

OUR RESEARCH PROJECTS 2023



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

Our research focus for 2023

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 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.



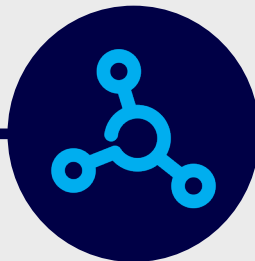
Life projects work towards treatments and strategies to improve the symptoms and quality of life of people with Parkinson's. This includes better therapies and management for issues such as falls, anxiety, and thinking and memory problems.

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	Slow-SPEED: Slowing Parkinson's early through exercise (J-2301)
	Lead researcher	Professor Bastiaan Bloem
	Start and end date	June 2023 to June 2027
	Location	Radboud University Medical Centre
	Cost	£200,866
Type: Cure/Life Stage: Clinical trial		  
<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. 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>		



2	Project name	Can blood pressure medication protect some neurons from damage? (G-2303)
	Lead researcher	Professor Caleb Webber
	Start and end date	January 2024 to January 2027
	Location	Cardiff University
	Cost	£269,122
Type: Cure Stage: Scientific discovery		 
<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. 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 are able to protect them from damage.</p>		



3	Project name	Developing new imaging techniques to study differences in the brain in Parkinson's (G-2301)
Lead researcher		Dr Christian Lambert
Start and end date		November 2023 to November 2026
Location		Institute of Neurology, UCL
Cost		£283,132
Type: Cure Stage: Scientific discovery		 
<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. 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>		



4	Project name	Can reducing stress help protect brain cells? (G-2302)
Lead researcher		Professor Jonathan Lane
Start and end date		November 2023 to November 2026
Location		University of Bristol
Cost		£338,038
Type: Cure Stage: Scientific discovery		 
<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. Another response to cell stress is the autophagy process, which breaks down cell waste. Research suggests that the ISR and autophagy work together. Jonathan and his team will study human brain cells in the lab to understand how the two processes work together in Parkinson's, how cell stress and the ISR affect the cell to cell communication process, and whether existing drugs that target the ISR can help protect brain cells in Parkinson's.</p>		



5	Project name	Improving recycling to reduce brain cell death (G-2006)
Lead researcher		Professor Sandip Patel
Start and end date		January 2021 to August 2026
Location		University College London
Cost		£282,374
Type: Cure Stage: Scientific discovery/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. 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>		




6	Project name	Investigating how changes to the cell recycling system affect cell communication in Parkinson's (G-2202)
Lead researcher		Dr Dayne Beccano-Kelly
Start and end date		February 2023 to July 2026
Location		Cardiff University
Cost		£324,695
Type: Cure Stage: Scientific discovery		 
<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. 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>		



7	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 May 2026
Location		Newcastle University
Cost		£324,406
Type: Cure Stage: Scientific discovery		 
<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, the neurons, get damaged and are lost over time. But not much is known about how the other cells in the brain are affected. The team at Newcastle University will use brain tissue samples from people with Parkinson's to try and understand the changes to a different type of brain cell, the astrocytes, which usually help support the work of the neurons. This research could help improve understanding of how different types of brain cells are impacted in Parkinson's.</p>		




8	Project name	Growing brain cells to test new therapies (F-2201)
Lead researcher		Dr Charmaine Lang
Start and end date		April 2023 to April 2026
Location		University of Oxford
Cost		£149,970
Type: Cure Stage: Scientific discovery		 
<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. 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 identify a new target to help develop future treatments for Parkinson's.</p>		



9	Project name	Improving balance through physical activity and brain training (H-2203)
Lead researcher		Dr Qadeer Arshad
Start and end date		September 2023 to March 2026
Location		University of Leicester
Cost		£198,360
Type: Life Stage: Clinical trial		 
<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. Qadeer and his team are interested in how a specific exercise regime may be able to help improve balance, and reduce falls, for people with Parkinson's. They'll do this by measuring brain activity using a non-invasive device while people take part in a game specifically designed to help improve balance.</p>		



10	Project name	Investigating genes which could be involved in Parkinson's (G-2304)
Lead researcher		Dr Kathryn Bowles
Start and end date		September 2023 to March 2026
Location		University of Edinburgh
Cost		£213,263
Type: Cure Stage: Scientific discovery		 
<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. LRRC37A2 is found in supporting cells in the brain, but it's not clear what its main job is. The team will look into how this gene might be involved, which could pave the way for new treatments for Parkinson's to boost the levels of the gene.</p>		




