Our research projects 2025

Parkinson's UK

Our research focus for 2025

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 investing over £23m into our research grants programme across 47 projects. And through the Parkinson's Virtual Biotech, we've committed an extra £30m towards new drug discovery and development projects for Parkinson's.

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:

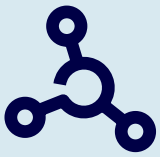
Types of research project

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 30 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 19 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 trialled in people.

Our active research grants

1	**Project name**	**EJS ACT-PD (J-2403)**
Lead researcher		Professor Thomas Foltynie and Professor Camille Caroll
Start and end date		September 2024 to March 2033
Location		University College London
Cost		£1,685,854

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

Clinical trials of potential new drugs for conditions such as Parkinson's take a long time. EJS ACT-PD (Edmond J Safra Accelerating Clinical Trials for Parkinson's) has been set up to speed up the process. The trial uses a multi-arm, multi-stage (MAMS) design, meaning that multiple treatments can be tested at the same time, against only 1 placebo group. The study will start in 2025 by testing multiple treatments that have the potential to slow down the progression of Parkinson's.

By prioritising treatments that aim to stop or slow the progression of Parkinson's, and testing the treatments in a quicker, more effective way, EJS ACT-PD has huge potential to impact research and make a major breakthrough in the search for better treatments.

2	**Project name**	**Establishing a new Parkinson's research centre**
Lead researcher		Hiring in process (at time of writing)
Start and end date		2025 to 2030
Location		Various
Cost		£5,000,000

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

We have partnered with the UK Dementia Research Institute (UK DRI), a leading research institute for investigating neurodegenerative conditions, to establish a pioneering Parkinson's research centre. The centre will be dedicated to help better understand the causes of Parkinson's, identify new approaches to predicting Parkinson's, and the development and testing of new treatments to prevent the onset, slow or even reverse the progression of the condition.

We'll be investing £5m over 5 years, as will the UK DRI, to drive forward this vital research. By collaborating, we are joining our expertise, support, and networks to work towards a united goal.

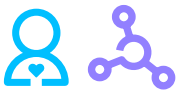
3	**Project name**	**Parkinson's UK Brain Bank (J-2401)**
Lead researcher		Professor Stephen Gentleman
Start and end date		July 2024 to July 2029
Location		Imperial College London
Cost		£1,524,009

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

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 happens in the brain throughout the condition.

4	**Project name**	**Stimulating the brain to treat movement symptoms of Parkinson's (F-2402)**
Lead researcher		Dr Shenghong He
Start and end date		October 2025 to October 2028
Location		University of Oxford
Cost		£288,098

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



Deep brain stimulation (DBS) can be a treatment option to improve movement symptoms of Parkinson's, such as difficulties walking and tremor, for people who find that their drugs are no longer effective. However, the effectiveness of DBS varies between different people. This study aims to improve DBS by better understanding the brain functions responsible for tremor and difficulties walking.

The researchers also aim to explore an emerging, non-invasive, brain stimulation technique, called low-intensity transcranial focused ultrasound stimulation (tFUS), in people with and without DBS. tFUS involves delivering ultrasound waves to a specific area of the brain. Together with DBS, tFUS could improve brain stimulation techniques for Parkinson's.

5	Project name	The role of gut microorganisms in the progression of Parkinson's (F-2401)
Lead researcher		Dr Marta Camacho
Start and end date		March 2025 to March 2028
Location		University of Cambridge
Cost		£299,856

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

Our gut is home to billions of bacteria and other small organisms, collectively known as the gut microbiome. This study explores how one of these organisms which produces a gas called methane might be connected to Parkinson's.

Previous research shows people with Parkinson's may have higher levels of methane in their breath. This is associated with gut and memory problems as well as worse movement symptoms. This study builds on this work to determine if higher methane levels are linked to thinking and memory problems and other symptoms in Parkinson's, and whether reducing methane levels with a probiotic, called *L. Reuteri*, can alleviate these symptoms.

6	Project name	Understanding the different causes of Parkinson's dementia (G-2404)
Lead researcher		Professor Rimona Weil
Start and end date		February 2025 to February 2028
Location		University College London
Cost		£333,778

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

Nearly half of people with Parkinson's are affected by dementia within 10 years of their diagnosis. However, the causes of Parkinson's dementia are not well understood.

