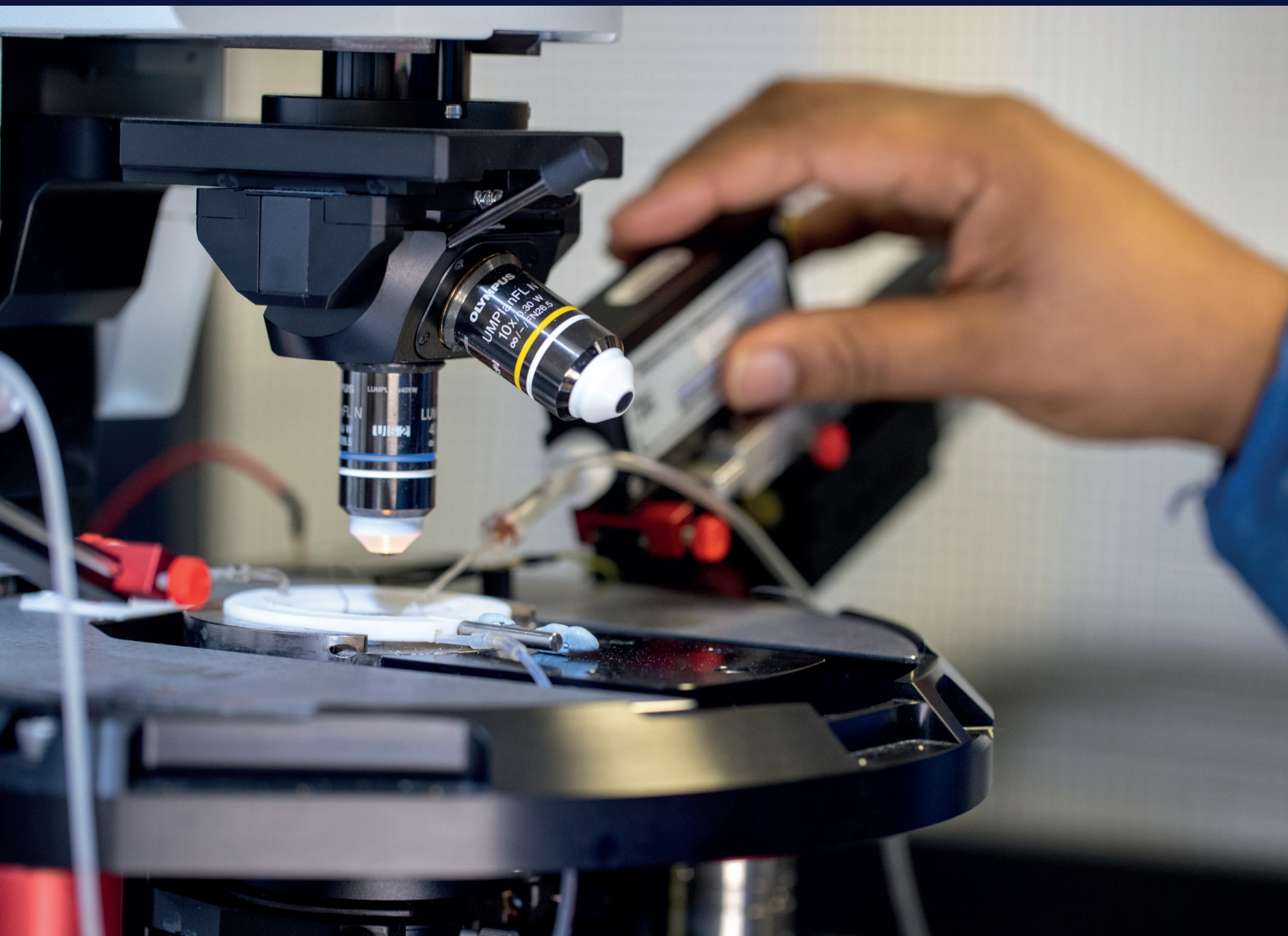


OUR RESEARCH PROJECTS 2024



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 investing over £13m into our research grants programme across 39 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 26 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 16 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	Understanding the different causes of Parkinson's dementia (G-2404)
	Lead researcher	Dr Rimona Weil
	Start and end date	February 2025 to February 2028
	Location	University College London
	Cost	£333,778
Type: Life Stage: Clinical trials		 
<p>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.</p> <p>This project aims to investigate two 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.</p>		



2	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		 
<p>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.</p> <p>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.</p>		



3	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		 
<p>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.</p> <p>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.</p>		



4	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		 
<p>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.</p> <p>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.</p>		




5	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		  
<p>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.</p> <p>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.</p>		



6	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 discoveries		 
<p>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.</p> <p>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.</p>		




7	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		 
<p>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.</p> <p>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.</p>		



8	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		 
<p>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.</p> <p>Another response to cell stress is the autophagy process, which breaks down cell waste. Research suggests that the ISR and autophagy work together.</p> <p>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.</p>		




9	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		 
<p>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.</p> <p>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.</p>		




10	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		  
<p>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.</p> <p>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.</p>		



11	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 discoveries		 
<p>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.</p> <p>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.</p>		



12	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		  
<p>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.</p> <p>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.</p>		



13	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		 
<p>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.</p> <p>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.</p>		



14	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		  
<p>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.</p> <p>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.</p>		




15	Project name	Controlling dopamine production in brain cells (G-2402)
Lead researcher		Dr Harry Bulstrode
Start and end date		January 2024 to July 2026
Location		University of Cambridge
Cost		£199,195
Type: Cure Stage: Scientific discoveries/Developing treatments		  
<p>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.</p> <p>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.</p>		



