

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

PROGRESS

The research magazine of Parkinson's UK
Issue 20 Spring 2017

Could
prediction
light the
way to new
treatments?



CONTENTS

Welcome	3
International news roundup	4
From prediction to prevention	6
Rediscovering our Research Support Network	10
Taking part in research – setting the story straight	12
The placebo effect – fact or fiction?	14
What’s in the pipeline for Parkinson’s?	16
Unite for Parkinson’s	21
Over to you	22
How can you influence research?	23
Improving everyday life with Parkinson’s	24
New research projects and results	26
After the project ends	32
My life in research	34



WELCOME



This issue our welcome comes from research supporter Pauline, who shares her experience of taking part in research.

I was as devastated as anyone else when I was diagnosed 11 years ago, but after spending a few weeks feeling sorry for myself I thought, “I’m not dead yet, I’ll show them!” I’m not quite sure who “them” was, but anyway, I took up painting again, and resumed hill walking and cycling. It was a few years later that I took part in my first research project at Queen’s University, Belfast.

I strongly believe that self-management is very important for anyone with a long-term condition, and I saw taking part in research as a very positive step in that direction.

There is research going on in many places on all areas of Parkinson’s, both medical and non-medical. And research needs people to take part in the various trials and tests.

I decided to participate in a project run by Professor Will Young, and it was good fun. It was all about walking – I strode up and down a long room, listening to different sounds to see if they helped. The one that worked best for me was the sound of boots crunching on gravel. Some of my friends took part in the study too, to compare those with and without Parkinson’s. And in the process they learned a little about how Parkinson’s affects me, so now they know when to offer a helping hand.

In the course of taking part in this particular research, I had to do things which a lack of confidence had made me almost give up on. I drove all the way in to Belfast, which helped me to feel confident driving again, and I went into the city centre for some retail therapy.

I’m still taking part in research studies because of all the benefits of participating. It gives me a sense of taking back control, a feeling that I still have choices in life, and there is hope for the future. I get to meet new people, making me go just a little bit further socially than I might have previously, and have an extra push to get me out of my comfort zone.

It also empowers me. I know that there is something I can do to change lives – now and in the future. And since taking part in that first research project I have become even more involved in research.

I have found that, as well as participants, the researchers also need people who are experts on having Parkinson’s – in other words, you and me – to help make research more relevant and realistic. We know what it’s like to live with it – the researchers only know what we tell them. They need us to keep them on the right track.

Find out about taking part in research with our network.
Sign up at parkinsons.org.uk/rsn



INTERNATIONAL NEWS ROUNDUP

We keep an eye on all the latest developments in Parkinson's research. Here are some of the highlights from the last few months.

New route to repurposed drugs for Parkinson's

Parkinson's UK-funded researchers in Oxford have developed a unique way to identify existing drugs that could be repurposed to treat Parkinson's.

They looked for specific changes in gene activity, which are like a Parkinson's fingerprint, to understand why the cells die in Parkinson's.

The team then looked for existing drugs that could correct these changes, which might hold promise for Parkinson's.

Professor Richard Wade-Martins, co-lead author on the study and Head of the Oxford Parkinson's Disease Centre, says:

"Because we're able to tap into huge global databases of information about drugs, this is a short cut to laboriously testing each drug individually in the lab.

"It's particularly exciting that this new approach immediately identified clioquinol – a drug whose properties are already being investigated for neurodegenerative conditions like Parkinson's and Alzheimer's.

"This gives us huge confidence that our approach works and we're now excited to start unearthing more promising potential treatments for Parkinson's."

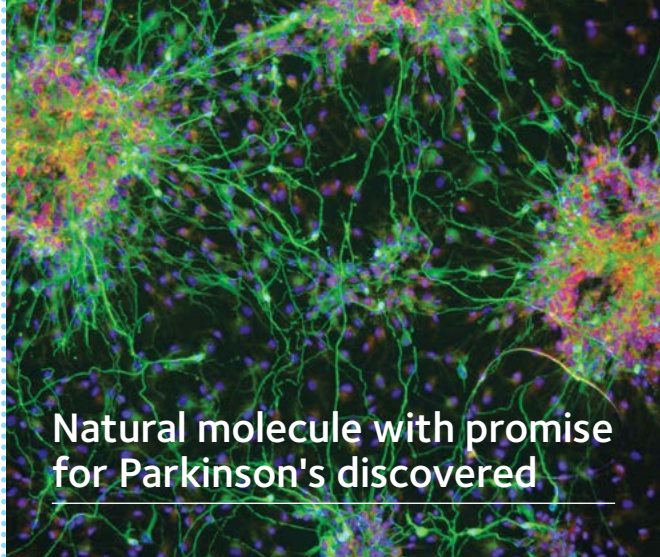
Positive results from trial of inhalable levodopa

Pharmaceutical company Acorda Therapeutics have announced positive results from a phase 3 trial of a new inhalable form of levodopa, called CVT-301. The drug could help people with Parkinson's who experience sudden fluctuations in their symptoms.

