Our research grants
2018

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

Since the start of our strategic period in 2015, we've invested £16million in research. We've set up initiatives that aim to speed up the delivery of new and better treatments. In addition to projects aimed at developing a cure, our research grants support those seeking to improve life for people with Parkinson's.

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:

What do we mean by a 'cure'?

Projects and programmes that work towards treatments and strategies to have the potential to slow, stop, reverse or prevent Parkinson's. This includes developing new treatments and improving diagnosis and monitoring of the condition.

What do we mean by 'life'?

Projects and programmes that will deliver 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.

What happens in the different stages of the 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 people.

Our active research grants

1	Project name	Tracking Parkinson's (PROBAND) (J-1101)
Lead researcher		Professor Donald Grosset
Start and end date		Oct 2011-May 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 develop better and more targeted treatments that we can use in particular types of Parkinson's.

2	Project name	Understanding VPS35 in Parkinson's (H-1702)
Lead researcher		Dr Eva Kevei
Start and end date		Oct 2018–Oct 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.

3	Project name	Targeting GBA in Parkinson's (G-1704)
Lead researcher		Professor Anthony Schapira
Start and end date		Jul 2018–Jul 2021
Location		Institute of Neurology, UCL
Cost		£319,000
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.

4	Project name	Predict Parkinson's (G-1606)
Lead researcher		Professor Anette-Eleonore Schrag
Start and end date		May 2017-May 2021
Location		University College London
Cost		£603,271
Type: Cure		**Stage:** Scientific discovery

Finding people at risk of Parkinson's could aid 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 hope 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..

5	Project name	Understanding Fbxo7 gene in Parkinson's (G-1701)
Lead researcher		Dr Heike Laman
Start and end date		Apr 2018–Apr 2021
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 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.

6	Project name	Understanding the impact of Lewy bodies (G-1702)
Lead researcher		Professor Peter Magill
Start and end date		Apr 2018–Apr 2021
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 these 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.

7	Project name	Finding drugs that combat alpha-synuclein (G-1703)
Lead researcher		Professor Maria Grazia Spillantini
Start and end date		Mar 2018–Mar 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.

8	Project name	Understanding gut bacteria to deliver better treatments (G-1705)
Lead researcher		Dr Maria Doitsidou
Start and end date		Jan 2018–Jan 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.

9	Project name	Stem cell therapies: targeting the non-motor symptoms (F-1502)
Lead researcher		Dr Mariah Lelos
Start and end date		Nov 2015-Oct 2020
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 brains of rats with of Parkinson'slike 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.

10	Project name	Understanding and predicting Parkinson's progression (H-1703)
Lead researcher		Professor Huw Morris
Start and end date		Nov 2017-Nov 2020
Location		University College London
Cost		£99,169
Type: Cure		**Stage:** Scientific discovery

Huw's team is interested in finding out how people's genetic makeup may influence the progression of Parkinson's. They will combine clinical and genetic data from several large Parkinson's research studies to create the largest dataset of Parkinson's progression to date. They also aim to predict Parkinson's progression on an individual level, using both clinical and genetic factors.

11	Project name	Can we protect neurons against mitochondrial dysfunction? (F-1401)
Lead researcher		Dr Amy Reeve
Start and end date		Jul 2014-Jun 2020
Location		Newcastle University
Cost		£413,745
Type: Cure		**Stage:** Developing treatments

Understanding how changes in mitochondria affect energy production, and contribute to brain cell death, may be the key to treatments that protect against energy loss and help cells survive into old age. Using brain tissue, brain cells grown in the lab and mice with Parkinson's-like symptoms, Amy is testing a range of drugs known to interact with mitochondria. This could tell her if the drugs can protect brain cells against the problems caused by faulty mitochondria and alpha-synuclein.

12	Project name	Finding new ways to treat anxiety (G-1601)
Lead researcher		Dr Jerome Swinny
Start and end date		May 2017-May 2020
Location		University of Portsmouth
Cost		£224,978
Type: Life		**Stage:** Scientific discovery

Around half of people with Parkinson's have trouble with anxiety, with 'stress and anxiety' 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 in mice.