11	Project name	Understanding Parkinson's progression (J-2101)
Lead researcher		Professor Michele Hu
Start and end date		August 2021 to February 2026
Location		University of Oxford
Cost		£733,389
Type: Cure/Life Stage: Scientific discovery		  
<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. 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>		




12	Project name	Using mice to see how toxic protein moves from the gut to the brain (G-2204)
Lead researcher		Professor Maria Grazia Spillantini
Start and end date		February 2023 to February 2026
Location		University of Cambridge
Cost		£214,067
Type: Cure Stage: Scientific discovery		 
<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. 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>		



13	Project name	Predicting Parkinson's (PREDICT-PD) (G-2102)
Lead researcher		Dr Alastair Noyce
Start and end date		December 2021 to December 2025
Location		Queen Mary, University of London
Cost		£509,250
Type: Cure Stage: Scientific discovery/Clinical trial		  
<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. 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.</p>		




14	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, TBC
Location		University of Edinburgh
Cost		£160,885
Type: Cure Stage: Scientific discoveries		 
<p>The development of Parkinson's has been closely linked to the buildup of a protein called alpha-synuclein, which can form clumps in brain cells and stop them functioning. Research has focused on reducing levels of alpha-synuclein in the brain. But little is known about the normal function of this protein. Tilo and his team want to find out more about the normal job of alpha-synuclein. They will investigate whether it plays a role in the body's defence against viruses and environmental stress, and if it increases during an immune response. Results could help improve our understanding of how alpha-synuclein can start to cause damage in Parkinson's, and new ways to treat it.</p>		



15	Project name	Keep On Keep Up exercise programme for people with Parkinson's (H-2201)
Lead researcher		Dr Gill Barry
Start and end date		June 2023 to June 2025
Location		Northumbria University
Cost		£101,831
Type: Life Stage: Clinical trial		 
<p>Balance is a common problem for people with Parkinson's, contributing to walking impairments, fear of falling, reduced independence, and increased fall risk. Keep On Keep Up (KOKU) is an NHS approved digital health programme that is designed to engage older people in safe and effective balance, strength and fall prevention exercises. But it has not been tested specifically with people with Parkinson's. The project aims to explore and develop the use of the programme for people with Parkinson's.</p>		



16	Project name	Testing a new potential drug to stop protein clumps (K-2301)
Lead researcher		Professor Maria Grazia Spillantini
Start and end date		December 2023 to June 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. This research project will use a newly developed drug to try and prevent this protein buildup in mice which have symptoms of Parkinson's. The project aims to find out if the drug has the desired effect on the mice. If successful, the drug could be put forward for further research as a possible new Parkinson's treatment.</p>		



17	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 November 2025
Location		University College London
Cost		£445,694
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. 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>		



18	Project name	Investigating delirium in Parkinson's (DELIRIUM-PD) (F-1801)
Lead researcher		Dr Rachael Lawson
Start and end date		December 2018 to March 2025
Location		Newcastle University
Cost		£498,144
Type: Life Stage: Scientific discovery		 
<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. This project will investigate delirium in people with Parkinson's admitted to hospital, which could help better identify and treat the condition.</p>		

19	Project name	Using a digital system to monitor and self-manage non-motor symptoms (H-2101)
Lead researcher		Dr Edward Meinert
Start and end date		February 2022 to February 2025
Location		University of Plymouth
Cost		£189,651
Type: Life Stage: Developing treatments/Clinical trial		  
<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. 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>		



20	Project name	Why do some people with Parkinson's develop memory problems? (G-2203)
Lead researcher		Professor Sonia Gandhi
Start and end date		February 2023 to February 2025
Location		University College London
Cost		£281,077
Type: Cure Stage: Scientific discovery		 
<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. The research aims to improve understanding of why some cells become damaged, which could give rise to new targets for treatments.</p>		



21	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		£380,484
Type: Cure Stage: Scientific discovery		 
<p>One reason Parkinson's develops is due to a buildup of a protein called alpha-synuclein. This can form clumps in brain cells, stopping them working properly. Currently no treatment can remove this troublesome protein. This project aims to understand how our cells' recycling system might help to remove alpha-synuclein buildup, by looking at zebrafish and mouse models of Parkinson's. The team hopes to understand how they can boost cell recycling to ultimately protect brain cells. This project will lay the foundation for further drug discovery projects that could have the potential to slow or stop Parkinson's.</p>		