Current medication for Parkinson's can take a long time to take effect as it needs to get through the digestive system before reaching the brain. This inhalable form of levodopa delivers the drug straight to the lungs, bypassing the digestive system, so it gets to the brain and can help with these fluctuations – called 'off' periods – more quickly. In this study, 339 people with Parkinson's who experience 'off' periods received either CVT-301 or a placebo over 12 weeks. Those taking CVT-301 had a greater improvement in movement symptoms during 'off' periods than those taking the placebo.

Our Research Communications Officer, Sophie Mclachlan, comments:

"These 'off' periods can have a major impact on quality of life. This trial suggests that inhalable levodopa could be used as an effective way to help people manage off periods and provide them with a greater level of control over their symptoms."



Natural molecule with promise for Parkinson's discovered

Researchers at the University of Cambridge have highlighted the potential of a natural molecule, which was originally discovered in dogfish sharks, to tackle Parkinson's.

They studied the ability of a naturally occurring steroid, called squalamine, to prevent the build-up of toxic, sticky clumps of alpha-synuclein – called Lewy bodies.

The researchers hope that squalamine will lead to the development of more effective drugs that can target toxic alpha-synuclein to stop Parkinson's in its tracks.

Clinical trials are already being considered, but we don't know yet if the molecule can get into the brain to have positive effects on the cells lost in Parkinson's.

Claire Bale, Head of Research Communications and Engagement at Parkinson's UK, comments:

“Preventing the formation of Lewy bodies is one of the most hopeful routes to new treatments that can slow, stop or reverse the condition, and makes the discovery that squalamine may be able to do this especially promising.

“However, while this research is an important step in the right direction, there is much to learn about how squalamine works in the human body before we will know if it has any benefits for people living with Parkinson's.”

News in brief

Deep-brain ultrasound therapy targets tremor

A research team at Imperial College is testing the use of high-intensity, focused ultrasound waves for the first time in the UK to treat tremor. The current study is testing the therapy in people with a condition called essential tremor, but the team hopes to be able to start trials of ultrasound therapy in people with Parkinson's soon.

Gene therapy for Parkinson's

Interim results from an early-stage clinical trial of a new gene therapy treatment for Parkinson's suggest it could help people with the condition respond better to medication. It's still early days, but this treatment offers significant promise for helping current Parkinson's medications work better for longer. We're pleased to see that larger studies are already being planned for 2017 and will keep a close eye on further developments.

Scanning the nose to detect Parkinson's

New research suggests it may be possible to monitor the cells inside the nose, using brain scans, to pick up early changes of Parkinson's. Although the research is yet to be tested on people with Parkinson's, a test like this could be a significant step towards a simple and accurate way of detecting the condition.

Diabetes drug shows promise

A new type of diabetes drug, called MSDC-0160, has been found to reduce inflammation, improve motor function and maintain dopamine production in worm and mouse models of Parkinson's. While other diabetes drugs have shown promise in Parkinson's, they can have serious side effects. Encouragingly, this new drug appears to have a better safety profile.

Keep up with the latest news at
parkinsons.org.uk/researchnews

FROM PREVENTION TO PREDICTION

Parkinson's affects around one in 500 people in the UK. Many people are diagnosed later on in life, but at the moment there is no way to determine who will be affected and when. In this feature, we investigate whether we could prevent Parkinson's if we could predict it.

Currently, we cannot predict whether someone will develop Parkinson's. Certain factors, such as inheriting a genetic change, may increase someone's risk of Parkinson's, but it doesn't mean they definitely will develop the condition. But many scientists believe that predicting who will develop Parkinson's is the key to unlocking new and better treatments that slow down its progression.

The progression of Parkinson's

Every second of every day our brains are sending billions of messages. Dopamine is one of the chemical messengers the brain uses to communicate movement. Without it, the brain is unable to send a message to the muscles that allow us to do things we take for granted – like walking, talking and writing.

The brain cells that produce this chemical are affected in Parkinson's and, as the condition progresses, these brain cells are lost one-by-one. With fewer cells producing dopamine, gradually the levels of dopamine in the brain are reduced. Eventually there is not enough dopamine for the brain to communicate effectively, and symptoms start to appear.

Scientists believe that people start to experience symptoms when around half of these cells have already been lost. By this time the gradual loss of cells may have been happening for years. Prediction would involve identifying those people who have lost some of these precious cells but have not yet developed noticeable symptoms.



Predicting the unpredictable

Scientists have come up with a number of ways to try to detect Parkinson's in the early stages before symptoms start to appear.

They are looking for the early warning signs, including loss of sense of smell, sleep problems, constipation, anxiety and depression, which may occur many years before the movement problems appear. But these are all fairly common problems – many older people probably experience one or two of them at some stage. So finding people who experience several of these issues together may be the key to identifying Parkinson's in the very early stages.



Predicting Parkinson's is exactly what Dr Alastair Noyce and his colleagues hope to do through their ongoing project, Predict PD. The researchers are asking people without Parkinson's to complete an online health questionnaire and a keyboard tap test, which measures accuracy and speed of movement, to identify people who may be at risk of developing the condition. They also ask participants to complete a scratch and sniff style smell test. The project ultimately aims to develop simple tests that can identify people who are at higher risk of Parkinson's before the movement symptoms appear.

