OUR RESEARCH PROJECTS 2021

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

Our research focus for 2021

Parkinson's UK is the largest charitable funder of Parkinson's research in Europe. 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:

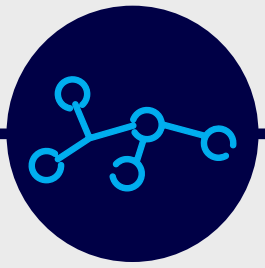
Types of research project

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	Using worms to help understand the genetics of Parkinson's (G-2008)
Lead researcher		Dr Eva Kevei
Start and end date		May 2022-May 2025
Location		University of Reading
Cost		£224,290

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

Parkinson's is often an 'idiopathic' condition, which means it has no known cause. However, for a small minority, Parkinson's can be caused by inherited changes in a number of different genes. Understanding more about the genetics of Parkinson's will help piece together the causes of brain cell death that contribute to the condition. This project is lab based and will study small worms called C. elegans. The researchers will introduce different combinations of genetic changes that contribute to Parkinson's to understand whether they act together to cause brain cells to die, or act independently. This will give an important insight into how the normal function of brain cells change in Parkinson's, and by understanding this, we could find a way to develop better treatments.

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

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

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

3	Project name	Improving recycling to reduce brain cell death (G-2006)
Lead researcher		Professor Sandip Patel
Start and end date		January 2021-January 2024
Location		University College London
Cost		£282,374

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

Researchers are still piecing together why dopamine producing brain cells are lost in Parkinson's. One line of evidence is that the recycling centres that break down waste within cells aren't as efficient in people with Parkinson's, which can stop brain cells from functioning properly. Researchers have found that a protein called TPC2 may be involved in the dysfunction of the recycling process. This research project aims to understand more about the role of this protein in brain cell death by using a fruit fly model of Parkinson's and cells that have come from people with the condition. The researchers will also begin to test drugs that target TPC2 to boost recycling in the cell to see if this can help protect brain cells.

4	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-December 2023
Location		Derby Hospitals NHS Foundation Trust
Cost		£98,453

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

We know exercise is beneficial for people with Parkinson's. Physiotherapists play a role in advising on suitable exercise and encouraging people to keep active. This research project will explore the views and experiences of people with Parkinson's with regard to physiotherapy. The team will also assess the impact of early physiotherapy – before movement problems have been identified – versus physiotherapy deferred to the time of need. They expect early physiotherapy will help people with Parkinson's maintain independence.

5	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-November 2023
Location		University College London
Cost		£205,160

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



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 build up of this harmful fat and potentially protect brain cells.

6	Project name	Investigating non-invasive nerve stimulation to improve walking (G-1903)
Lead researcher		Dr Alison Yarnall
Start and end date		November 2020-November 2023
Location		Newcastle University
Cost		£102,476

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


In Parkinson's, brain cells are lost over time, resulting in the levels of vital brain chemicals being decreased. One of these chemicals is called acetylcholine, which plays an important role in memory, thinking and walking. This means that people with Parkinson's have an increased risk of falling. This research will look at a small handheld device placed on the neck to stimulate a nerve with the aim of boosting acetylcholine levels. Researchers will 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.

7	Project name	Weight-shift training to overcome freezing (G-2007)
Lead researcher		Dr William Young
Start and end date		June 2021-November 2023
Location		University of Exeter
Cost		£246,383

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

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

8	Project name	A new telehealth approach to speech therapy (H-2001)
Lead researcher		Dr Steven Bloch
Start and end date		September 2021-September 2023
Location		University College London
Cost		£100,321

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

Changes in the brain in people with Parkinson's mean that movements become smaller and less forceful and this can lead to problems with speech and communication. This project will develop and test a new speech and language therapy programme delivered remotely via a computer (telehealth) to see if people with Parkinson's and their loved ones find it beneficial. The research will test the new therapy in 10 people with Parkinson's and their chosen pair 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 loved ones.

9	Project name	A clinical trial of the probiotic Symprove (K-1803)
Lead researcher		Professor K Ray Chaudhuri
Start and end date		July 2019-July 2023
Location		King's College London
Cost		£38,562

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

Recent studies have shown that gut health is important in Parkinson's. Symprove is an oral probiotic that can reach the lower gut and has been seen to improve symptoms in conditions such as irritable bowel syndrome. The research team has some evidence that Symprove may be able to reduce motor and non-motor symptoms in people with Parkinson's. Now they want to test its potential in a placebo-controlled trial.