16	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 discoveries		 
<p>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.</p> <p>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.</p>		



17	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		 
<p>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.</p> <p>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.</p>		




18	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		 
<p>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.</p> <p>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.</p>		



19	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		 
<p>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.</p> <p>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.</p>		



20	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		  
<p>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.</p> <p>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.</p>		




21	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		 
<p>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.</p> <p>The research aims to improve our understanding of why some cells become damaged, which could give rise to new targets for treatments.</p>		



22	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		 
<p>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.</p> <p>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.</p>		




23	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		  
<p>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.</p> <p>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.</p> <p>The more we know about the early stages of Parkinson's, the closer we'll be to finding better treatments and a cure.</p>		



24	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		 
<p>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.</p> <p>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.</p>		




25	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		 
<p>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.</p> <p>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.</p> <p>Results could help improve our understanding of how alpha-synuclein can start to cause damage in Parkinson's, and new ways to treat it.</p>		



26	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		  
<p>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.</p> <p>This research will build upon these promising findings and investigate whether boosting the glymphatic system with drug-like molecules can help protect brain cells.</p>		



27	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		 
<p>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.</p> <p>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.</p>		



28	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		  
<p>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.</p> <p>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.</p> <p>If successful, the drug could be put forward for further research as a possible new Parkinson's treatment.</p>		




29	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		 
<p>Balance is a common problem for people with Parkinson's, contributing to walking impairments, fear of falling, reduced independence and increased fall risk.</p> <p>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.</p>		



30	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		  
<p>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.</p> <p>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.</p>		



31	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 May 2025
Location		King's College London
Cost		£74,399
Type: Life Stage: Developing treatments		 
<p>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.</p> <p>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.</p>		



32	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		 
<p>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.</p> <p>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.</p>		




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



34	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		£189,652
Type: Life Stage: Developing treatments/Clinical trials		  
<p>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.</p> <p>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.</p>		

35	Project name	Which brain cells are affected in Parkinson's? (G-2306)
Lead researcher		Dr Nathan Skene
Start and end date		November 2023 to February 2025
Location		Imperial College London
Cost		£80,786
Type: Cure Stage: Scientific discoveries		 
<p>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.</p> <p>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.</p>		

36	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 discoveries		 
<p>One reason Parkinson's develops is due to a build up 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.</p> <p>This project aims to understand how our cells' recycling system might help to remove alpha-synuclein build up, 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.</p>		

37	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 discoveries		 
<p>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.</p> <p>This project is lab-based and will study small worms called <i>C. elegans</i>. 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.</p>		

38	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 discoveries		  
<p>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.</p>		

39	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 discoveries		 
<p>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.</p> <p>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.</p> <p>This research could make it easier to diagnose the condition and provide a way to measure its progression.</p>		

Parkinson's Virtual Biotech

A groundbreaking global movement 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 promising ideas for new therapies forward.



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	 
<p>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.</p> <p>We are now providing new investment to develop these results to further investigate a molecule that has the potential to protect brain cells in lab experiments. The effectiveness and safety of the molecule will be assessed to inform whether clinical trials could take place in the future.</p>	



Project name: CBD (CAN-PDP)	Clinical trial to investigate cannabidiol (CBD) for Parkinson's-related psychosis
Investment committed to date	£1.52m
Type: Life Stage: Clinical trials	
 	
<p>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.</p> <p>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.</p>	



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	£1.26m
Type: Life Stage: Clinical trials	
 	
<p>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.</p> <p>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.</p> <p>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.</p>	



Project name: NRG	Targeting brain cell batteries to slow the progression of Parkinson's
Investment committed to date	£5m
Type: Cure Stage: Developing treatments	
 	
<p>In July 2019, we announced our partnership with NRG Therapeutics Ltd to find ways to boost the functioning of mitochondria in Parkinson's.</p> <p>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.</p> <p>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 in animal models and progress them towards clinical trials. This offers hope as a potential way to protect mitochondria and help stop brain cells from dying.</p>	



Project name: EndLyz	Finding ways to boost cell recycling in Parkinson's
Investment committed to date	£980,000
Type: Cure Stage: Developing treatments	
 	
<p>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.</p> <p>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.</p> <p>This project will focus on developing new therapies to restore efficient lysosomal function, which may have the potential to slow or stop Parkinson's.</p>	



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	
 	
<p>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.</p> <p>The ASPro-PD trial is a world-first phase 3 trial of ambroxol. Driven by Cure Parkinson's, following eight 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 GCCase, 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.</p>	



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

Project name: Neumora	Drug development to target inflammation in the brain
Investment committed to date	£2.1m
Type: Cure Stage: Developing treatments	
 	
<p>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.</p> <p>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.</p> <p>If this two-year project is successful, the drug will be ready to move towards clinical trials involving people with Parkinson's.</p>	

Project name: Mission	First clinical trial of MTX325 in people with Parkinson's
Investment committed to date	£1.25m
Type: Cure Stage: Clinical trials	
 	
<p>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.</p> <p>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.</p> <p>In July 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.</p>	

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  	
<p>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.</p> <p>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.</p>	

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  	
<p>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).</p> <p>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.</p> <p>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 will fund 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.</p>	

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  	
<p>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.</p> <p>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.</p>	



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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 are Parkinson's UK.
Powered by people.
Funded by you.
Improving life for everyone
affected by Parkinson's.
Together we'll find a cure.

PARKINSON'S^{UK}

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