Advances in diagnosing Parkinson's

1 Researchers in Nottingham are using the latest brain imaging techniques to look inside the brain and detect Parkinson's more accurately than has ever been possible before.

The study, funded by Parkinson's UK, aims to use these brain scans to see changes that happen as brain cells are lost and possibly track progression of the condition.

2 A team of scientists in Edinburgh have developed a new test that can detect abnormal protein in the fluid that surrounds the brain and spinal cord. It is not clear why brain cells are lost in Parkinson's, but the alpha-synuclein protein is thought to play a central role.

This protein could also be responsible for the spread of Parkinson's from one brain cell to another. It is possible that changes in the alpha-synuclein protein happen before the development of Parkinson's symptoms.

And, in this research study, the team were able to detect the abnormal protein in samples from people at high risk of Parkinson's who have not yet been diagnosed.

3 In April last year we shared research from Australia about changes in the blood that could be detected in people with Parkinson's.

The researchers were interested in the cell batteries, known as mitochondria.

They found they could detect changes in the mitochondria in the blood cells of people with Parkinson's compared to those who did not have the condition.

Developing a diagnostic technique

Of course, tools used to predict who will develop Parkinson's could be used for far more. If researchers find a test that can detect the earliest stages of Parkinson's, it could also improve diagnosis. There is no definitive diagnostic tool for Parkinson's available at the moment. Instead, the condition is diagnosed by specialists after examining the symptoms. Some research suggests that one in 10 people are misdiagnosed, and many people experience delays before receiving a diagnosis, which can be hugely distressing. It is likely that a test that can predict Parkinson's could help to diagnose the condition as well – reducing misdiagnosis and delays.

Research into predicting Parkinson's and diagnosing it share many similarities – both are looking for accurate ways to detect the subtle changes that are happening inside the brain. And last year we saw some significant advances in the development of a diagnostic test.

There is no doubt that improving diagnosis would be hugely beneficial. But, for a condition where we have no treatment that can slow or stop Parkinson's, predicting who will develop it may seem pointless. The treatments we currently have for Parkinson's tackle its symptoms and are not appropriate for many in the early stages of the condition. So why are researchers trying to predict Parkinson's?

A race against time

Researchers are on the hunt for new and better treatments that can slow or stop the loss of these cells and encourage damaged cells to grow back.

But they are aware they will probably be most effective if there are more brain cells to save. To find and develop new treatments, it will be important to be able to give them at the earliest possible opportunity. This does not mean that this type of treatment will only benefit people in the early stages of Parkinson's, but it is important to choose wisely when it comes to testing treatments in clinical trials.

Clinical trials test the safety and effectiveness of new treatments. The more effective a treatment is,



the easier it will pass through these studies and the more chance it will have of being made available to everyone as quickly as possible.

These studies can take decades and cost billions of pounds, so it is important to get them right first time. And if a treatment could be most effective in people who have not yet developed the symptoms of Parkinson's, we need to be able to identify them. Being able to predict Parkinson's would put us in the best possible position to slow, stop or even reverse Parkinson's for everyone with the condition.

Towards treatments that change lives

Predicting Parkinson's will put us one step closer to stopping it in its tracks, and predictive tools are key to changing the way we approach diagnosis and treatment. In other conditions where prediction is possible, national screening programs help to identify people who are affected but don't yet have symptoms. In cancer care, this screening is vital for doctors to give people treatments early enough to cure them. Combining prediction with research into therapies that can protect and repair the Parkinson's brain gives real hope for changing the way we treat Parkinson's. One day, through early diagnosis and treatment, we could prevent people ever developing Parkinson's as we know it today.

You can read about therapies to slow Parkinson's that are currently in the research pipeline on page 16.

REDISCOVERING OUR RESEARCH SUPPORT NETWORK

The Research Support Network connects people to the latest news, events and opportunities in Parkinson's research. It's important that the network offers people the research opportunities that they're looking for, and we are always looking for ways to improve.

Your responses to surveys about the Research Support Network allow us to adapt research opportunities to meet your needs and make improvements.

The responses to our 2014 Research Support Network survey highlighted your desire to get involved in local research, which led us to set up Research Interest Groups that provide people with more local opportunities. There are now six Research Interest Groups from Cardiff to Edinburgh, with more groups coming soon.

Over the last two years we've grown more rapidly than ever before – we now have more than 2,500 members.

Last November we sent out a new survey to find out who our current members are, how they feel about the network and whether the changes we've made work for them.

So what did we find out?



WHO ARE OUR MEMBERS?

- 79%** have Parkinson's
- 17%** have a general interest in Parkinson's
- 25%** are a carer, partner or family member

(Our members were free to highlight all the categories that applied to them)

"It makes me feel as if I am part of a Parkinson's community and that what I am going through could ultimately help others and me too!"

Sally Bonfield

WHY DO PEOPLE JOIN?

