Dr Gill Barry
Start and end date		June 2023 to June 2025
Location		Northumbria University
Cost		£101,831

Type: Life | **Stage:** Clinical trial

Balance is a common problem for people with Parkinson's, contributing to walking impairments, fear of falling, reduced independence, and increased fall risk.

Keep On Keep Up (KOKU) is an NHS approved digital health programme that is designed to engage older people in safe and effective balance, strength and fall prevention exercises. But it has not been tested specifically with people with Parkinson's. The project aims to explore and develop the use of the programme for people with Parkinson's.

24	Project name	Investigating delirium in Parkinson's (DELIRIUM-PD) (F-1801)
Lead researcher		Dr Rachael Lawson
Start and end date		December 2018 to March 2025
Location		Newcastle University
Cost		£498,144

Type: Life | **Stage:** Scientific discovery

Delirium is a serious but often treatable condition that can suddenly start in someone who is unwell. People with delirium may appear confused, experience hallucinations, have difficulty following conversations or be unusually sleepy. Some of these features are also symptoms of Parkinson's, which can make delirium difficult to identify in people with Parkinson's.

This project will investigate delirium in people with Parkinson's admitted to hospital, which could help better identify and treat the condition.

25	Project name	Using a digital system to monitor and self-manage non-motor symptoms (H-2101)
Lead researcher		Professor Edward Meinert
Start and end date		February 2022 to February 2025
Location		University of Plymouth
Cost		£189,651

Type: Life | **Stage:** Developing treatments/Clinical trial

Parkinson's can cause a wide range of non-motor symptoms, including pain and problems with mental health, memory and sleep. These affect the quality of life of people with the condition and their friends, family and carers. However, many of them could be self-managed.

The researchers working on this project have developed a digital system (NMS Assist) to help monitor non-motor symptoms and teach skills to self-manage them. For 12 months, 60 people with Parkinson's, carers and healthcare professionals will test the tool. This system could help people with Parkinson's better manage their own symptoms at home as well as improving their overall quality of life.

26	Project name	Why do some people with Parkinson's develop memory problems? (G-2203)
Lead researcher		Professor Sonia Gandhi
Start and end date		February 2023 to February 2025
Location		University College London
Cost		£281,077

Type: Cure | **Stage:** Scientific discovery

People with Parkinson's have a higher risk of developing memory problems such as dementia than people without Parkinson's of a similar age. In this project, the researchers will study brain cells from people with Parkinson's, Parkinson's dementia and dementia with Lewy bodies, to map the similarities and differences between brain cells involved in each condition.

The research aims to improve understanding of why some cells become damaged, which could give rise to new targets for treatments.

27	Project name	Understanding more about cell recycling in Parkinson's (G-2101)
Lead researcher		Professor David Rubinsztein
Start and end date		January 2022 to January 2025
Location		University of Cambridge
Cost		£290,000

Type: Cure | **Stage:** Scientific discovery

One reason Parkinson's develops is due to a buildup of a protein called alpha-synuclein. This can form clumps in brain cells, stopping them working properly. Currently no treatment can remove this troublesome protein.

This project aims to understand how our cells' recycling system might help to remove alpha-synuclein buildup, by looking at zebrafish and mouse models of Parkinson's. The team hopes to understand how they can boost cell recycling to ultimately protect brain cells. This project will lay the foundation for further drug discovery projects that could have the potential to slow or stop Parkinson's.

28	Project name	Using worms to help understand the genetics of Parkinson's (G-2008)
Lead researcher		Dr Eva Kevei
Start and end date		June 2021 to January 2025
Location		University of Reading
Cost		£224,290

Type: Cure | **Stage:** Scientific discovery

Parkinson's is often an 'idiopathic' condition, which means it has no known cause. However, for a small minority, Parkinson's can be caused by inherited changes in a number of different genes. Understanding more about the genetics of Parkinson's will help piece together the causes of brain cell death that contribute to the condition.

This project is lab-based and will study small worms called C. elegans. The researchers will introduce different combinations of genetic changes that contribute to Parkinson's to understand whether they act together to cause brain cells to die, or act independently. This will give an important insight into how the normal function of brain cells changes in Parkinson's, and by understanding this, we could find a way to develop better treatments.