13	Project name	Astrocytes: a support cell in the Parkinson's brain? (G-1402)
Lead researcher		Professor Maeve Caldwell
Start and end date		Nov 2015-April 2020
Location		University of Bristol
Cost		£210,457
Type: Cure		**Stage:** Scientific discovery

This project will help us understand the role of astrocytes – the most abundant cell type in the human brain – in the loss of dopamine-producing nerve cells in Parkinson's. Maeve and her team are using induced pluripotent stem (iPS) cells to study how astrocytes support and protect the dopamine-producing brain cells that are lost in Parkinson's.

14	Project name	GDNF-7: a combined therapy for Parkinson's (G-1603)
Lead researcher		Dr Oscar Cordero Llana
Start and end date		Apr 2017-Apr 2020
Location		University of Bristol
Cost		£224,941
Type: Cure		**Stage:** Developing treatments

This research project will explore a combined therapy using GDNF alongside a microRNA – called miR-7 – that helps keep alpha-synuclein levels under control. It may have the potential to not only stop but reverse the development of the condition. If successful, the approach could lead to the development of a treatment for Parkinson's that can be tested in clinical trials.

15	Project name	The Monument Discovery Award (J-1403)
Lead researcher		Professor Richard Wade-Martins
Start and end date		Feb 2015-Feb 2020
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.

16	Project name	Studying early brain changes in Parkinson's (K-1703)
Lead researcher		Professor Nicola Pavese
Start and end date		Jan 2018–Jan 2020
Location		Newcastle University
Cost		£36,049
Type: Cure		**Stage:** Scientific discovery

Using special brain scans, we are now able to observe changes in the brain that happen in Parkinson's. However, by the time of diagnosis, many people will have had symptoms for at least several months, so we still don't know what changes happen in the earliest stages of the condition. The team is studying people with REM sleep behaviour disorder, who are at high risk of developing Parkinson's, to identify areas of the brain affected early on.

17	Project name	Understanding LRRK2 in fruit flies (K-1704)
Lead researcher		Dr Christopher Elliott
Start and end date		Jan 2018–Jan 2020
Location		University of York
Cost		£49,441
Type: Cure		**Stage:** Scientific discovery

Changes in the gene that makes the LRRK2 protein are emerging to be a key player in the development of Parkinson's. Recent evidence suggests LRRK2 interacts with another important protein called Rab10, which is involved in many crucial processes including brain cell growth. The team will investigate how mutations in LRRK2 affect its interaction with Rab10, information that may help in the development of better treatments.

18	Project name	Reducing anxiety in Parkinson's (K-1705)
Lead researcher		Professor Richard Brown
Start and end date		May 2018–Nov 2019
Location		King's College London
Cost		£44,196
Type: Life		**Stage:** Developing treatments

Anxiety is a common symptom in Parkinson's and can have a severe impact on quality of life. Richard believes that when a person is anxious they see the world in a more negative and threatening way, even when there is no danger. In this project, the team hopes to test if this is the reason behind anxiety in Parkinson's. They also plan to test a technique to reduce anxiety using simple online exercises.

19	Project name	A blood test to measure LRRK2 (K-1706)
Lead researcher		Dr Esther Sammler
Start and end date		Nov 2017–Nov 2019
Location		University of Dundee
Cost		£49,270.00
Type: Cure		**Stage:** Scientific discovery

Changes in the LRRK2 gene are one of the most common genetic risk factors for Parkinson's and can change the way cells behave. Esther hopes that a simple blood test may be able to directly measure the activity of the LRRK2 pathway in blood samples from those with Parkinson's. Demonstrating that the test works could aid future research to test new treatments that target this pathway.

20	Project name	The largest-ever study of pain in Parkinson's (K-1301)
Lead researcher		Dr Monty Silverdale
Start and end date		Sept 2013-Sept 2019
Location		Salford Royal NHS Foundation Trust
Cost		£16,060
Type: Life		**Stage:** Scientific discovery

More than half of all people with Parkinson's experience chronic pain. By building on the Parkinson's UK funded 'Tracking Parkinson's' study, Monty and his colleagues are performing the world's largest, most detailed assessment of pain in Parkinson's. They will use surveys alongside an eye examination to look at the small nerves in the surface of the eye for any signs of damage. This project will help us understand more about why pain occurs in Parkinson's and how to spot those at risk of developing it.