22	Project name	Increasing mental health support for people with Parkinson's (H-2202)
Lead researcher		Dr Jennifer Foley
Start and end date		January 2023 to January 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 people's quality of life. However, there are not enough people who are currently qualified to deliver specialist mental health support for people with Parkinson's. Jennifer and her team are developing a treatment programme that can be delivered by non-experts to address mental health issues, along with booklets for those who attend the sessions. They will do this by working with people with Parkinson's and non-specialist health professionals to allow more people to be able to receive support.</p>		



23	Project name	Understanding more about the role of the immune system in Parkinson's (G-2009)
Lead researcher		Professor Jonathan Lane
Start and end date		March 2021 to October 2024
Location		University of Bristol
Cost		£113,051
Type: Cure Stage: Scientific discovery		 
<p>People with Parkinson's don't have enough of a chemical called dopamine because some of the brain cells that produce it have died. We still don't fully know what causes this, but one hypothesis is that a person's immune response may play a role. When we get an infection, our immune system responds by recruiting cells and producing signals which fight against it. This is known as inflammation. Sometimes inflammation can be wrongly activated and damage healthy cells, and this might be the case in Parkinson's. This research aims to understand more about the role of inflammation in brain cell death and may pave the way for new treatments to tackle some of the earliest changes in Parkinson's.</p>		



24	Project name	A new telehealth approach to speech therapy (H-2001)
Lead researcher		Dr Steven Bloch
Start and end date		October 2021 to October 2024
Location		University College London
Cost		£100,321
Type: Life Stage: Clinical trial		 
<p>Changes in the brain in people with Parkinson's mean that movements become smaller and less forceful and this can lead to problems with speech and communication. This project will develop and test a new speech and language therapy programme delivered remotely via a computer (telehealth) to see if people with Parkinson's and their loved ones find it beneficial. The research will test the new therapy in 10 people with Parkinson's and their chosen loved one and will focus on providing personalised strategies to improve communication. If this research is successful, it could lead to a new strategy for people to have better conversations with their friends and family.</p>		



25	Project name	Which brain cells are affected in Parkinson's? (G-2306)
Lead researcher		Dr Nathan Skene
Start and end date		September 2023 to September 2024
Location		Imperial College London
Cost		£80,786
Type: Cure Stage: Scientific discovery		 
<p>No two people's experience of Parkinson's and their symptoms are the same. But we don't know why that might be. It could be that what's going on in the brain varies between different people with Parkinson's. The brain is made up of lots of different types of cells, each with its own important job. Maybe one type of cell is particularly affected for one person, but not for another. Nathan and his team will look at brain tissue from the Parkinson's UK Brain Bank, and use a technique called Coppa-FISH to look more closely and compare the different brain cells between samples. Getting a better understanding of how the cells are affected could help us build a picture of how to tailor treatments for Parkinson's in the future.</p>		



26	Project name	Weight-shift training to overcome freezing (G-2007)
Lead researcher		Dr William Young
Start and end date		July 2021 to August 2024
Location		University of Exeter
Cost		£246,383
Type: Life Stage: Clinical trial		 
<p>Freezing can be a common symptom of Parkinson's. People describe it as feeling like their feet are 'glued' to the ground. In order to start walking, someone's balance needs to be adjusted in a specific way, but this 'weight-shift' adjustment does not happen properly in people who freeze. The team at the University of Exeter have previously shown in a controlled lab environment that helping people to initiate weight shifting allowed them to overcome freezing and continue walking. This research project aims to build on these results to see if people can independently learn the weight-shifting strategy from an instructional video and apply it safely in daily life. If successful, this would provide a simple strategy to benefit people who experience freezing, with the potential to reduce the anxiety that comes with this symptom.</p>		



27	Project name	Investigating the benefits of physiotherapy at different stages of Parkinson's (G-1808)
Lead researcher		Dr Robert Skelly
Start and end date		December 2019 to August 2024
Location		Derby Hospitals NHS Foundation Trust
Cost		£95,202
Type: Life Stage: Clinical trial		 
<p>We know exercise is beneficial for people with Parkinson's. Physiotherapists play a role in advising on suitable exercise and encouraging people to keep active. This research project will explore the views and experiences of people with Parkinson's with regard to physiotherapy. The team will also assess the impact of early physiotherapy, before movement problems have been identified, versus physiotherapy deferred to the time of need. They expect early physiotherapy will help people with Parkinson's maintain independence.</p>		