57%

to connect with **research news and information**

40%

to find out how to **take part** in research

19%

to **receive information** about research events

13%

to **have their say** and help shape research

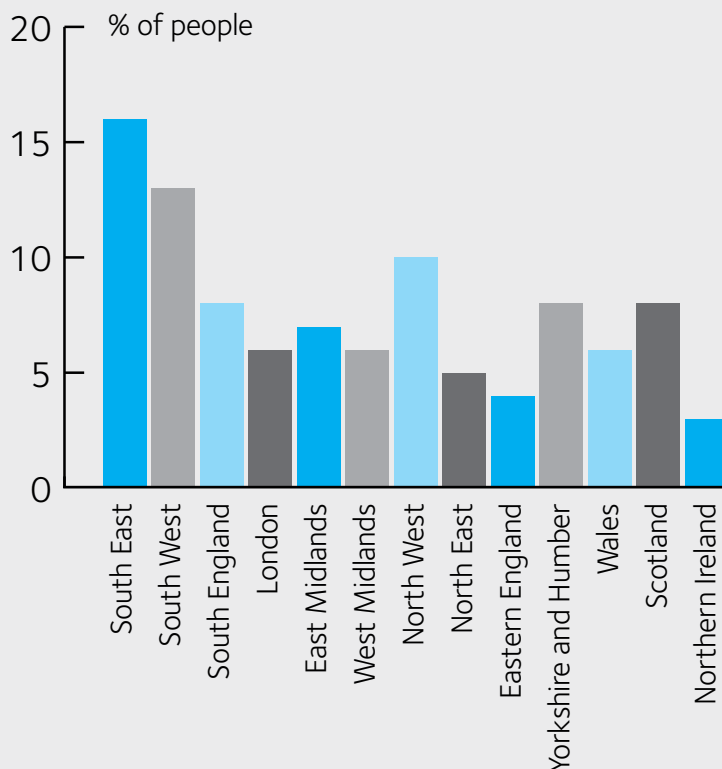
"The network is a focal point in the provision of news, information and research participation. Without this network it would be much more difficult to keep up with all that is currently going on."

Survey respondent

"It gives me reassurance that people are trying to help and there will be a positive future for people with Parkinson's."

Survey respondent

WHERE DO THEY LIVE?



WHAT HAVE OUR MEMBERS DONE SINCE JOINING?

Since joining the Research Support Network:

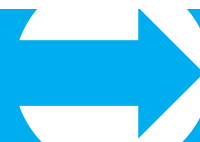
- **48%** have taken part in a research study
- **41%** have attended a research event
- **14%** have had their say and got involved to help shape research

WHERE DO WE GO NEXT?

Last year's survey highlighted that we need to make an effort to share the results of our research projects and opportunities with you – and we've listened to this. In this issue of *Progress* we share some information on the progress of two of our successful grants (page 32).

We look forward to providing you with more updates on the outcomes of projects we've supported throughout the year.

Become a part of our network.
Sign up at parkinsons.org.uk/rsn





TAKING PART IN RESEARCH: SETTING THE STORY STRAIGHT

Without people taking part in Parkinson's research, advances in treatments and care just wouldn't be possible. But what if you don't have Parkinson's? How can you help?

When we talk about taking part in research, many believe researchers are only looking for people with specific conditions.

But did you know that in the early stages of clinical trials, healthy volunteers take part to evaluate the overall safety and potential side effects of a new treatment? This happens before it's tested in people with a condition.

Healthy participants are important for other types of clinical research – they allow us to make comparisons between those with and without a condition.

So, while it is true that most Parkinson's research studies will only succeed if people with the

condition take part, people without Parkinson's are just as vital. This is because Parkinson's research needs controls.

What is a control?

Controls tell you what the normal situation should be. All good science experiments, including clinical trials, need them.

Controls can be anything from a treatment to a group of people. They help researchers to:

- understand whether a new treatment is actually working. To do this researchers will check if the active treatment is more effective than a control treatment, known as a placebo or dummy

- compare signs and symptoms between people with a condition and those in the general population. In these studies, groups of control participants improve our understanding of Parkinson's
- develop new techniques that detect conditions such as Parkinson's. Control participants help to define what changes happen, such as differences in blood tests or on brain scans

When it comes to control participants, researchers need to find people who are most similar to those with the condition. For instance, they may look for people of a certain age or gender. As Parkinson's is a condition that mainly affects people over 50, researchers often need control participants who are of a similar age.

What's it like taking part in a trial as a control participant?

Research studies are all very different. Regardless of if you have Parkinson's or not, what the research involves will depend on each individual study. In research trials, healthy volunteers and those with the condition usually have the same tests and procedures. This can range from providing blood samples to filling in questionnaires or making hospital visits. Last year our Director of Research, Dr Arthur Roach, took part in the Parkinson's UK-funded Discovery study to find out what it is like to take part in research as a control participant.

What is the Discovery study about?

The Discovery study is investigating ways to detect and diagnose Parkinson's earlier. In the very early stages of the condition before diagnosis, some people develop rapid eye



movement (REM) sleep behaviour disorder. This can cause people to act out their dreams. But not everyone with this disorder will go on to be diagnosed with Parkinson's.

The researchers hope that by studying people with and without REM sleep behaviour disorder they will be able to detect changes that are specific to those people who go on to develop Parkinson's. These early indicators of the condition have the potential to be used in diagnosis.