21	Project name	Helping cells get rid of toxic waste in Parkinson's (H-1502)
Lead researcher		Professor Sylvie Urbe
Start and end date		Sept 2016-Sept 2019
Location		University of Liverpool
Cost		£92,339
Type: Cure		**Stage:** Scientific discovery

Changes in the Parkin gene are one of the most common known causes of early onset Parkinson's. The Parkin protein has a role in removing mitochondria when they are broken, which is needed to keep cells healthy, but proteins called DUBs slow this process down. The team is studying which DUBs are putting the brakes on, then testing compounds that target them to see if they can improve the removal of damaged mitochondria.

22	Project name	Parkinson's UK Brain Bank (J-1402)
Lead researcher		Professor Steve Gentleman
Start and end date		July 2014-July 2019
Location		Imperial College London
Cost		£1,263,580
Type: Cure		**Stage:** Scientific discovery

The Parkinson's UK Brain Bank is the world's only brain bank solely dedicated to Parkinson's research. The team collects the brain, spinal cord and a sample of cerebrospinal fluid from people with and without the condition for vital research. These tissues are supplied free of charge to researchers studying Parkinson's all over the world.

23	Project name	Looking for DNA modifications in Parkinson's (G-1502)
Lead researcher		Professor Nigel Williams
Start and end date		July 2016-July 2019
Location		Cardiff University
Cost		£232,404
Type: Cure		**Stage:** Scientific discovery

Nigel and his team are studying high-quality brain tissue samples donated to the Parkinson's UK Brain Bank. Using state-of-the-art technology, they're looking for DNA modifications in the areas of the brain that are commonly affected in Parkinson's compared to areas that are not. They're interested in histone modifications, as drugs that can enter the brain and reverse histone modification have already been identified and could hold potential in Parkinson's.

24	Project name	Better drug screening: finding new uses for old drugs (F-1301)
Lead researcher		Dr Heather Mortiboys
Start and end date		Sept 2013-Jun 2019
Location		University of Sheffield
Cost		£419,312
Type: Cure		**Stage:** Developing treatments

Heather's project focuses on identifying drugs with untapped potential for Parkinson's that are already used in other conditions. She is looking to see if they can improve the function of mitochondria and lysosomes, and therefore slow or stop the loss of brain cells. If Heather finds strong evidence that any of these drugs have promise, she plans to take them forward to be tested in clinical trials as quickly as possible.

25	Project name	Using brain scans to study cell transplants in Parkinson's (H-1503)
Lead researcher		Professor Paola Piccini
Start and end date		May 2016-May 2019
Location		Imperial College London
Cost		£76,893
Type: Cure		**Stage:** Scientific discovery

The researchers aim to identify biological markers linked to successful cell transplantation surgeries as part of the TRANSEURO clinical trial. Ultimately, the findings could help us better understand how cell transplants work for Parkinson's, and accelerate progress towards making this type of treatment a reality for people living with the condition.

26	Project name	Solution for swallowing problems in Parkinson's (G-1401)
Lead researcher		Professor Shaheen Hamdy
Start and end date		Dec 2014-Apr 2019
Location		University of Manchester
Cost		£185,443
Type: Life		**Stage:** Clinical trials

Difficulties in swallowing can lead to serious complications, from problems with breathing to not getting enough nutrition, dehydration and potentially developing conditions such as pneumonia. Shaheen is looking at three different techniques for treating swallowing problems. This research project will give us an insight into new approaches to tackle swallowing problems in Parkinson's, and identify the most effective approach for further testing.

27	Project name	Engineering beetroot to combat Parkinson's in Africa (G-1505)
Lead researcher		Professor Cathie Martin
Start and end date		Apr 2016-Apr 2019
Location		John Innes Centre
Cost		£16,834
Type: Life		**Stage:** Developing treatments

Natural sources of levodopa are often used as alternative treatments for Parkinson's where drugs are not available. However, these do not always provide an accurate dose of levodopa and can contain high levels of toxic chemicals. If successful, the researchers hope a modified beetroot could provide a natural source of levodopa that could be extracted and turned into medication. This would improve access to Parkinson's drugs in the developing world.