This project aims to investigate 2 potential causes: the effects of blood pressure on blood vessels in the brain, and the build up of abnormal proteins in the brain. People with and without Parkinson's will undergo a series of tests to evaluate blood vessels and protein levels in the brain, and compare these to any changes in thinking and memory. This research will help us understand the causes of Parkinson's dementia, and identify new ways of treating these symptoms.

7	Project name	Using information from blood samples to understand the causes of Parkinson's (G-2403)
Lead researcher		Dr Petroula Proitsi
Start and end date		November 2024 to November 2027
Location		Queen Mary, University of London
Cost		£247,903

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

Understanding who has a high risk of developing Parkinson's, why some people develop it at a younger age, and why others progress faster with the condition is crucial to help find new treatments. Analysing different parts of a blood sample, such as blood proteins, genes and fats, can help researchers understand more about what might be happening in the brain.

In this study, researchers will analyse a large dataset of information about blood samples from thousands of people from a wide range of backgrounds. They will use their findings to identify people more likely to develop Parkinson's, make sure the right people are included in specific research projects, and highlight new clues that could be linked to the condition.

8	Project name	Exploring genetic changes in early onset Parkinson's (G-2401)
Lead researcher		Professor Henry Houlden
Start and end date		October 2024 to October 2027
Location		University College London
Cost		£283,849

Type: Life | **Stage:** Scientific discoveries 

We don't know exactly what causes Parkinson's, but it's likely to be a combination of environmental and genetic factors. A small percentage of people with Parkinson's have a genetic mutation linked to the condition. Genetic changes are more common in people who develop Parkinson's early, before the age of 50.

Researchers have identified a new gene, called PSMF1, that may be associated with early onset Parkinson's. Previous research has shown that changes to the PSMF1 gene can cause movement symptoms in fruit flies and mice. This project now aims to understand whether there are changes to the PSMF1 gene in people with early onset Parkinson's, and how these changes may lead to the development of the condition.

9	**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 discoveries

Currently there is no definitive method to diagnose Parkinson's, meaning that it is difficult to spot the 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 2-year period to assess how their symptoms change, and how many individuals go on to develop Parkinson's.

10	**Project name**	**Controlling dopamine production in brain cells (G-2402)**
Lead researcher		Dr Harry Bulstrode
Start and end date		February 2025 to August 2027
Location		University of Cambridge
Cost		£199,195

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

Parkinson's affects brain cells that produce a chemical called dopamine, which helps transmit messages around the body. As these dopamine-producing cells become damaged in Parkinson's, levels of dopamine in the brain fall and symptoms develop.

One active area of research is using stem cells to replace these damaged cells with new cells that produce dopamine. The researchers on this project want to understand the best conditions for replacing these cells, to make sure they produce the maximum amount of dopamine when injected into the brain. They'll do this by using mice and building on existing work which suggests low levels of oxygen may help boost dopamine.

11	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 trials

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.

12	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 2027
Location		Cardiff University
Cost		£324,695

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

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.

13	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: Cure | **Stage:** Scientific discoveries

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 2 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.

14	Project name	Exploring the effects of ginger on gut health in Parkinson's (H-2402)
Lead researcher		Dr Caroline Williams-Gray
Start and end date		June 2025 to June 2027
Location		University of Cambridge
Cost		£199,467

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

Ginger is a household spice thought to support a healthy gut. A naturally occurring component of ginger, called gingerol, helps encourage digestion, reduces inflammation, and can increase levels of a hormone, called ghrelin. Ghrelin is produced in the stomach and supports digestion as well as appetite.

Research has shown that people with Parkinson's, and those at high risk of developing Parkinson's, have decreased levels of ghrelin. This study aims to investigate whether ginger has beneficial effects on ghrelin levels, inflammation, and gut symptoms in people with Parkinson's.

15	Project name	Landmark (J-2402)
Lead researcher		Professor Michael Johnson
Start and end date		April 2024 to April 2027
Location		Imperial College London
Cost		£4,350,000

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

Landmark brings together Parkinson's UK, Imperial College London and 4 major pharmaceutical companies (GSK, Novartis, Roche and UCB) to understand what's happening inside cells affected by Parkinson's. The programme has been made possible by a founding gift of £4m from the Gatsby charitable foundation.

The project aims to help researchers pinpoint the causes of Parkinson's and Parkinson's dementia, by understanding why some brain cells are more vulnerable to Parkinson's than others. This could uncover potential targets for developing new treatments, and reveal which genes increase the risk of developing Parkinson's. The Landmark project will apply cutting edge techniques to hundreds of brain tissue samples from the Parkinson's UK Brain Bank.