10	Project name	Investigating the reason why some people with Parkinson's experience constant pain (G-2004)
Lead researcher		Dr Kirsty Bannister
Start and end date		May 2021-May 2023
Location		King's College London
Cost		£189,850

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

People with Parkinson's experience more than just motor symptoms and one of the most troublesome non-motor symptoms is pain. It is unclear why people with Parkinson's may experience constant pain and therefore this symptom often goes untreated. This research aims to investigate the causes of pain in Parkinson's. The researchers will do various tests to build up a pain sensitivity profile in people with Parkinson's who do and don't experience constant pain, and in people without Parkinson's, to help understand why some people experience this symptom. This knowledge could help shape future treatment strategies.

11	Project name	Therapeutic avenues to halt Parkinson's progression (G-1902)
Lead researcher		Professor Sylvie Urbe
Start and end date		January 2020-January 2023
Location		University of Liverpool
Cost		£225,159
Type: Cure | **Stage:** Scientific discovery/Developing treatments 		
Our brain cells need a lot of energy to function and cell batteries called mitochondria play a crucial role in this. But the buildup of mitochondria that are not working properly is thought to play a critical role in the loss of healthy brain cells in Parkinson's. This project aims to find ways to boost the disposal of damaged mitochondria to ultimately design new therapies that halt the progression of Parkinson's.		

12	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-December 2022
Location		University College London
Cost		£245,909
Type: Cure | **Stage:** Scientific discovery/Developing treatments 		
The gradual buildup 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.		

13	Project name	Exploring markers in the blood to help diagnose Parkinson's (G-2003)
Lead researcher		Dr Amy Reeve
Start and end date		March 2021-March 2023
Location		Newcastle University
Cost		£225,865

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

By the time someone experiences the symptoms of Parkinson's, many brain cells have already 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 as well as providing a way to measure its progression.

14	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-January 2023
Location		University of Cambridge
Cost		£277,423

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

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.

15	Project name	Delivering a collaborative exercise approach for people with Parkinson's (F-1901)
Lead researcher		Julie Jones
Start and end date		June 2019-December 2022
Location		Robert Gordon University
Cost		£240,258
Type: Life | **Stage:** Clinical trial 		
For many, exercise is an effective way to help manage their Parkinson's, and evidence suggests that regular exercise may limit the progression of the condition. Julie's team will explore a collaborative exercise intervention called PDConnect, which includes physiotherapy, community-based group exercise classes, and supported self-management. They will test this approach to see if it is an effective way to support people with Parkinson's to engage in exercise.		

16	Project name	Using brain imaging to study walking in Parkinson's (G-2005)
Lead researcher		Professor Lynn Rochester
Start and end date		June 2021-December 2022
Location		Newcastle University
Cost		£140,122
Type: Life | **Stage:** Developing treatments 		
Some people with Parkinson's experience difficulty walking, which can lead to falls. We know this can greatly impact people's quality of life and is a top research priority. It is not entirely clear how the brain controls walking and how this process might be affected in Parkinson's. The researchers will analyse brain activity, through the use of brain scans, in people with Parkinson's when they are walking and standing. Increased understanding of the causes of these symptoms could lead to new ways to treat and manage them.		

17	Project name	Could epilepsy drugs help treat Parkinson's? (G-1803)
Lead researcher		Professor Stephanie Cragg
Start and end date		January 2019-November 2022
Location		University of Oxford
Cost		£326,682

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

A group of drugs called gabapentinoids were made for treating epilepsy. They also help with some types of pain, sleep problems and restless leg syndrome. Stephanie and her research team have seen that these drugs control calcium levels in brain cells for the controlled release of dopamine. This research project hopes to understand how gabapentinoids could keep dopamine cells working in a healthier way to stop Parkinson's from developing.

18	Project name	A device to help manage drooling in Parkinson's (H-2002)
Lead researcher		Professor Richard Walker
Start and end date		April 2021-October 2022
Location		Northumbria Healthcare NHS Foundation Trust
Cost		£199,821

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

In Parkinson's people may have difficulties swallowing, and as a consequence drooling can be a symptom of the condition. 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 without having to undergo regular medical treatment. 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.