As REM sleep behaviour disorder mainly affects men, the researchers are looking for 300 healthy male volunteers to take part – and Arthur was happy to help them out. He says:

“This study is a great opportunity for people to get involved with a research study to help us understand Parkinson's better. I found taking part really interesting and enjoyable as it involves testing things like sense of smell and doing mental challenges, and it's exciting to feel like you're part of a study which could bring us closer to a cure.

“It's essential that people without the condition take part so that the research team can look for subtle differences that may be the key to diagnosing Parkinson's earlier.”

I'm a healthy male – can I take part?

The researchers are still looking for male volunteers aged between 50 and 75 who are based in the Oxfordshire area to take part. Volunteers will also need to have no family history of Parkinson's or sleep or memory issues.

If you're interested, please contact the team at John Radcliffe Hospital in Oxford on **01865 223 166** or by email at **parkinsons.discovery@nhs.net**

If you don't fit these criteria, you may still be able to take part in another study. You can find a list of current research studies looking for people to get involved at **parkinsons.org.uk/takepartinresearch**

THE PLACEBO EFFECT: FACT OR FICTION

Placebos are a vital part of research testing new medications, but why are they needed? Mike Wharrad, a member of the Research Support Network, shares his story about being fooled by the placebo effect.

What is the placebo effect?

The placebo effect is a remarkable phenomenon where an inactive substance, such as sugar or water, can make people feel better just because they expect it will.

We still don't completely understand what causes the effect. But we know it can sometimes cause problems, particularly in research.

The placebo effect can be surprisingly potent and several studies have revealed the powerful effect that placebos can have on people with Parkinson's.



When testing new treatments, people are often split into groups with some receiving the drug and others the placebo – an inactive version of the drug. This helps to make sure that any improvements that are seen during the trial aren't a result of the placebo effect.

In double blind trials neither the participants nor the researchers know who is getting the placebo or the active drug until the end of the study. You may think that you'd be able to tell if you've been taking a placebo but it's not as easy as it sounds, as Mike explains:

“ At a recent meeting of around 60 people with Parkinson's who had taken part in a research trial, I, along with several other participants, experienced an amazing feeling of shock. On arrival we'd all been given an envelope containing details of whether we'd been taking a placebo or the drug, as well as our Unified Parkinson's Disease Rating Scale (UPDRS) motor score – a standard measure used by neurologists to assess movement symptoms – at both the beginning and the end of the trial.

“As people began opening their envelopes it soon became clear that there were some unexpected results. Some, like me, were stunned into silence, while others were more vocal. In my case I was astounded to find out that I had been taking a placebo. Of course I understood that some of us would be on the placebo but never did the thought cross my mind that I would experience the placebo effect.



"I knew that my condition had improved. I'd noticed improvements in my mobility, balance, gait and memory – and friends and family agreed.

"Even an aunt who was unaware of my Parkinson's mentioned to my wife that she had noticed an improvement in my movement while I was on the trial. What's more, the neurologist's results shown in my envelope also confirmed my own belief that my movement had improved.

"While my initial shock has now turned into acceptance, the experience has made me think more about the difficulties involved in testing new Parkinson's drugs. At the moment, there is no definitive test for Parkinson's so we don't have an accurate way of knowing who actually has the condition.

"We also don't have any markers to measure how someone's Parkinson's changes over time. To do this we need to look at symptoms – but it's not

ideal as these can change even by the hour. So it's hard for researchers to know if someone's condition has improved with the drug or not. And the placebo effect complicates this even more.

"This is why finding biomarkers – small changes in the body linked to Parkinson's – isn't only important for Parkinson's diagnosis but also for us to perform better clinical research. Without them we run the risk of new treatments failing to show promise in clinical trials."



What does the science say?

The placebo effect isn't just part of someone's imagination. Throughout history doctors have used placebos to help make people feel better and they can still be used for this purpose today. But their effects may run deeper than this. Research now suggests that placebos can actually cause chemical changes in the brain.

It's thought that placebos can increase the levels of dopamine in the brain – the chemical messenger that's lost in people with Parkinson's.

So placebos could work in a similar way to conventional Parkinson's drugs, topping up dopamine levels in the brain. This can make people with the condition particularly sensitive to the placebo effect and several studies have shown that placebos can even temporarily improve movement symptoms.

Researching the placebo effect

One of the problems with finding out more about how placebos work is that many clinical trials use a placebo therapy as the control or base level – so we often don't have data from people who haven't received any treatment to know the strength of the placebo effect.

But as researchers become more interested in this exciting phenomenon, research is being designed to help uncover new insights into this effect.

Understanding more about how the placebo effect works could help us harness its power when treating Parkinson's, and make trials of new drugs better and more likely to succeed.

WHAT'S IN THE PIPELINE FOR PARKINSON'S?

In the past 20 years, phenomenal progress has been made in unravelling the complex chain of events that leads to the damage and loss of dopamine-producing brain cells in Parkinson's. But how is this understanding being turned into new treatments?

Although our understanding is not yet complete, we have found some game-changing pieces of the puzzle, including changes in key genes and the fundamental processes that cause the condition. Understanding how our brain cells work normally and what changes happen in Parkinson's provides huge opportunities for developing new treatments. Now, thanks to this progress, new treatments are being created and tested that have the potential to slow, stop or even reverse Parkinson's. In this article, we take you through the different phases of development and tell you about some of the promising new treatments that are coming through the pipeline.