29	Project name	Exploring the effect of deep brain stimulation on impulsive behaviours in Parkinson's (H-2302)
Lead researcher		Dr Paul Shotbolt
Start and end date		January 2024 to January 2025
Location		King's College London
Cost		£74,398

Type: Life | **Stage:** Developing treatments

Impulse control disorders are classified as behaviours that are performed uncontrollably and repetitively. They can be caused by medication that increases dopamine in the brain. For some people taking Parkinson's medication this might mean they experience impulse control behaviours such as gambling and compulsive eating.

Researchers aim to investigate the effects of deep brain stimulation (DBS) on impulse control behaviours, and explore the potential use of DBS to treat people with Parkinson's who experience these behaviours.

30	Project name	Developing a disease-modifying treatment for Parkinson's (K-2303)
Lead researcher		Professor Michael Johnson
Start and end date		January 2024 to January 2025
Location		Imperial College London
Cost		£99,999

Type: Cure | **Stage:** Developing treatments

Researchers have identified a protein, called GPNMB, that may be linked to Parkinson's. The study aims to create a new type of drug which can target this protein in the hope that it may reduce the risk and progression of Parkinson's.

Using a new technology that can stimulate a clinical trial in a computer, researchers are now able to get a better idea about whether a new drug will work before running a costly trial. Researchers will use this method to assess potential drug candidates to target the GPNMB protein, hopefully leading to new treatments, faster.

31	Project name	Tracking Parkinson's (PROBAND) (J-1101)
Lead researcher		Professor Donald Grosset
Start and end date		October 2011 to December 2024
Location		University of Glasgow
Cost		£3,411,807

Type: Cure/Life | **Stage:** Scientific discovery

The ambitious Tracking Parkinson's study launched in early 2012 with the aim of studying how people with the condition differ in their symptoms, respond to drug therapies, and progress over time. Ultimately, understanding these differences will help us to develop better and more targeted treatments that we can use for particular types of Parkinson's.

32	Project name	Which brain cells are affected in Parkinson's? (G-2306)
Lead researcher		Dr Nathan Skene
Start and end date		November 2023 to November 2024
Location		Imperial College London
Cost		£80,786

Type: Cure | **Stage:** Scientific discovery

Living with Parkinson's presents daily challenges, which can affect a person's wellbeing. Face-to-face support where people can talk to healthcare professionals is effective at improving wellbeing but can be time-consuming and difficult to access.

To help overcome some of these hurdles, the researchers working on this project, alongside a group of people with Parkinson's, aim to develop a digital application with the potential to provide tailored daily support for psychological wellbeing.

33	Project name	Exploring markers in the blood to help diagnose Parkinson's (G-2003)
Lead researcher		Dr Gavin Hudson
Start and end date		March 2021 to November 2024
Location		Newcastle University
Cost		£225,865

Type: Cure | **Stage:** Scientific discovery

By the time someone experiences the symptoms of Parkinson's, many brain cells have already become damaged and died. Researchers believe that identifying and diagnosing Parkinson's earlier is vital in the search for better treatments and a cure for the condition.

This project aims to explore the potential of a blood test to see if it can accurately predict who will develop Parkinson's. The researchers will analyse blood samples from people with and without the condition to measure levels of a specific group of molecules called acylcarnitines. They also want to see what happens to the levels of these molecules as the condition progresses.

This research could make it easier to diagnose the condition and provide a way to measure its progression.

34	Project name	Understanding more about the role of the immune system in Parkinson's (G-2009)
Lead researcher		Professor Jonathan Lane
Start and end date		March 2021 to October 2024
Location		University of Bristol
Cost		£113,051

Type: Cure | **Stage:** Scientific discovery

People with Parkinson's don't have enough of a chemical called dopamine because some of the brain cells that produce it have died. We still don't fully know what causes this, but one hypothesis is that a person's immune response may play a role.

When we get an infection, our immune system responds by recruiting cells and producing signals which fight against it. This is known as inflammation. Sometimes inflammation can be wrongly activated and damage healthy cells, and this might be the case in Parkinson's.

This research aims to understand more about the role of inflammation in brain cell death and may pave the way for new treatments to tackle some of the earliest changes in Parkinson's.