28	Project name	Predicting dementia in people with Parkinson's (G-1507)
Lead researcher		Professor David Burn
Start and end date		Dec 2015-Apr 2019
Location		Newcastle University
Cost		£357,068
Type: Life		**Stage:** Scientific discovery

The main goal is to better understand the early signs of dementia in people with Parkinson's. The team aims to follow people with Parkinson's to find out if specific symptoms, genes or tests, such as brain scans, can predict who will go on to develop dementia. Identifying people at high risk of developing Parkinson's dementia is important for making decisions about managing the condition, future planning and using medication such as anti-dementia drugs.

29	Project name	Understanding the causes of pain in Parkinson's (H-1404)
Lead researcher		Dr Monty Silverdale
Start and end date		Oct 2015-April 2019
Location		University of Manchester
Cost		£88,090
Type: Life		**Stage:** Scientific discovery

Monty and his PhD student are measuring brainwaves in response to pain to find out whether the area of the brain responding to pain is overactive in people with Parkinson's. They are also interested in how expectation and levels of brain chemicals, including dopamine and serotonin, can change this response. If the team proves that the area of the brain responding to pain is overactive, it may be possible to use new treatments, such as meditation training, to manage pain.

30	Project name	Looking beyond dopamine for better therapies (G-1504)
Lead researcher		Professor Stephanie Cragg
Start and end date		Sept 2016-Mar 2019
Location		University of Oxford
Cost		£297,158
Type: Cure		**Stage:** Scientific discovery

Scientists have recently shown that dopamine cells simultaneously release another chemical messenger called GABA. Drugs that mimic the effects of GABA are already available and used to treat other disorders such as insomnia. If Stephanie's project provides strong evidence that GABA-based drugs could work for Parkinson's, it could lead to these drugs being repurposed to treat Parkinson's.

31	Project name	Exploring anxiety in Parkinson's (G-1503)
Lead researcher		Professor Richard Brown
Start and end date		June 2016-Feb 2019
Location		King's College London
Cost		£140,616
Type: Life		**Stage:** Developing treatment

Around half of people with Parkinson's have trouble with anxiety, and for 1 in 4 it is severe enough to require treatment. Without treatment, anxiety can last for years. The team will first investigate if anxiety in Parkinson's is due to extra alertness to danger signals. If so, the team will test a single 30-minute session of a very simple computer training task. This will help the researchers assess the potential of this new and accessible treatment.

32	Project name	Improving motivation in people with Parkinson's (K-1702)
Lead researcher		Dr Claire O'Callaghan
Start and end date		Aug 2017-Feb 2019
Location		University of Cambridge
Cost		£49,677
Type: Life		**Stage:** Clinical trials

Poor motivation, or apathy, can impact on the quality of life of people with Parkinson's and their families and carers. It is reported in a third of newly diagnosed people. Claire is testing a drug called atomoxetine, which increases the levels of a brain chemical called noradrenaline. She wants to to establish if it could be used as a treatment to address poor motivation on a day-to-day basis in people with Parkinson's.

33	Project name	Investigating the waste disposal system in Parkinson's (H-1501)
Lead researcher		Professor Frances Platt
Start and end date		Jan 2016-Jan 2019
Location		University of Oxford
Cost		£100,674
Type: Cure		**Stage:** Scientific discovery

Fatty molecules called lipids play an important role in keeping the brain working properly. But when lipids are not broken down properly they start to accumulate and cause cells to die. If changes can be made in the amount of different types of lipids in the brain, researchers may be able to use this to help diagnose Parkinson's.

34	Project name	A trial of melatonin for nocturia in Parkinson's (K-1303)
Lead researcher		Dr Jalesh Panicker
Start and end date		Mar 2014-Dec 2018
Location		University College London
Cost		£29,798
Type: Life		**Stage:** Clinical trials

Waking up more than once at night to pass urine, called 'nocturia', is a common problem for many people with Parkinson's. Melatonin is already available in the UK as a treatment for sleeplessness. A small study in men with prostate troubles showed that melatonin helped with nocturia. In this study, Jalesh and his colleagues are exploring whether using melatonin may be helpful in managing nocturia in people with Parkinson's.