In the lab: creating new treatments

New treatments are created in the lab. Painstaking specialist work is essential for designing, developing and then thoroughly testing treatments to give them the greatest chance of being both safe and effective. Only when this extensive lab testing has been successfully completed can new treatments go forward to be tested in people in clinical trials. There are then three phases of clinical trials that new treatments have to go through before they can be formally approved and made available more widely.



PHASE 1



New treatments are given to a small number of people to test for safety, side effects and to find the best dose. These studies involve a small group of participants who may be healthy volunteers or people with the condition.

Phase 1 studies can give us some clues about whether the treatment may be effective. But because they involve a very small number of people and don't include a comparison group, any positive effects need to be taken with a large pinch of salt.

PHASE 2

Treatments are tested in people who have the condition to see whether they have a beneficial effect.

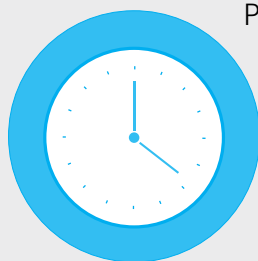


Most phase 2 studies will include a comparison group who receive a placebo (or dummy treatment). This means the researchers can see whether people who receive the treatment do better than those who just think they receive the treatment (the placebo effect). You can read more about the placebo effect on page 14.

This is a major test of any new treatment's credentials. If a treatment shows effectiveness in phase 2 it's very promising, but it still needs to pass the final hurdle of phase 3 trials.

PHASE 3

In this final stage of clinical trials, treatments are tested to prove they are safe and effective in a large number of people over a more extended period of time.



Phase 3 clinical trials often take place across many countries (or even continents!), involve hundreds of participants and may run for several years. This is important for making sure that the treatment is safe and effective in the long-term.

Potential treatments that are currently in the pipeline:

PHASE 1

Vaccines for Parkinson's work by prompting the body to recognise the alpha-synuclein protein as a foreign invader, triggering the immune system to clear some of the protein. Two different vaccines are currently being tested in early stage trials – one developed by US company Prothena, and the other by Austrian company Affiris.

Gene therapy works by using genes as a treatment. A trial of a gene therapy called VY-AADC01, which aims to help current Parkinson's drugs work better, is currently underway in 10 people with advanced symptoms in the US. The company released promising interim results in 2016 and is already planning the next stage of studies.

PHASE 2

Cell transplantation allows cells, like those lost in Parkinson's, to be replaced. TRANSEURO is a European trial testing the safety and effectiveness of transplanting foetal cells to repair the Parkinson's brain. If successful, it could provide a blueprint for emerging stem cell therapies. The trial, which involves participants across several countries including the UK, is well underway and should finish in 2019.

Exenatide, a drug that is currently used to treat type 2 diabetes, has shown potential for slowing the course of Parkinson's in the lab. Following promising results in 2013, a phase 2 trial of this drug has now been completed in 140 people with Parkinson's. Analysis is currently underway and results are expected in 2017.

PHASE 3

Apomorphine is already used by many people with Parkinson's to help control symptoms, especially in the later stages of the condition. The drug is taken by injection or pump. Phase 3 trials are now underway in the US and UK to test a new way of delivering apomorphine that involves placing a special strip under the tongue. Results are expected in 2017.

Isradipine is used to treat high blood pressure and has shown promise for Parkinson's. A large phase 3 trial is now being planned to assess whether isradipine can slow the progression of Parkinson's. The trial will take place over three years in the US and Canada.

LOOKING FORWARD

Nilotinib is an anti-cancer drug that hit the headlines in 2016 when results from a phase 1 trial in the US suggested improvements in 12 people with advanced stage Parkinson's. A phase 2 trial in 75 people is being planned and is expected to start in 2017.

Mindfulness therapy is a psychological therapy that may reduce stress and anxiety. A small pilot study is now underway in the UK to find out whether mindfulness is helpful for people with Parkinson's and if it can be successfully delivered via a video call over the internet.

Simvastatin is a treatment usually used to lower cholesterol. Previous studies have suggested that people who take statins are at reduced risk of Parkinson's. A phase 2 trial in 198 people with early-stage Parkinson's is now underway in the UK to see if simvastatin can slow the development of the condition. It is due to complete in 2019.

Deferiprone is an iron-chelating drug that is taken by people with rare blood disorders. A phase 1 trial showed potential for reducing iron levels in the brains of people with Parkinson's. A phase 2 trial involving 140 participants is taking place in Canada, France and the UK, with recruitment expected to start in 2017.

Inosine may have anti-oxidant and anti-inflammatory effects in the brain. Phase 2 trials showed that the drug has a good safety profile and had potential for slowing the development of Parkinson's. A large phase 3 trial began in the US in 2016 and is scheduled to end in 2020.

Rivastigmine is a drug that is currently used to improve thinking and memory in people with dementia. In 2016, a phase 2 clinical trial of rivastigmine in people with Parkinson's showed that this drug may also have the potential to improve balance and prevent falls. A phase 3 trial is now being planned.