35	Project name	A new telehealth approach to speech therapy (H-2001)
Lead researcher		Dr Steven Bloch
Start and end date		October 2021 to October 2024
Location		University College London
Cost		£100,321

Type: Life | **Stage:** Clinical trial

Changes in the brain in people with Parkinson's mean that movements become smaller and less forceful and this can lead to problems with speech and communication.

This project will develop and test a new speech and language therapy programme delivered remotely via a computer (telehealth) to see if people with Parkinson's and their loved ones find it beneficial. The research will test the new therapy in 10 people with Parkinson's and their chosen loved one. It will focus on providing personalised strategies to improve communication.

If this research is successful, it could lead to a new strategy for people to have better conversations with their friends and family.

36	Project name	Investigating non-invasive nerve stimulation to improve walking (G-1903)
Lead researcher		Dr Alison Yarnall
Start and end date		November 2020 to September 2024
Location		Newcastle University
Cost		£102,476

Type: Life | **Stage:** Clinical trial

In Parkinson's, brain cells are lost over time, resulting in the levels of vital brain chemicals being decreased. One of these chemicals is called acetylcholine, which plays an important role in memory, thinking and walking. This means that people with Parkinson's have an increased risk of falling.

This research will look at a small handheld device placed on the neck to stimulate a nerve with the aim of boosting acetylcholine levels. Researchers will study 40 people with Parkinson's to see if this potential non-invasive treatment can help reduce falls and improve the quality of life for those living with the condition.

37	Project name	Weight-shift training to overcome freezing (G-2007)
Lead researcher		Dr William Young
Start and end date		July 2021 to August 2024
Location		University of Exeter
Cost		£246,383

Type: Life | **Stage:** Clinical trial

Freezing can be a common symptom of Parkinson's. People describe it as feeling like their feet are 'glued' to the ground. In order to start walking, someone's balance needs to be adjusted in a specific way, but this 'weight-shift' adjustment does not happen properly in people who freeze.

The team at the University of Exeter have previously shown in a controlled lab environment that helping people to initiate weight shifting allowed them to overcome freezing and continue walking. This research project aims to build on these results to see if people can independently learn the weight-shifting strategy from an instructional video and apply it safely in daily life.

If successful, this would provide a simple strategy to benefit people who experience freezing, with the potential to reduce the anxiety that comes with this symptom.

38	Project name	Investigating the benefits of physiotherapy at different stages of Parkinson's (G-1808)
Lead researcher		Dr Robert Skelly
Start and end date		December 2019 to August 2024
Location		Derby Hospitals NHS Foundation Trust
Cost		£95,202

Type: Life | **Stage:** Clinical trial

We know exercise is beneficial for people with Parkinson's. Physiotherapists play a role in advising on suitable exercise and encouraging people to keep active. This research project will explore the views and experiences of people with Parkinson's with regard to physiotherapy.

The team will also assess the impact of early physiotherapy, before movement problems have been identified, versus physiotherapy deferred to the time of need. They expect early physiotherapy will help people with Parkinson's maintain independence.

39	Project name	Using brain imaging to study walking in Parkinson's (G-2005)
Lead researcher		Professor Lynn Rochester
Start and end date		October 2021 to August 2024
Location		Newcastle University
Cost		£140,122

Type: Life | **Stage:** Developing treatments

Some people with Parkinson's experience difficulty walking, which can lead to falls. We know this can greatly impact people's quality of life and is a top research priority. It is not entirely clear how the brain controls walking and how this process might be affected in Parkinson's.

The researchers will analyse brain activity, through the use of brain scans, in people with Parkinson's when they are walking and standing. Increased understanding of the causes of these symptoms could lead to new ways to treat and manage them.

40	Project name	Understanding more about the brain's self-cleaning system in Parkinson's (G-2104)
Lead researcher		Professor Mark Lythgoe
Start and end date		November 2021 to August 2024
Location		University College London
Cost		£102,702

Type: Cure | **Stage:** Scientific discovery

People with Parkinson's can experience a range of symptoms caused by the gradual loss of brain cells that produce a vital chemical called dopamine. A protein called alpha-synuclein contributes to this by clumping together and damaging cells.

One way the brain clears waste proteins, such as alpha-synuclein, is through a self-cleaning process called the glymphatic system. This uses water channels attached to the brain's blood vessels to filter and remove waste.