19	Project name	Understanding Fbxo7 gene in Parkinson's (G-1701)
Lead researcher		Dr Heike Laman
Start and end date		June 2018-September 2022
Location		University of Cambridge
Cost		£200,634

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

Current treatments only target the symptoms of Parkinson's – they do not slow the loss of dopamine-producing cells. But Dr Heike believes we now have the tools and opportunity to change this. She has experience of studying a gene that we now know plays a fundamental role in brain cell health – Fbxo7. Understanding how this gene protects brain cells could give rise to future therapies that can slow or reverse the progression of the condition.

20	Project name	Understanding more about the role of the immune system in Parkinson's (G-2009)
Lead researcher		Dr Jonathan Lane
Start and end date		March 2021-September 2022
Location		University of Bristol
Cost		£113,051

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

People with Parkinson's do not 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.

21	Project name	Targeting GBA in Parkinson's (G-1704)
Lead researcher		Professor Anthony Schapira
Start and end date		July 2018-July 2022
Location		Institute of Neurology, UCL
Cost		£319,324

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

Changes in the GBA gene are an important risk factor for Parkinson's and can significantly increase the risk of developing Parkinson's. Anthony's previous research has shown that these mutations lead to alpha-synuclein building up in brain cells. He also discovered that a drug called ambroxol may be able to help. Now Anthony and his team plan to investigate whether ambroxol can slow the spread of the alpha-synuclein protein in a mouse model of the condition. This information could help researchers design future clinical trials.

22	Project name	Understanding the impact of Lewy bodies (G-1702)
Lead researcher		Professor Peter Magill
Start and end date		April 2018-July 2022
Location		University of Oxford
Cost		£216,824

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

Lewy bodies are abnormal clusters of protein that form inside the brain cells lost in Parkinson's. While they are found in brain cells, researchers do not know how Lewy bodies affect them. Peter and his team hope to use a mouse model of Parkinson's to discover the impact Lewy bodies have on the function of dopamine-producing brain cells. Ultimately, their research could shed new light on how to slow or stop the condition.

23	Project name	Tracking Parkinson's (PROBAND) (J-1101)
Lead researcher		Professor Donald Grosset
Start and end date		October 2011-June 2022
Location		University of Glasgow
Cost		£3,411,807

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

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

24	Project name	Predict Parkinson's (G-1606)
Lead researcher		Professor Anette-Eleonore Schrag
Start and end date		May 2017-May 2022
Location		University College London
Cost		£603,271

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

Finding people at risk of Parkinson's could help future clinical trials. Research teams worldwide have been trying to do this by concentrating on specific risk factors, such as sense of smell or having abnormal genes, but there are other factors as well. At the end of the project, the team hopes to be able to accurately calculate risk based on a number of factors and be able to predict people who will develop Parkinson's in the future.

25	Project name	Understanding what controls the loss of dopamine-producing cells (G-1804)
Lead researcher		Dr Christopher Elliott
Start and end date		May 2019-May 2022
Location		University of York
Cost		£245,995
Type: Cure | **Stage:** Scientific discovery 		
Changes in the LRRK2 gene play a crucial role in the development of rare, inherited forms of Parkinson's and cause the LRRK2 protein to be more active than normal. Christopher and his team have observed in flies that a small protein Rab10 contributes to LRRK2-induced Parkinson's symptoms. In this research project, they will investigate how Rab10 (and other Rab proteins) work with LRRK2 to control the loss of dopamine-producing brain cells.		

26	Project name	Investigating delirium in Parkinson's (DELIRIUM-PD) (F-1801)
Lead researcher		Dr Rachael Lawson
Start and end date		December 2018-March 2022
Location		Newcastle University
Cost		£240,589
Type: Life | **Stage:** Scientific discovery 		
Delirium is a serious but often treatable condition that can suddenly start in someone who is unwell. People with delirium may appear confused, experience hallucinations, have difficulty following conversations or be unusually sleepy. Some of these features are also symptoms of Parkinson's, which can make delirium difficult to identify in people with Parkinson's. This project will investigate delirium in people with Parkinson's admitted to hospital, which could help better identify and treat the condition.		

27	Project name	Unblocking cellular traffic jams as a treatment for Parkinson's (G-1802)
Lead researcher		Professor Flaviano Giorgini
Start and end date		February 2019-February 2022
Location		University of Leicester
Cost		£264,522

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

Recent studies show that traffic jams inside cells may contribute to Parkinson's. The protein Rab39b is involved in the movement of "cargo" within cells. Defective Rab39b is associated with Parkinson's symptoms and Flaviano and team have observed this in fruit flies. In this study, they will enhance Rab39b functions to see if this has a beneficial role in Parkinson's.