35	Project name	A rapid diagnostic test for Parkinson's (G-1501)
Lead researcher		Professor Roger Barker and Professor Hossam Haick
Start and end date		Nov 2015-Nov 2018
Location		University of Cambridge and Technion Israel Institute of Technology
Cost		£200,000
Type: Cure		**Stage:** Scientific discovery

The team aims to find out if a breath test can be used to diagnose and monitor the progression of Parkinson's over time, and identify different subtypes of the condition. If successful, they hope to develop a reliable and simple test. This research could also shed new light on the different molecules that play a role in the development of Parkinson's.

36	Project name	Stopping axon loss in Parkinson's (G-1602)
Lead researcher		Professor Michael Coleman
Start and end date		Nov 2016-Nov 2018
Location		University of Cambridge
Cost		£155,934
Type: Cure		**Stage:** Scientific discovery

The branched ends of brain cells, called axons, are damaged and lost early on in Parkinson's. This project will help us understand the role of axon loss and how it leads to cell death. Michael and his team aim to develop methods to protect axons in Parkinson's. They are using zebrafish to develop a rapid drug screening method that could be used to identify drug-like chemicals with the potential to protect axons.

37	Project name	Hunting for protective genes in Parkinson's (F-1501)
Lead researcher		Dr Emmanouil Metzakopian
Start and end date		Nov 2015-Nov 2018
Location		Sanger Institute
Cost		£217,062
Type: Cure		**Stage:** Scientific discovery

Understanding more about why some people get Parkinson's while others don't, and finding the protective genes responsible, can help scientists develop new protective treatments. Using cells grown in the lab, the team will individually change a single, different gene in each brain cell, using specially designed viruses. The genetically altered brain cells will then be stressed with chemicals that will cause most of the cells to die, helping the researchers find the cells with protective genes.

38	Project name	Identifying delirium in people with Parkinson's (DETERMINE-PD) (K-1701)
Lead researcher		Dr Louise Allan
Start and end date		Sept 2017-Nov 2018
Location		Newcastle University
Cost		£29,927
Type: Life		**Stage:** Scientific discovery

Delirium is difficult to diagnose in people with Parkinson's. This is because it has similar symptoms to Parkinson's and dementia – such as confusion, hallucinations and sleep disturbances. But people will often make a full recovery from delirium if it is recognised and treated early enough. The findings from this study will be used to help develop and evaluate a new tool to identify delirium in people with Parkinson's, so that it can be treated better.

39	Project name	Towards precision drugs for Parkinson's (G-1508)
Lead researcher		Dr Alfonso De Simone
Start and end date		Oct 2016-Oct 2018
Location		Imperial College London
Cost		£152,511
Type: Cure		**Stage:** Developing treatments

Alfonso and his team are studying alpha-synuclein with the ultimate aim of developing new drugs that can specifically target the sticky toxic form of the protein. The team is using cutting-edge techniques to study how small natural molecules prevent alpha-synuclein from becoming toxic. This could provide the knowledge we need to develop new drugs that can target the toxic form of alpha-synuclein while preserving its normal function.

40	Project name	Improving motor learning and retention in Parkinson's disease through reward (H-1402)
Lead researcher		Dr Ned Jenkinson
Start and end date		Oct 2015-Oct 2018
Location		University of Birmingham
Cost		£83,919
Type: Life		**Stage:** Developing treatment

Intervention – such as physiotherapy or speech and language therapy – can be very helpful for people with Parkinson's. But the benefits of these therapies may be short-lived as research suggests people with Parkinson's can find it hard to remember newly learnt skills. Ned is studying how people with Parkinson's learn and remember new movements. He also wants to see if rewards or techniques, such as brain stimulation, can make it easier for people with the condition.

41	Project name	Could SUMO proteins be the key to better treatments? (G-1605)
Lead researcher		Professor Jeremy Henley and Dr Kevin Wilkinson
Start and end date		Sept 2017-Sept 2018
Location		University of Bristol
Cost		£64,711
Type: Cure		**Stage:** Scientific discovery

Jeremy and Kevin believe a process called SUMOylation may play a pivotal role in Parkinson's. SUMO is a tag the cell sticks on to proteins to change their function. The team is using brain tissue donated to research, and brain cells grown in the lab, to reveal vital clues. These will be about how SUMOylation may be able to slow down, prevent or even reverse the damage to mitochondria that leads to brain cell death.