16	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		£269,123

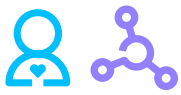
Type: Cure | **Stage:** Scientific discoveries

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.

17	Project name	Evaluating video-based training to help freezing of gait (H-2403)
Lead researcher		Dr William Young
Start and end date		March 2025 to March 2027
Location		University of Exeter
Cost		£132,530

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



Many people with Parkinson's experience difficulties walking including freezing of gait, which can be described as feeling 'glued' to the floor for a brief period of time. To address this, we previously funded researchers at the University of Exeter and people in the Parkinson's community to co-develop a series of weight-shifting videos which were tested in a small study. Results showed that 60% of participants found the videos helpful to overcome freezing.

Now, the team aims to improve the videos and share them more widely with a focus on inclusivity. This will ensure the resources are accessible to a diverse audience across different communities. The group will set up an advisory group of people with Parkinson's, loved ones and healthcare professionals to ensure this work is inclusive of everyone with Parkinson's.

18	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 discoveries

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 2 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.

19	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 trials

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. Researchers now want to investigate whether this method could reduce and manage tremors experienced by people with Parkinson's.

20	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		University College London
Cost		£283,132

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

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 7 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.

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

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

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, called 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 to 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.

22	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		September 2024 to September 2026
Location		Robert Gordon University
Cost		£105,667

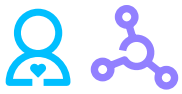
Type: Life | **Stage:** Developing treatments/Clinical trials 

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 Strolll. The portable AR glasses allow the wearer to interact with activities and exercises that aim to help improve mobility.

23	Project name	Managing facial masking using a virtual reality device (H-2304)
Lead researcher		Dr Fiona French
Start and end date		August 2024 to August 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.

This 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.

24	Project name	Boosting the production of energy in brain cells (K-2401)
Lead researcher		Thomas Keating
Start and end date		February 2025 to August 2026
Location		Pretzel Therapeutics
Cost		£200,000

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

All cells in the body, including brain cells, require high levels of energy to do their job. This demand for energy is met by small structures in the cells called mitochondria, which are responsible for energy production in most cells. In order to produce energy, the mitochondria need to have lots of their own genetic material, called mitochondrial DNA.

In Parkinson's, levels of mitochondrial DNA are often low. This means that there may not be enough energy produced for brain cells to function properly. In this study, Pretzel Therapeutics will test whether a new compound can boost levels of mitochondrial DNA, helping to increase energy production in cells.

25	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

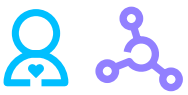
Type: Cure | **Stage:** Scientific discoveries/Developing treatments

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.

26	Project name	Treating difficulties producing and understanding language in Parkinson's (H-2401)
Lead researcher		Professor Anja Lowit
Start and end date		January 2025 to July 2026
Location		University of Strathclyde
Cost		£106,543

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



People with Parkinson's can often experience difficulties in communicating. This might be because of problems with speech or voice, but also could make it difficult to find words, or process complex information. These symptoms can affect wellbeing, relationships and a sense of independence.

This study will explore how best to support people with Parkinson's who experience language difficulties. Alongside people with Parkinson's, loved ones and healthcare professionals, the team will co-develop a treatment programme which will then be tested in a small pilot study with people with Parkinson's and their partners.

27	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 trials

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 look at this by measuring brain activity using a non-invasive device while people take part in a game specifically designed to help improve balance.

28	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 June 2026
Location		University of Plymouth
Cost		£189,652

Type: Life | Stage: Developing treatments/Clinical trials

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.

29	Project name	Investigating genes which could be involved in Parkinson's (G-2304)
Lead researcher		Dr Kathryn Bowles
Start and end date		December 2023 to June 2026
Location		University of Edinburgh
Cost		£213,263

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

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 levels of the gene.

30	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 discoveries

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.

31	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 discoveries

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 a model that will help them predict which individual is more at risk of important milestones including gait freezing, falls, dyskinesias and dementia. This will enable them to better target interventions, for example treatments that may prevent or delay the onset of dementia, and prepare individuals and their families appropriately.

32	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 2026
Location		University College London
Cost		£281,077

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

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 our understanding of why some cells become damaged, which could give rise to new targets for treatments.

33	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		£241,067

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

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.