28	Project name	Finding new ways to treat anxiety (G-1601)
Lead researcher		Dr Jerome Swinny
Start and end date		May 2017-January 2022
Location		University of Portsmouth
Cost		£224,978

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

Around half of people with Parkinson's have trouble with anxiety, and "stress and anxiety" is rated the second-highest priority area of research for improving quality of life. The locus coerulus, located in the brainstem, is important for responding to stress. So the researchers want to look specifically at changes to the cells in this part of the brain that may be linked to anxiety. They will then look for drugs that can reverse these changes in the brain and reduce anxiety-like behaviour using a mouse model.

29	Project name	Enhancing brain cell batteries to protect from brain cell death (K-1901)
Lead researcher		Dr Nicoleta Moisoi
Start and end date		September 2019-December 2021
Location		De Montfort University
Cost		£49,224

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

In Parkinson's, the small cell batteries that provide energy to brain cells – called mitochondria – can become dysfunctional, leading to brain cell death. Nicoleta and her team have recently found that boosting a protein called CLPP plays a role in the repair and regeneration of these cell batteries. They want to further investigate whether a class of drugs derived from natural compounds can boost CLPP and protect brain cells. This could offer a potential way to protect dopamine-producing brain cells and slow, or even stop, Parkinson's.

30	Project name	Listening and learning from the participant experience (G-2002)
Lead researcher		Dr Emma Lane
Start and end date		September 2020-December 2021
Location		Cardiff University
Cost		£78,914

Type: Cure | **Stage:** n/a

People with Parkinson's, their carers and loved ones have a vital role to play in shaping research, including clinical trials. This is especially important in trials that involve complex surgery, such as the trial that investigated the growth factor GDNF in people with Parkinson's. This research project aims to gather insights into the experiences of people with Parkinson's who have participated in trials like the GDNF trial, as well as insights from their loved ones. This will help inform future trial design, provision of information to people taking part in similar trials, and ethical considerations.

31	Project name	Using nicotine-like drugs to help restore memory and movement in Parkinson's (G-1805)
Lead researcher		Dr Mohammed Shoaib
Start and end date		October 2019-October 2021
Location		Newcastle University
Cost		£294,180
Type: Life | **Stage:** Developing treatments 		
Nicotine binds cells in the region of the brain responsible for memory and motor co-ordination and can enhance their function. In this project, the team will investigate new compounds that have nicotine-like effects on brain cells, but without the side effects of nicotine-like addiction. Nicotine-like compounds will be tested on models of Parkinson's to see whether nicotine-like substances reduce memory loss and movement disorders.		

32	Project name	Stem cell therapies: targeting the non-motor symptoms (F-1502)
Lead researcher		Dr Mariah Lelos
Start and end date		November 2015-October 2021
Location		Cardiff University
Cost		£250,000
Type: Cure | **Stage:** Developing treatments 		
Cell transplants have the potential to reverse the damage that occurs inside the brain in Parkinson's. The team is transplanting new dopamine-producing cells into the a rat model with Parkinson's-like symptoms to see if they can improve movement symptoms, and non-motor symptoms including problems with thinking, memory, anxiety and smell. The team will use dopamine-producing brain cells made from different types of stem cells, and investigate how they work by using viruses to turn the cells on and off.		

33	Project name	Understanding how the LRRK2 protein is controlled (H-1701)
Lead researcher		Professor Dario Alessi
Start and end date		October 2018-October 2021
Location		University of Dundee
Cost		£91,389

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

Changes in the LRRK2 gene play a crucial role in the development of rare, inherited forms of Parkinson's and cause the LRRK2 protein to be more active than normal. Dario and his team have previously discovered a protein called Rab29 that can control the activity of LRRK2. In this research project, they will look at how Rab29 regulates LRRK2 – which could help in the development of new treatments that target this pathway.

34	Project name	Understanding VPS35 in Parkinson's (H-1702)
Lead researcher		Dr Eva Kevei
Start and end date		October 2018-October 2021
Location		University of Reading
Cost		£93,375

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

Researchers have recently discovered that changes in a gene called VPS35 can cause Parkinson's, but we don't yet know how. While this genetic form of Parkinson's is very rare, understanding why changes in this gene lead to Parkinson's could give us the vital insight needed to develop new and better treatments. In this project, the team hopes to use a worm model of Parkinson's to better understand how the VPS35 is linked to the loss of precious brain cells.