28	Project name	Using brain imaging to study walking in Parkinson's (G-2005)
Lead researcher		Professor Lynn Rochester
Start and end date		October 2021 to August 2024
Location		Newcastle University
Cost		£140,122
Type: Life Stage: Developing treatments		 
<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. 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>		



29	Project name	A clinical trial of the probiotic Symprove (K-1803)
Lead researcher		Professor K Ray Chaudhuri
Start and end date		July 2019 to July 2024
Location		King's College London
Cost		£38,562
Type: Life Stage: Clinical trial		 
<p>Recent studies have shown that gut health is important in Parkinson's. Symprove is an oral probiotic that can reach the lower gut and has been seen to improve symptoms in conditions such as irritable bowel syndrome. The research team has some evidence that Symprove could reduce motor and non-motor symptoms in people with Parkinson's. Now they want to test its potential in a placebo-controlled trial.</p>		



30	Project name	Parkinson's UK Brain Bank (J-1901)
Lead researcher		Professor Stephen Gentleman
Start and end date		July 2019 to July 2024
Location		Imperial College London
Cost		£1,534,543
Type: Cure Stage: Scientific discovery		 
<p>The Parkinson's UK Brain Bank, based at Imperial College London, is the world's only brain bank solely dedicated to Parkinson's research. Both people with and without Parkinson's can pledge to donate their brains to research through the Brain Bank. The tissue is supplied to researchers studying Parkinson's all over the world, increasing our understanding of what exactly goes wrong in the condition.</p>		



31	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 June 2024
Location		University of Reading
Cost		£224,290
Type: Cure Stage: Scientific discovery		 
<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. 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>		




32	Project name	Exploring the causes and consequences of a gene mutation in GBA1 (G-2103)
Lead researcher		Professor Michael Duhen
Start and end date		November 2021 to May 2024
Location		University College London
Cost		£329,815
Type: Cure Stage: Scientific discovery		 
<p>Rare and small changes in a gene called GBA1 can lead to someone having an increased risk of developing Parkinson's. Using samples from people who have this small change (mutation) in their gene, this project aims to understand more about what causes the change and how it impacts the behaviour of cells. The research's main aim is to identify new ways to protect brain cells from damage, slowing the progression of Parkinson's.</p>		



33	Project name	Predict Parkinson's (G-1606)
Lead researcher		Professor Anette-Eleonore Schrag
Start and end date		May 2017 to May 2024
Location		University College London
Cost		£713,157
Type: Cure Stage: Scientific discovery/Clinical trial		  
<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. 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>		




34	Project name	Investigating non-invasive nerve stimulation to improve walking (G-1903)
Lead researcher		Dr Alison Yarnall
Start and end date		November 2020 to March 2024
Location		Newcastle University
Cost		£102,476
Type: Life Stage: Clinical trial		 
<p>In Parkinson's, brain cells are lost over time, resulting in the levels of vital brain chemicals being decreased. One of these chemicals is called acetylcholine, which plays an important role in memory, thinking and walking. This means that people with Parkinson's have an increased risk of falling. This research will look at a small handheld device placed on the neck to stimulate a nerve with the aim of boosting acetylcholine levels. Researchers will be looking at 40 people with Parkinson's to see if this potential non-invasive treatment can help reduce falls and improve the quality of life for those living with the condition.</p>		



35	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 March 2024
Location		Newcastle University
Cost		£225,865
Type: Cure Stage: Scientific discovery		 
<p>By the time someone experiences the symptoms of Parkinson's, many brain cells have already been lost. Therefore researchers believe that identifying and diagnosing Parkinson's earlier is vital in the search for better treatments and a cure for the condition. This project aims to explore the potential of a blood test to see if it can accurately predict who will develop Parkinson's. The researchers will analyse blood samples from people with and without the condition to measure levels of a specific group of molecules called acylcarnitines. They also want to see what happens to the levels of these molecules as the condition progresses. This research could lead to a simpler way of diagnosing the condition and provide a way to measure its progression.</p>		




36	Project name	Developing and testing a digital application to support wellbeing in people with Parkinson's (H-2102)
Lead researcher		Dr Angeliki Bogosian
Start and end date		February 2022 to February 2024
Location		City University London
Cost		£199,969
Type: Life Stage: Developing treatments		 
<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. 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>		

37	Project name	Tracking Parkinson's (PROBAND) (J-1101)
Lead researcher		Professor Donald Grosset
Start and end date		October 2011 to January 2024
Location		University of Glasgow
Cost		£3,411,807
Type: Cure/Life Stage: Scientific discovery		  
<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>		