34	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 discoveries/Clinical trials

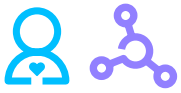
It's unclear exactly what causes someone to develop Parkinson's, but it's thought to be a combination of genetic and environmental factors. The PREDICT-PD study wants to better understand these risk factors to help identify people who might have a higher chance of developing the condition.

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.

35	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 a person'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.

36	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 2025
Location		Imperial College London
Cost		£80,786

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

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.

37	Project name	Reducing inflammation in the brain to treat Parkinson's (K-2402)
Lead researcher		Dr Barbara Cipriani
Start and end date		February 2025 to October 2025
Location		Pathios Therapeutics Limited
Cost		£198,803

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

Inflammation is part of the body's natural response to injury, but it can cause problems if it is overactive and actually damages cells. In Parkinson's, some areas of the brain experience too much inflammation. Over time, this can make symptoms worse.

In the brain, special immune cells, called microglia, detect inflammation. They do so using a small protein called GPR65. Once GPR65 has detected inflammation, it sends signals to begin the healing process, but sometimes this triggers further inflammation. In this study, researchers will test drugs which work to block the GPR65 protein on the microglia. The hope is to reduce overall inflammation in the brain to slow or stop the progression of Parkinson's.

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

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

The development of Parkinson's has been closely linked to the build up 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.

39	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 September 2025
Location		University of Reading
Cost		£224,290

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

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.

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

Type: Life | **Stage:** Scientific discoveries

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.

41	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		£445,695

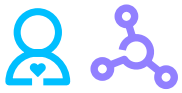
Type: Cure | **Stage:** Scientific discoveries/Developing treatments

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.

42	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		May 2024 to August 2025
Location		King's College London
Cost		£85,998

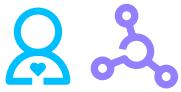
Type: Life | **Stage:** Developing treatments



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.

43	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 2025
Location		Newcastle University
Cost		£140,123

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.

44	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 to prevent this protein build up 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.

45	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		£101,832

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

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. This project aims to explore and develop the use of the programme for people with Parkinson's.

46	Project name	Predict Parkinson's (G-1606)
Lead researcher		Professor Anette-Eleonore Schrag
Start and end date		May 2017 to May 2025
Location		University College London
Cost		£713,157

Type: Cure | **Stage:** Scientific discoveries/Clinical trials 

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.

47	Project name	Developing a disease-modifying treatment for Parkinson's (K-2303)
Lead researcher		Professor Michael Johnson
Start and end date		May 2024 to May 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. This 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.

Parkinson's Virtual Biotech

A groundbreaking global movement to go alongside our grants programme, both aiming to deliver life-changing new treatments in years, not decades.

We believe new and better treatments for Parkinson's are possible. But there is simply not enough focus or investment in turning exciting discoveries into new therapies.

That's where the Parkinson's Virtual Biotech comes in. We designed the programme to bridge this gap and help take forward promising ideas for new therapies.

The Parkinson's Virtual Biotech uses the methods of the biotech world and venture funding to invest in drug development, but with the Parkinson's community at the heart of the decisions.

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.

We identify projects with the greatest potential to transform life for people with Parkinson's. We then work with partners to rapidly develop and test them. We have committed over £30 million towards our Virtual Biotech programme.

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

Project name: Keapstone	**Developing drugs to target oxidative stress**
Investment committed to date	£2.78m
Type: Cure | **Stage**: Developing treatments	
Keapstone is a company co-founded by researchers at the University of Sheffield and Parkinson's UK. It's looking at developing drugs that act on multiple pathways believed to be important in the development of Parkinson's. Recent findings have provided interesting avenues for further studies. Keapstone has grown out of the first project the Parkinson's Virtual Biotech took on in 2017. The company has reached the end of it's Parkinson's UK funding and is currently evaluating strategic options to progress the programme.	

Project name: CBD (CAN-PDP)	Clinical trial to investigate cannabidiol (CBD) for Parkinson's-related psychosis
Investment committed to date	£1.85m

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
Investment committed to date	£1.55m

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.

Project name: NRG	Targeting brain cell batteries to slow the progression of Parkinson's
Investment committed to date	£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.

With the help of the initial Virtual Biotech investment, NRG Therapeutics Ltd designed small molecules that are able to pass across the blood brain barrier and patch up a hole in the mitochondria wall to help prevent the loss of energy and cell death. In 2022 NRG secured funding from various partners worth £16m, including further investment from the Parkinson's Virtual Biotech. This funding is being used to continue developing these molecules in animal models and progress them towards clinical trials.