35	Project name	Finding drugs that combat alpha-synuclein (G-1703)
Lead researcher		Professor Maria Grazia Spillantini
Start and end date		March 2018-September 2021
Location		University of Cambridge
Cost		£364,620

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

The protein alpha-synuclein is the main component of Lewy bodies, and is believed to play a key role in the loss of precious brain cells and spread of Parkinson's. Anle138b is a potential drug that Maria and her team have shown reduces the ability of alpha-synuclein to form Lewy bodies in mouse models of the condition. In this project, the team hopes to find the optimal dose of this compound, and discover more about its effects, to progress it towards clinical trials.

36	Project name	The Monument Discovery Award (J-1403)
Lead researcher		Professor Richard Wade-Martins
Start and end date		February 2015-August 2021
Location		University of Oxford
Cost		£5,857,058

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

The Oxford Parkinson's Disease Centre is a unique, collaborative initiative that brings together the best scientific minds to speed up the search for better treatments and a cure. The researchers are looking at Parkinson's from every angle – including studying stem cells and animal models of the condition – to attempt to answer some of the biggest questions facing the field.

37	Project name	Understanding gut bacteria to deliver better treatments (G-1705)
Lead researcher		Dr Maria Doitsidou
Start and end date		January 2018-July 2021
Location		University of Edinburgh
Cost		£243,128

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

Recent research has highlighted the importance of gut-brain interactions in Parkinson's. We know microorganisms that live in our gut can affect our brain, and there is evidence that, for some, Parkinson's may start in the gut. The team is using a worm model of Parkinson's to investigate how the different types of bacteria in our gut can influence symptoms of Parkinson's, and how gut bacteria communicate with our brain. This could help to predict how Parkinson's will affect an individual in the future and help to develop better treatments.

38	Project name	Understanding the impact of coronavirus (COVID-19) infection on people with Parkinson's (G-2001)
Lead researcher		Dr Camille Carroll
Start and end date		October 2020-July 2021
Location		University of Plymouth
Cost		£85,289

Type: Life | **Stage:** n/a 

Parkinson's is a complex condition that has multiple symptoms and is most common in older people. Some symptoms, such as swallowing difficulties and blood pressure problems, might increase complications from COVID-19 infection in some people with Parkinson's. But at the moment we don't know much about how the virus impacts people with the condition. This research project aims to identify which people with Parkinson's might be at greater risk if they were to get infected with COVID-19. This is critical to providing the best advice and services to people with the condition.

39	Project name	Boosting a growth factor in the brain to fight the loss of dopamine (G-1801)
Lead researcher		Dr Susan Duty
Start and end date		January 2019-June 2021
Location		King's College London
Cost		£168,139

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

Fibroblast growth factor 20, (FGF20) is a specialised protein that has been shown in the lab to aid the survival of dopamine-containing cells. Susan and her team have found that in animal models they can boost FGF20 levels in the brain with two existing medicines – the anti-asthmatic drug Salbutamol and an aspirin-like drug Triflusal. In this research project, they will see if these medicines help protect brain cells in a rat model of Parkinson's.

40	Project name	Exploring a new treatment for bladder problems (K-1801)
Lead researcher		Professor Doreen McClurg
Start and end date		September 2018-May 2021
Location		Glasgow Caledonian University
Cost		£6,887

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

Bladder problems, such as a frequent and urgent need to pass urine, affect many people with Parkinson's, but current treatment options are limited. Transcutaneous electrical stimulation involves using a device to deliver small electrical impulses to the skin. This approach is sometimes used to address pain but has not been used to treat bladder problems before. This project will test if the treatment can improve bladder symptoms in people with Parkinson's.

41	Project name	Steps towards a new diagnostic test for Parkinson's (G-1806)
Lead researcher		Dr Laura Parkkinen
Start and end date		February 2019-May 2021
Location		University of Oxford
Cost		£129,038

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

Laura and her team have developed a promising new diagnostic test for Parkinson's focusing on the detection of a specific protein. In this project, they will see how early in the process this protein can be detected. They will also investigate if their test can tell Parkinson's apart from other related conditions to support accurate early diagnosis and treatment.