38	Project name	Understanding the role of toxic proteins in Parkinson's and Parkinson's-associated dementia (G-1901)
Lead researcher		Professor David Klenerman
Start and end date		January 2020 to January 2024
Location		University of Cambridge
Cost		£277,423
Type: Cure Stage: Scientific discovery		 
<p>Abnormal clumps of proteins, including alpha-synuclein, are found in the brains of people with Parkinson's. For some, this can be linked to the development of Parkinson's dementia. It is unclear exactly how these proteins are damaging brain cells, and this research aims to understand more. The researchers will do this by studying tissue from the Parkinson's UK Brain Bank. They will study samples, taken over three years, from people with and without Parkinson's, as well as those with high and low risk of dementia. This could help find a way to predict and track the progression of the condition and pave the way for better treatments.</p>		

39	Project name	A device to help manage drooling in Parkinson's (H-2002)
Lead researcher		Professor Richard Walker
Start and end date		April 2021 to January 2024
Location		Northumbria Healthcare NHS Foundation Trust
Cost		£199,821
Type: Life Stage: Developing treatments/Clinical trial		  
<p>Some people with Parkinson's may have problems with swallowing, which can lead to drooling. This can affect speech, eating and cause social embarrassment. Current treatments focus on reducing the body's ability to produce saliva, but this research wants to see if a device can prompt people to swallow more frequently. Using a wrist-worn device to prompt swallowing through vibration could offer a cheap and easy way to help manage these symptoms. The device and associated app also have the potential to set reminders for medications, and monitor physical activity and sleep behaviours. This project aims to recruit 3,000 people with Parkinson's to trial this device and create an active network to shape and develop this technology.</p>		

40	Project name	Testing a new drug to protect supporting cells in the brain (K-2303)
Lead researcher		Dr Nataly Hastings
Start and end date		June 2023 to December 2023
Location		University of Cambridge
Cost		£140,000
Type: Cure Stage: Developing treatments		 
<p>There are lots of different types of cells in the brain. We know that the cells that produce dopamine start to die in Parkinson's, but it's not as clear what the others do during the development of the condition. There's some evidence to suggest that a type of supporting brain cell, known as astrocytes, may be able to protect and prevent dopamine producing cells from dying. This research will test a new drug which is thought to protect these astrocytes in mice developed to show symptoms of Parkinson's. If successful, this work could pave the way towards testing the drug in humans.</p>		

41	Project name	Understanding how toxic fats may play a role in the causes of Parkinson's (G-2010)
Lead researcher		Professor Kevin Mills
Start and end date		May 2021 to November 2023
Location		University College London
Cost		£205,160
Type: Cure Stage: Scientific discovery/Developing treatments		  
<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. For instance, small changes in the GBA1 gene can lead to someone having an increased risk of developing Parkinson's. This genetic change can lead to less efficient clearing of certain fats from cells, and it is thought that a fat called glucosyl-psychosine may play a role in the causes of Parkinson's. This research aims to understand how this toxic fat is made by the cell and how it is contributing to brain cell death. This research could help to uncover new ways to stop the buildup of this harmful fat and potentially protect brain cells.</p>		

Parkinson's Virtual Biotech



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


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


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



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



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



Project name: Neurolixis	A phase 2 trial of the drug NLX-112 for treating dyskinesia in people with Parkinson's (I-2002)
Investment to date	£1.57m
Type: Life Stage: Clinical trials	 
<p>Since 2017, we've been working with biopharmaceutical company Neurolixis and US charity The Michael J. Fox Foundation (MJFF) to investigate a drug called NLX-112 for the treatment of involuntary movements (dyskinesia). This is a common side effect experienced by people with Parkinson's who have been taking levodopa-based medications for several years. These studies investigated NLX-112 in the lab and secured approval from regulatory authorities to take the drug into clinical trials in people with Parkinson's.</p> <p>In November 2020, we announced we'd be funding a new phase 2a trial leading on from these previous studies funded by the MJFF and Parkinson's UK. Results announced in July 2023 show the drug is safe to use for people with Parkinson's and it is beneficial for those who experience dyskinesia. But the trial also showed that the drug had a positive effect on other motor symptoms of Parkinson's, such as slowness, stiffness and tremor.</p> <p>This is an early-stage trial, and its main aim was to prove the safety and understand how the body reacts to the drug, so that it can be tested on a larger scale. The next stage of the trial will aim to find out the best and safest doses and gather more information on the effectiveness with more participants. Neurolixis is currently planning how to best take this exciting project forward to the next stage of clinical trials.</p> <p>If each of these phases is successful, the drug could be approved and available by 2030.</p>	