It's impossible to predict which of these potential therapies will work and which will not. At each step along the journey, research becomes more expensive. And for every potential therapy that enters the process, perhaps one in a thousand will end up being approved for use. While we can't know exactly what's next, we can be optimistic about the level and type of ongoing research into Parkinson's – all of which aims to improve, and perhaps more importantly reverse, the course of Parkinson's for all of those living with the condition.

What happens next?

Once phase 3 trials are complete there is still one more challenge. All treatments need to be officially approved before they can be made available. Approving new treatments is the job of regulatory authorities.

They are responsible for checking that all the necessary testing has been done, scrutinising the results and judging whether treatments are safe and effective for use.

In the United States the regulatory authority is called the Food and Drug Administration (FDA), and in Europe we have the European Medicines Agency (EMA). Once a new treatment is approved for use by the EMA it is up to local commissioning groups across the UK to decide whether it can be provided on the NHS.

Successes in 2016

In 2016 we saw three new drugs get approved for use in Parkinson's:

1. Opicapone

In October 2016, international pharmaceutical company Bial launched opicapone (trade name ONgentys®). The EMA approved ONgentys as an add-on to regular Parkinson's medications like levodopa after clinical trials showed that the drug can help to reduce 'off' periods – when the effects of medications wear off and leave people struggling to move.

2. Safinamide

In May 2016, international pharma company Zambon and its partner Newron Pharmaceuticals launched safinamide (trade name Xadago®). Xadago is also approved by the EMA to be used in combination with other Parkinson's medications like levodopa. Clinical trials showed it can increase 'on' time – periods when medication is working well – for people who've had Parkinson's for a number of years.

3. Pimavanserin

In April 2016, Pimavanserin (trade name Nuplazid®) was approved for use in the United States by the FDA to treat hallucinations and delusions associated with Parkinson's. Acadia Pharmaceuticals is currently working to gain EMA approval so that Nuplazid can be made available to people with Parkinson's in Europe.

Keep up to date

The best way to keep up to date with all the latest news on drugs in development is to join the Research Support Network. Visit parkinsons.org.uk/rsn for more information.

#UNITE FOR

PARKINSONS

**WORLD
PARKINSON'S
DAY**

**TUESDAY
11 APRIL
2017**

This World Parkinson's Day, join the global Parkinson's community and #UniteForParkinsons.

2017 is 200 years since Parkinson's was recognised as a health condition – and 200 years of Parkinson's is too long. That's why Parkinson's organisations and supporters around the world are coming together this World Parkinson's Day to raise awareness about Parkinson's on a bigger scale than ever before.

Visit worldparkinsonsday.com to download your guide to getting involved.

Brought to you by



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

Supported by

Parkinson'sLife
A voice for the international Parkinson's community

Over to you...

We love hearing your thoughts and comments about Parkinson's research and *Progress*. Here are some of the topics you've shared with us from the last few months.



PRAISE FOR PROGRESS

An excellent magazine. This explains complex ideas in a way that is easy to understand. Keep up the good work.

From our feedback survey

A RALLYING CALL TO GET INVOLVED

My wife has had Parkinson's for more than four years now and stuns me every day with her strength and fortitude.

I read all the publications she gets from Parkinson's UK, especially those on research. I was especially impressed with the article by Christine Proctor in the latest issue of *Progress*.

Can I suggest you consider using a phrase from her article as a rallying call to get people involved in research?

She writes: "We are the key to the cause and the path to the cure." That says it all in a nutshell.

Tom Smith

LIFE WITH PARKINSON'S

It occasionally feels like Parkinson's UK is committed to extending its research but that it has little impact on people with Parkinson's now. There needs to be a way of making us feel like we have something to gain from this strategy. I'd still like more outcomes that would impact on my daily life – there isn't time to wait if you have Parkinson's now.

Anonymous

Developing new treatments from scratch is a long and difficult process and, while we are committed to speeding this process up, it can take some time for people to see the benefits. That's why we also support and fund research

to improve quality of life for people with Parkinson's now. This research can enhance our understanding of complex issues such as sleep and anxiety, or uncover alternative ways to treat these issues that can reach people with the condition more quickly. You can find out more about how we support projects to improve quality of life on page 24.



HOW CAN YOU INFLUENCE RESEARCH?

We want to make sure that the research we fund has as much impact as possible on the lives of people affected by the condition. As the experts on living with the condition, we need people affected by Parkinson's to help to set our research agenda.

Your knowledge can help researchers at all stages of their projects – such as in the planning, design and sharing of findings. Researchers partnering with people affected by a condition in this way is known as Patient and Public Involvement (PPI). We believe that these partnerships produce research that is higher quality and more relevant.



Last year, we decided to do more to encourage researchers to involve people affected by Parkinson's in their research. We ran an exciting PPI project to train 52 people to become PPI volunteers and help them to shape vital research projects across the UK. Our findings highlight the impact PPI can have:

1. Impact on the research

The volunteers commented on a range of written information, such as lay summaries, posters and questionnaires. They shared ways to make the research more interesting, relevant and

understandable. The volunteers drew on their experience of day-to-day life with Parkinson's to provide a reality check for researchers to help make the research design more practical. Carers and partners highlighted that their perspective could be different from someone with the condition. This led to one researcher improving their study design by introducing carer interviews.