42	Project name	Understanding the scope and value of Parkinson's nurses in the UK (the USP project) (G-1807)
Lead researcher		Dr Annette Hand
Start and end date		May 2019-May 2021
Location		Northumbria University
Cost		£100,000

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

Annette and her team want to understand more about the role of Parkinson's nurses to ensure that people with Parkinson's continue to get the best support. They will do this by gathering information from people with Parkinson's, specialist nurses and other healthcare professionals. This study will help to improve support for Parkinson's nurses and inform future strategies.

Parkinson's Virtual Biotech

The Parkinson's Virtual Biotech, launched in March 2017, is the drug discovery and development arm of Parkinson's UK. We're partnering with institutions and pharmaceutical companies worldwide, fast tracking the most promising scientific discoveries to rapidly develop and test promising Parkinson's treatments.

We're aiming to invest at least a further £20m into the Virtual Biotech to help deliver a life-changing new treatment to people with Parkinson's by the end of 2024. Collaborative, risk-taking and bold, we're the only Parkinson's charity working in this way. We'll break through barriers in drug development and make new treatments a reality.

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

Project name	Optimising molecules that restore brain cell batteries
Parkinson's UK investment to date	£1m

In August 2019, we announced we're partnering with researchers at the University of Sheffield to develop molecules that can boost the function of brain cell batteries, as part of our Virtual Biotech. Building on this previous project, this new 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.

Over the next 12 months, the team will develop and test the drug-like molecule in cells from people with Parkinson's. If this is successful, the molecules will then move forward into further testing in animal models before moving into clinical trials in people with Parkinson's.

Project name	Planning a new clinical trial of device-delivered GDNF
Parkinson's UK investment to date	£800,000

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.

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 to create a new GDNF trial. If all of this careful and complex work is successful, a new clinical trial will emerge and could begin as early as 2022.

Project name	A phase 2 clinical trial to explore the potential of ondansetron for treating hallucinations in people with Parkinson's
Parkinson's UK investment to date	£973,729

In November 2020 we announced we're partnering with University College London to explore the potential of ondansetron as a treatment for visual hallucinations in people with Parkinson's. Ondansetron is currently used to treat sickness following operations or during chemotherapy.

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

This study aims to investigate whether ondansetron is both beneficial and safe as a treatment for hallucinations in people with Parkinson's, and cost-effective for use in the NHS. 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 for Parkinson's.

Project name	Clinical trial to investigate cannabidiol (CBD) for Parkinson's-related psychosis
Parkinson's UK investment to date	£1.2m

There are many different symptoms of Parkinson's and not everyone will experience the same ones. Evidence indicates that up to 60% of people with Parkinson's go on to develop symptoms of Parkinson's psychosis 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 Parkinson's psychosis.

The first stage of the study is a 6-week pilot to find the ideal dosage of oral CBD capsules. In the second stage, 120 people with Parkinson's-related psychosis will be recruited to take part in a 12-week, double-blind, placebo-controlled study – the gold standard for testing if treatments actually work.

Project name	A phase 2 trial of the drug NLX-112 for treating dyskinesia in people with Parkinson's
Parkinson's UK and The Michael J. Fox Foundation investment to date	$2m

In November 2020 we announced we're partnering with US charity The Michael J. Fox Foundation (MJFF), and biopharmaceutical company Neurolixis, 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. The main medication currently available to manage dyskinesia is amantadine.

It does not work for everyone and can have serious side effects that prevent its use.

This new trial leads on from previous studies funded by the MJFF and Parkinson's UK, which investigated NLX-112 in the lab and secured approval from regulatory authorities to take the drug into clinical trials in people with Parkinson's.

This research will now investigate whether the drug is safe and beneficial for people with Parkinon's who experience dyskinesia. If successful, this will lead to larger clinical trials and ultimately a life-changing new treatment.

Project name	Targeting brain cell batteries to slow the progression of Parkinson's
Parkinson's UK investment to date	£2m

In Parkinson's, the small cell batteries – called mitochondria – that provide energy to brain cells can become dysfunctional, leading to brain cell death. In July 2019, we announced we're partnering with NRG Therapeutics Ltd to identify new molecules that can enter the brain and support the mitochondria.

The first part of the project will screen molecules that target mitochondria to quickly identify the chemicals with potential to treat Parkinson's. In the second stage, the team will select a small number of the most promising molecules to investigate further. If successful, these protective molecules could provide a safe and effective new treatment that protects brain cells and slows the progression of Parkinson's.

Get connected to Parkinson's research

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

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

Find out more

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

We are Parkinson's UK.
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Together we'll find a cure.

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