In Alzheimer's, there are fewer water channels, which slows down this cleaning process. By looking at brain samples from people with Parkinson's, this research aims to find out if these water channels are also affected in Parkinson's.

This research could pave the way for future treatments that could ultimately help protect brain cells.

41	Project name	A clinical trial of the probiotic Symprove (K-1803)
Lead researcher		Professor K Ray Chaudhuri
Start and end date		July 2019 to July 2024
Location		King's College London
Cost		£38,562

Type: Life | **Stage:** Clinical trial

Recent studies have shown that gut health is important in Parkinson's. Symprove is an oral probiotic that can reach the lower gut and has been seen to improve symptoms in conditions such as irritable bowel syndrome.

The research team has some evidence that Symprove could reduce motor and non-motor symptoms in people with Parkinson's. Now they want to test its potential in a placebo-controlled trial.

42	Project name	Parkinson's UK Brain Bank (J-1901)
Lead researcher		Professor Stephen Gentleman
Start and end date		July 2019 to July 2024
Location		Imperial College London
Cost		£1,534,543

Type: Cure | **Stage:** Scientific discovery

The Parkinson's UK Brain Bank, based at Imperial College London, is the world's only brain bank solely dedicated to Parkinson's research. Both people with and without Parkinson's can pledge to donate their brains to research through the Brain Bank. The tissue is supplied to researchers studying Parkinson's all over the world, increasing our understanding of what exactly goes wrong in the condition.

43	Project name	Exploring the causes and consequences of a gene mutation in GBA1 (G-2103)
Lead researcher		Professor Michael Duchen
Start and end date		November 2021 to May 2024
Location		University College London
Cost		£329,815

Type: Cure | **Stage:** Scientific discovery

Rare and small changes in a gene called GBA1 can lead to someone having an increased risk of developing Parkinson's. Using samples from people who have this small change (mutation) in their gene, this project aims to understand more about what causes the change and how it impacts the behaviour of cells. The research's main aim is to identify new ways to protect brain cells from damage, slowing the progression of Parkinson's.

44	Project name	Developing and testing a digital application to support wellbeing in people with Parkinson's (H-2102)
Lead researcher		Dr Angeliki Bogosian
Start and end date		February 2022 to May 2024
Location		City University London
Cost		£199,969

Type: Life | **Stage:** Developing treatments

Living with Parkinson's presents daily challenges, which can affect a person's wellbeing. Face-to-face support where people can talk to healthcare professionals is effective at improving wellbeing but can be time-consuming and difficult to access.

To help overcome some of these hurdles, the researchers working on this project, alongside a group of people with Parkinson's, aim to develop a digital application with the potential to provide tailored daily support for psychological wellbeing.

45	Project name	Predict Parkinson's (G-1606)
Lead researcher		Professor Anette-Eleonore Schrag
Start and end date		May 2017 to May 2024
Location		University College London
Cost		£713,157

Type: Cure | **Stage:** Scientific discovery/Clinical trial

Finding people at risk of Parkinson's could help future clinical trials. Research teams worldwide have been trying to do this by concentrating on specific risk factors, such as sense of smell or having abnormal genes, but there are other factors as well.

At the end of the project, the team hopes to be able to accurately calculate risk based on a number of factors and predict the type of people who will develop Parkinson's in the future.

Parkinson's Virtual Biotech

A groundbreaking global movement to deliver life-changing new treatments in years not decades.

Like other biotechs, the Parkinson's Virtual Biotech uses cutting edge biological and chemical research to come up with new treatments. But it's driven by people with Parkinson's, not profit. Collaborative and agile, it adapts successful methods from the business world to deliver new treatments faster.

Founded by Parkinson's UK in 2017, the Parkinson's Virtual Biotech is now an international programme in partnership with the Parkinson's Foundation. We believe we'll get to a cure faster by collaborating, not competing.

Our innovative approach is working. The next treatment is closer than ever.

Here are some of the latest projects we're investing in:

Project name: Keapstone	Developing drugs to target oxidative stress (I-1701)
Investment approved to date	£3.31m
Type: Cure | **Stage:** Developing treatments 	
Keapstone is a company co-founded by researchers at the University of Sheffield and Parkinson's UK. This project was the first to be taken on by the Parkinson's Virtual Biotech in 2017. The work is looking at developing drugs that act on multiple pathways which are believed to be important for the development of Parkinson's. Recent findings have provided interesting avenues for further studies, and we are now providing a new investment to develop these results.	