In October 2024, NRG selected NRG5051 as the molecule to focus on and do the final preparations before it can be tested in clinical trials. A $5m grant from The Michael J. Fox Foundation (MJFF) adds further funding to this project. This offers hope as a potential way to protect mitochondria and help stop brain cells from dying.

Project name: EndLyz	Finding ways to boost cell recycling in Parkinson's
Investment committed to date	£980,000

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 clogging up cells.

This project is focusing 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**
Investment committed 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. The trial is underway and more trial sites are due to open throughout 2025.

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**
Investment committed to date	£2.9m

Type: Cure | **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 is investigating 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 committed 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.

This project aims to get the drug ready to move towards clinical trials involving people with Parkinson's.

Project name: Mission	**First clinical trial of MTX325 in people with Parkinson's**
Investment committed to date	£1.25m

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

Mitochondria are small structures responsible for producing the energy cells need to function properly, including brain cells. In Parkinson's, mitochondria inside dopamine-producing brain cells stop working properly.

MTX325 is a compound that has been designed to help get rid of faulty mitochondria. By removing 'problem mitochondria' the team hope to protect dopamine-producing brain cells and ultimately slow or even stop the progression of the condition. After successful studies in the lab, MTX325 is currently being trialled in healthy individuals to understand its safety.

In 2024, we announced a partnership with Mission Therapeutics and the Michael J. Fox Foundation for Parkinson's Research to fund the next stage of this research – investigating the safety and benefits of the potential drug in people with Parkinson's. The trial plans to recruit people with Parkinson's to take part in an early phase clinical trial currently being planned across multiple sites in the UK and other European countries.

Project name: Lucy	**Development of potential new treatments to protect brain cells using mitochondria**
Investment committed to date	£1.6m

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

In June 2024, we announced a partnership with Lucy Therapeutics to drive forward research looking at new drugs to restore mitochondria. Mitochondria are responsible for producing the energy cells need to function properly.

Lucy Therapeutics has developed molecules that early experiments show can target a key part of the mitochondria and improve its function. With investment from this partnership, they will look to see in more detail how the molecules might be able to protect brain cells. This will involve exploring whether the molecules can reduce clumps of a protein thought to damage brain cells. This testing should hopefully improve understanding of how the new drug could work, and will bring it closer towards the next stage of testing in clinical trials.

Project name: Herantis	**First clinical trial of a pioneering new treatment, HER-096, in people with Parkinson's**
Investment committed to date	£1.55m

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

HER-096 is a new treatment that aims to protect and restore the dopamine-producing brain cells that are lost in Parkinson's. It has been developed based on a growth factor the brain naturally produces, called CDNF (Cerebral Dopamine Neurotrophic Factor).

Research in the lab shows CDNF can help damaged dopamine cells to survive and recover. However, CDNF is a large protein that can't easily cross from the blood into the brain, so giving it to patients would require complex and invasive surgery. Herantis Pharma has developed a compound called HER-096 that has similar properties to CDNF but is smaller, can access the brain and be given as a simple injection.

HER-096 has already been tested in a study with 60 healthy participants and was shown to be safe, with no serious side effects. This investment from the Parkinson's Virtual Biotech and Michael J. Fox Foundation is funding a new study to test if regular injections of HER-096 are safe in people with Parkinson's. The study is now underway in Finland.

Project name: Acurex	**Fine tuning CU-13001 to progress it towards clinical trials for Parkinson's**
Investment committed to date	£1.59m

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

We're investing £1.59m through our Virtual Biotech programme to drive forward the development of a promising molecule which has potential to become a drug that slows or stops Parkinson's. Partnering with US-based company Acurex Biosciences, we are supporting the final stages of testing and development of their molecule, CU-13001, in preparation for its progress into clinical trials.

CU-13001 is a molecule that has shown exciting potential for protecting the brain cells that are lost in Parkinson's in laboratory-based tests. It targets an enzyme called 15-lipoxygenase, which emerging research suggests may play an important role in the death of dopamine-producing cells in the condition.

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**

We're Parkinson's UK, the charity that's here to support every Parkinson's journey. Every step of the way.

Free confidential helpline **0808 800 0303**
Monday to Friday 9am to 6pm,
Saturday 10am to 2pm (interpreting available)
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Parkinson's UK

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