42	Project name	Understanding PINK1 in Parkinson's (H-1403)
Lead researcher		Dr Miratul Muqit
Start and end date		Sept 2015-Sept 2018
Location		University of Dundee
Cost		£91,200
Type: Cure		**Stage:** Scientific discovery

The PINK1 gene produces a protein that is found in mitochondria and protects them from damage. But PINK1 also interacts with lots of other proteins. This project will help us understand how PINK1 interacts with a set of proteins, called GTPases, that we currently know very little about in relation to Parkinson's.

43	Project name	Stopping the build-up of alpha-synuclein (G-1403)
Lead researcher		Professor Anthony Schapira
Start and end date		Feb 2015-Aug 2018
Location		University College London
Cost		£307,081
Type: Cure		**Stage:** Developing treatments

Changes in the GBA1 gene are linked to Parkinson's. Recently, Anthony's team has found that these mutations mean the GCase protein doesn't work properly and cause alpha synuclein to build up. The team is using a drug that has been shown to improve GCase function in human cells. They will test the drug in mice with Parkinson's-like symptoms that have different GBA1 mutations to see if it can reduce the amount of alpha-synuclein in brain cells.

44	Project name	Towards treatments for Parkinson's dementia (J-1401)
Lead researcher		Professor Roger Barker
Start and end date		Aug 2014-Aug 2018
Location		University of Cambridge
Cost		£135,047
Type: Life		**Stage:** Developing treatments

Current animal models don't mimic the slow progression of the condition, and often don't represent non-motor symptoms such as dementia. Professor Roger Barker and his team aim to develop a new rat model of Parkinson's that more faithfully replicates these symptoms. Once they're happy with the model, the team will use it to test a drug that has previously been shown to protect nerve cells in other animal models of Parkinson's.

45	Project name	Taking positive steps to prevent falls (K-1505)
Lead researcher		Dr Katherine Baker
Start and end date		Apr 2016-July 2018
Location		Northumbria University
Cost		£38,592
Type: Life		**Stage:** Scientific discovery

Katherine is using wearable technology to shed new light on the complex relationship between physical activity and falls in Parkinson's. Over the course of a week, participants are asked to wear an activity monitor to record their movement, and a small body-worn camera that automatically takes photos at regular intervals. The new knowledge this study produces will empower people to manage their condition more effectively and reduce their risk of falling.

46	Project name	Developing better brain scans for Parkinson's (J-1204)
Lead researcher		Professor Dorothee Auer
Start and end date		Jan 2014-July 2018
Location		University of Nottingham
Cost		£657,105
Type: Cure		**Stage:** Scientific discovery

This project builds on the Parkinson's UK-funded Tracking Parkinson's study, with Dorothee inviting people in this study to have advanced MRI scans. Her anonymised data will be made available to the research community as a virtual brain bank. Ultimately, this research project aims to develop highly accurate and sensitive new brain imaging techniques for Parkinson's, which would revolutionise the diagnosis and management of the condition.

47	Project name	Using genetics to find new drugs for Parkinson's (K-1602)
Lead researcher		Professor Nigel Williams
Start and end date		July 2017-July 2018
Location		Cardiff University
Cost		£45,903
Type: Cure		**Stage:** Scientific discovery

Nigel and his team believe they can overcome the challenges that have prevented researchers combining our knowledge of Parkinson's risk genes with how different medications work. They hope their analysis will find drugs that are used to treat other conditions, which may have potential for Parkinson's. The project could also highlight pathways that are not being targeted by current medications, which may be key to developing new and better treatments.

48	Project name	Using analogies to overcome freezing (K-1604)
Lead researcher		Dr William Young
Start and end date		May 2017-July 2018
Location		Brunel University
Cost		£35,536
Type: Life		**Stage:** Developing treatment

One of the main difficulties with freezing is that it is hard for people to start walking again. To make a first step, balance needs to be adjusted in a specific way. Will aims to develop analogies to help people adjust their balance and take their first step after freezing. Will and his team are putting people with Parkinson's in situations where they are more likely to freeze. This is to see if using the technique is an effective way to overcome freezing episodes and reduce anxiety.