Project name: Eurofins	Creating new drugs to improve symptoms and slow Parkinson's (I-1703)
Investment approved to date	£2.8m
Type: Cure/Life | **Stage:** Developing treatments 	
Back in March 2018, we announced that we would be collaborating with one of the UK's leading contract research companies, Selcia (now known as Eurofins), to create new molecules that can increase the activity of a selection of genes. Dialling up the activity of these genes has the potential both to increase dopamine production, and boost the production of protective proteins to slow or halt the damage and loss of precious brain cells. If we're successful, it could lay the foundations for research into new treatments that could not only improve Parkinson's symptoms, but also slow, stop or even reverse the underlying condition.	

Project name: CBD (CAN-PDP)	Clinical trial to investigate cannabidiol (CBD) for Parkinson's-related psychosis (I-1901)
Investment approved to date	£1.52m

Type: Life | **Stage:** Clinical trials

There are many different symptoms of Parkinson's and not everyone will experience the same ones. Evidence shows that up to 75% of people with Parkinson's go on to develop symptoms of hallucinations or delusions as their condition progresses. In October 2019, we announced we're partnering with researchers at King's College London to carry out a clinical trial to see whether CBD is safe and effective for treating symptoms of hallucinations or delusions in Parkinson's. The first stage of the study, a six-week pilot to find the ideal dosage of oral CBD capsules, is now complete.

In 2023, the second stage of the trial started recruitment, involving 120 people with Parkinson's who experience problems with these symptoms taking part in a 12-week, double-blind, placebo-controlled study – the gold standard for testing new treatments.

Project name: TOP HAT	A phase 2 clinical trial to explore the potential of ondansetron for treating hallucinations in people with Parkinson's or Lewy body dementia (I-1902)
Investment approved to date	£1.26m

Type: Life | **Stage:** Clinical trials

In October 2020, we announced our partnership with University College London to explore the potential of ondansetron as a treatment for visual hallucinations in people with Parkinson's or Lewy body dementia.

Ondansetron is currently used to treat sickness following operations or during chemotherapy. It is estimated that around 75% of people with Parkinson's experience visual hallucinations, when they see things that aren't really there, during the course of their condition. These symptoms can be extremely distressing for people with Parkinson's and their families. However, current treatment options are limited.

This study is investigating whether ondansetron is beneficial and safe as a treatment for hallucinations in up to 306 people with Parkinson's or Lewy body dementia. Following an interim analysis, TOP HAT is no longer open to recruitment.

Project name: NRG	Targeting brain cell batteries to slow the progression of Parkinson's (I-1903)
Investment approved to date	£4.5m

Type: Cure | **Stage:** Developing treatments

In July 2019, we announced our partnership with NRG Therapeutics Ltd to find ways to boost the functioning of mitochondria in Parkinson's.

Mitochondria, the powerhouses of the cell, play an important role in both sporadic and inherited forms of Parkinson's. The aim of this project is to identify new molecules that can enter the brain and support the mitochondria.

If successful, these protective molecules could provide a safe and effective new treatment that will protect brain cells, slow the progression of Parkinson's and extend quality of life.

Building on the success of the project, in 2022 NRG secured funding worth £16m, including further investment from the Parkinson's Virtual Biotech. This funding will be used to continue developing these molecules and progress towards clinical trial.

Project name: Sheffield	Discovering molecules that restore brain cell batteries (I-1904)
Investment approved to date	£1.3m

Type: Cure | **Stage:** Developing treatments

We're partnering with researchers at the University of Sheffield to discover molecules that can boost the function of brain cell batteries. This research aims to take important steps towards creating a drug that can protect dopamine-producing brain cells and slow down the progression of Parkinson's. The team is currently developing drug-like molecules which will be tested in cells from people with Parkinson's.

Project name: Galaxy	Finding ways to dial down inflammation in Parkinson's (I-2001)
Investment approved to date	£3.1m

Type: Cure | **Stage:** Developing treatments

Announced in December 2021, this project aims to find a way to stop harmful inflammation from damaging brain cells.