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



Project name: CBD (CAN-PDP)	Clinical trial to investigate cannabidiol (CBD) for Parkinson's-related psychosis (I-1901)
Investment 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 (I-1902)
Investment 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 306 people with Parkinson's or Lewy body dementia. With safety data available from ondansetron's current use in treating sickness, positive results from this study could see this repurposed medication quickly progress to become an available treatment.</p>	

Project name: NRG	Targeting brain cell batteries to slow the progression of Parkinson's (I-1903)
Investment to date	£4.5m
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.</p> <p>If successful, these protective molecules could provide a safe and effective new treatment that will protect brain cells, slow the progression of Parkinson's and extend quality of life.</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 and progress towards clinical trial.</p>	

Project name: Sheffield	Discovering molecules that restore brain cell batteries (I-1904)
Investment to date	£1.3m
Type: Cure Stage: Developing treatments  	
<p>We're partnering with researchers at the University of Sheffield to discover molecules that can boost the function of brain cell batteries. This research aims to take important steps towards creating a drug that can protect dopamine-producing brain cells and slow down the progression of Parkinson's. The team is currently developing drug-like molecules which will be tested in cells from people with Parkinson's. If this is successful, the molecules will move forward into further testing in animal models, before moving into clinical trials in people with Parkinson's.</p>	


Project name: Galaxy	Finding ways to dial down inflammation in Parkinson's (I-2001)
Investment to date	£3.1m
Type: Cure Stage: Developing treatments  	
<p>Announced in December 2021, this project aims to find a way to stop harmful inflammation from damaging brain cells.</p> <p>Inflammation is a process that is vital for defending the body against harm from things like infections, injuries and toxins. It should only be activated when there is a threat. If inflammation is active when it shouldn't be, it can cause harm to healthy cells. There is increasing evidence that this might be the case in Parkinson's.</p> <p>This project looks to uncover a way to dial down inflammation in the brain, in the hope to protect brain cells. This could help pave the way for the design of a drug to help slow or stop the condition.</p>	

Project name: GDNF	Planning a new clinical trial of device-delivered GDNF (I-2101)
Investment to date	£800,000
Type: Cure Stage: Clinical trials  	
<p>GDNF is a special protein that is naturally produced inside the brain. When GDNF is given to damaged dopamine brain cells in the lab it helps them to regenerate. It may be able to do the same in people with Parkinson's if it can be delivered to the right part of the brain in the right way.</p> <p>So far, clinical trials using different devices to deliver GDNF have given inconclusive results, but we believe that GDNF still holds huge promise for people with Parkinson's. That's why we have launched a new company, Vivifi Biotech, to lead the planning and preparations for a potential new GDNF trial.</p> <p>We have reviewed the scientific evidence from the first trial and listened to the views of people with Parkinson's about whether it is right to move ahead. There's still work that needs to be done on the device and drug manufacture to make sure they are the best that they can be. But the main focus for this next phase will be seeking funding partners who can help make a future trial happen.</p>	

Project name: EndLyz	Finding ways to boost cell recycling in Parkinson's (I-2102)
Investment to date	£405,000
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 choking 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: Enterin	Investigating a new treatment for Parkinson's-related dementia
Agreed to invest	£2m
Type: Life Stage: Clinical trials  	
<p>People with Parkinson's are up to six times more likely to develop dementia compared to the general population. But there is no treatment that can stop or even slow the progression of dementia in Parkinson's.</p> <p>In October 2022, we announced our partnership with Enterin Inc. to assess the potential of a man-made chemical, ENT-01, which is based on a naturally occurring compound called squalamine, known for its ability to kill bacteria and viruses.</p> <p>Previous clinical trials with ENT-01 show that it can reduce constipation in people with Parkinson's, and suggest that it might be able to improve other symptoms such as those related to thinking and memory. This project will assess this potential in more detail, looking at the impact it might have for people with Parkinson's who experience memory problems.</p>	

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

Project name: Pharmaxis	A phase 2 clinical trial of a new treatment that aims to relieve Parkinson’s-like symptoms and target inflammation to slow the onset of the condition. (I-2201)
Investment to date	£2.9m
Type: Cure/Life Stage: Clinical trials 	
<p>In September 2022, we announced we’re working with Pharmaxis 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.</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.

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



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