49	Project name	A new direction for bladder problems (K-1601)
Lead researcher		Dr Claire McDonald
Start and end date		March 2017-July 2018
Location		Newcastle University
Cost		£28,716
Type: Life		**Stage:** Clinical trials

Urinary problems are one of the top research priorities for improving quality of life for people with Parkinson's. So a treatment for bladder problems could have a big impact on the everyday lives of people affected by the condition. Claire has designed a new bladder-training programme. The project is looking to test benefits for people with Parkinson's in a pilot study (a small trial that helps researchers understand the best way to conduct larger studies).

50	Project name	Can existing drugs help the brain protect itself against Parkinson's? (G-1604)
Lead researcher		Dr Susan Duty
Start and end date		Feb 2017-May 2018
Location		King's College London
Cost		£77,758
Type: Cure		**Stage:** Developing treatments

Growth factors – naturally produced proteins that help to nourish and protect brain cells – are a promising avenue for developing new treatments. The team has already used computer software to look at the properties of thousands of approved drugs, pinpointing 45 with potential for boosting the production of a growth factor called FGF20. They plan to identify six drugs with the most potential to be repurposed to treat Parkinson's.

51	Project name	Changes in mitochondrial DNA in Parkinson's (F-1202)
Lead researcher		Dr Gavin Hudson
Start and end date		Oct 2012-Apr 2018
Location		Newcastle University
Cost		£249,385
Type: Cure		**Stage:** Scientific discovery

Most DNA is found inside the nucleus – the control centre at the heart of each cell. But mitochondria have a small amount of their own DNA. This DNA codes for a handful of proteins, which play an important part in the process that mitochondria use to generate energy. Gavin has made real progress identifying inherited and random mutation in mitochondria DNA. The team is now investigating how these mutations have an effect on individuals with Parkinson's.

52	Project name	Sniffing out biomarkers for Parkinson's (K-1504)
Lead researcher		Professor Perdita Barran
Start and end date		Apr 2016-Apr 2018
Location		University of Manchester
Cost		£49,459
Type: Cure		**Stage:** Scientific discovery

Perdita and her colleagues have been working with a woman from Perth who can 'smell' Parkinson's. Some early tests found that there are different chemicals present on the skin surface of people with and without Parkinson's, which may be what she can smell. The researchers are now conducting a more in-depth study to find out what these chemicals are, and if they could be developed into a new diagnostic test.

53	Project name	Tracking Parkinson's: searching for biomarkers (J-1301)
Lead researcher		Professor Simon Lovestone
Start and end date		Apr 2014-Apr 2018
Location		University of Oxford and University of Glasgow
Cost		£749,888
Type: Cure		**Stage:** Scientific discovery

Building on the Tracking Parkinson's project, this study is looking for changes in blood and fluid that surrounds the brain. The team will compare people with different levels of symptom severity, rates of progression and amounts of thinking and memory problems, as well as people with and without Parkinson's. The hope is that this approach will lead to more reliable and useful biomarkers.

54	Project name	A drug trial to improve balance and prevent falls (F-1003)
Lead researcher		Dr Emily Henderson
Start and end date		Apr 2011-Apr 2018
Location		University or Bristol
Cost		£249,998
Type: Life		**Stage:** Clinical trials

Emily will study people with Parkinson's who are prone to balance problems and falls. Half the group will take capsules containing rivastigmine – a drug already used in Parkinson's to treat memory and thinking problems – and the other half will take a placebo. By the project's end, Emily hopes to find out whether this drug has potential. This could lead to larger trials and the development of effective medications to improve balance and prevent falls.

Find out more

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

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Every hour, two people in the UK are told they have Parkinson's – a brain condition that turns lives upside down, leaving a future full of uncertainty.

Parkinson's UK is here to make sure people have whatever they need to take back control – from information to inspiration.

We want everyone to get the best health and social care. So we bring professionals together to drive improvements that enable people to live life to the full.

Ultimately, we want to end Parkinson's. That's why we inspire and support the international research community to develop life-changing treatments, faster. And we won't stop until we find a cure.

Together we can bring forward the day when no one fears Parkinson's.

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