Inflammation is a process that is vital for defending the body against harm from things like infections, injuries and toxins. It should only be activated when there is a threat. If inflammation is active when it shouldn't be, it can cause harm to healthy cells. There is increasing evidence that this might be the case in Parkinson's.

This project looks to uncover a way to dial down inflammation in the brain, in the hope to protect brain cells. This could help pave the way for the design of a drug to help slow or stop the condition.

Project name: EndLyz	Finding ways to boost cell recycling in Parkinson's (I-2102)
Investment approved to date	£905,000

Type: Cure | **Stage:** Developing treatments

We're working with EndLyz Therapeutics, Inc. to help find therapeutic ways to clear cells of damaging or unwanted materials that might contribute to the causes of Parkinson's.

Recent research suggests that lysosomes, packets of digestive chemicals that help to break down and recycle unwanted material inside cells, may be central to the development and progression of Parkinson's. When lysosomes don't work properly, brain cells can't get rid of old and damaged proteins, so these build up and clump together, slowly choking cells.

This project will focus on developing new therapies to restore efficient lysosomal function, which may have the potential to slow or stop Parkinson's.

Project name: Ambroxol	A phase 3 clinical trial investigating the potential of ambroxol for slowing down the progression of Parkinson's (I-2202)
Investment approved to date	£1.1m

Type: Cure | **Stage:** Clinical trials

Parkinson's UK is partnering with research charity Cure Parkinson's, Van Andel Institute and John Black Charitable Foundation to co-fund a trial looking at the potential of ambroxol, a drug found in a cough medicine which has been used for many years, to slow the progression of Parkinson's.

The ASPro-PD trial is a world-first phase 3 trial of ambroxol. Driven by Cure Parkinson's, following 8 years of work with the Parkinson's community, this £5.5m trial offers hope that a drug to slow the progression of Parkinson's may be on the horizon. Results from phase 2 of the clinical trial show that ambroxol increases a protein called GCase, which helps break down and remove waste proteins, such as toxic alpha-synuclein from cells. This is the first large phase 3 study the Parkinson's Virtual Biotech has funded.

Project name: Syntara (previously known as Pharmaxis)	A phase 2 clinical trial of a new treatment that aims to relieve Parkinson's-like symptoms and target inflammation to slow the onset of the condition (I-2201)
Investment approved to date	£2.9m

Type: Cure/Life | **Stage:** Clinical trials

In September 2022, we announced we're working with Syntara to investigate whether a drug called PXS-4728 can reduce inflammation in the very early stages of Parkinson's.

Inflammation is part of the body's natural response to injury, but it can cause problems if it is overactive and actually damages cells. This is thought to contribute to the causes and progression of Parkinson's.

This study will investigate PXS-4728 in 40 people who experience a sleep disorder known as isolated rapid eye movement sleep behaviour disorder (iRBD).

Studies suggest as many as 70% of people with iRBD go on to develop Parkinson's. The hope is that this drug might be able to slow the onset of Parkinson's symptoms in this group of people that are at a high risk of developing the condition. This could help find a way to slow the progression of Parkinson's in others with the condition. The first participant was recruited in November 2023.

Project name: Neumora	Drug development to target inflammation in the brain
Investment approved to date	£2.1m

Type: Cure | **Stage:** Developing treatments

Research shows that there is more inflammation in the areas of the brain affected by Parkinson's. This is thought to play a potential role in damaging the dopamine-producing cells in the brain, causing Parkinson's to progress faster.

We have partnered with Neumora Therapeutics Inc., a US-based company, to help fund and accelerate the final lab-based research needed to advance a potential new drug that targets inflammation. The drug aims to protect brain cells affected by Parkinson's by stopping inflammation being triggered in the brain.

If this two-year project is successful, the drug will be ready to move towards clinical trials involving people with Parkinson's.

Get connected to Parkinson's research

Join our Research Support Network to hear about ways to have your say, take part and get involved in Parkinson's research. You'll receive regular emails packed with exciting research news and opportunities.

Find out more at **parkinsons.org.uk/rsn**

Find out more

For more information about our other research initiatives and the progress that we're making, please visit **parkinsons.org.uk/research**

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