“They were able to highlight small but massively important things. These are the practicalities that need to be ironed out before you conduct any research.”

Researcher

2. Impact on the people

For some researchers this was the first time they had met anyone affected by Parkinson's and the experience had a profound effect on them both personally and professionally. The volunteers reported great benefits from being involved. They gained confidence and told us they are more hopeful about the future. It also provided a much-valued opportunity to meet other people affected by Parkinson's.

“It gives me a sense of self-esteem. You feel valued and that you can contribute something.”

Volunteer

Find out how you can help influence research through PPI at parkinsons.org.uk/haveyoursayinresearch

IMPROVING EVERYDAY LIFE WITH PARKINSON'S

Research can help to improve lives. So how are we addressing your priorities when it comes to improving everyday life with Parkinson's?

We have one main goal – to find new and better treatments, and one day a cure, for people with Parkinson's. However, despite our best efforts, the drugs we currently have are not good enough. They don't stop, slow down or reverse the condition – they just mask it for a time. We're doing all we can to speed up the delivery of new

and better treatments, but we know people living with Parkinson's now need better ways to help manage the condition.

In 2014 we brought together people with Parkinson's, their family and friends, their carers and relevant healthcare professionals, to decide what areas of research would have the greatest impact on the lives of people with the condition. Since then we've been using these priorities to focus on the issues that matter most to those affected by Parkinson's. As many of you helped us to decide these priority areas, we wanted to highlight how your support has helped shape our research over the last two years.

What are the priorities?

Here are the top 26 research areas for improving everyday life with Parkinson's:

Fatigue Urinary problems Freezing and gait
On/Off fluctuations **Dementia**
When to choose DBS **Monitoring symptoms**
Tremor Helping find the right dose Dexterity Pain
Uncontrolled movements **Sleep**
Hallucinations **Balance and falls**
Personalised treatments Medications
Stress and anxiety Swallowing
Bowel problems Stage-specific treatments Stiffness and rigidity
Mild thinking and memory problems
Helping the carer **Physiotherapy and exercise** Fewer pills



Our progress so far

We're working hard to support projects that fall in the top 26 priority areas:

Between 2015–2016:

- we funded 8 research projects worth more than £6 million
- we supported involvement in 20 research studies
- we helped to recruit participants to 31 research projects.

Here are examples of two priorities we have supported:

1. Balance and falls

We awarded Dr Emily Henderson (University of Bristol) £250,000 over three years to determine whether a drug traditionally used to help with memory problems, called rivastigmine, could also help improve balance and reduce falls in people with Parkinson's.

As initial results showed rivastigmine can reduce falls in people with Parkinson's by 45%, compared to a placebo or 'dummy' treatment, we extended our support of this study by a further two years.

We also supported researchers to involve people affected by Parkinson's in the design of a new gadget to improve balance and prevent falls. Volunteers were able to use the technology and provide their feedback to make the gadget more user-friendly.

2. Stress and anxiety

Through support for participation and involvement, we've helped develop two research projects looking into alternative ways to treat stress and anxiety that don't use drugs. And our support doesn't stop there.

More recently we've funded Dr Jerome Swinny's project that aims to improve our understanding of anxiety in Parkinson's. You can read about this on p26.

Our next priority area?

When looking for ways to support the top 26 priority areas, we found that bladder and bowel problems were not only a top priority for people with Parkinson's but people with other health conditions.

Alongside several other medical research charities, we hosted a free workshop to bring researchers, health care professionals, patients and carers together to discuss these issues and identify new avenues for research in this area.

And we're pleased to say there's already been some progress as we've just funded a new project looking into urinary problems in Parkinson's (see page 26) Our hope is to expand this support into other priority areas and really make a difference to the everyday lives of people affected by Parkinson's.

Want to find out more? Read the full report at parkinsons.org.uk/top10

NEW RESEARCH PROJECTS

We fund the best and brightest researchers to unlock scientific discoveries that will lead to new and better treatments, and here's a selection of our latest research projects. You can find details of all our projects at parkinsons.org.uk/currentresearch

A new direction for bladder problems

Who? Dr Claire McDonald
Where? Newcastle University
What? £28,712 over 12 months

Around seven out of 10 people with Parkinson's experience urinary problems, which can impact on a person's quality of life. Drugs are available to help manage some bladder problems but they can have side effects that cause other complications.

"Our project aims to develop and test a bladder training program for people with Parkinson's. If successful, the training could be adopted to help to improve quality of life."

Dr Claire McDonald

Bladder training can be an effective way to manage bladder problems – but the benefits for people with Parkinson's still need to be investigated.



Finding new ways to treat anxiety

Who? Dr Jerome Swinny
Where? University of Portsmouth
What? £224,978 over three years

"We want to understand the changes in the brain that could be linked to anxiety. As the locus coeruleus is important for responding to stress, we will look specifically at changes to the cells in this part of the brain. We will study how these cells work with each other, then look for drugs that can reverse these changes in the brain."

Dr Jerome Swinny

Most research to date has concentrated on treating the motor symptoms of Parkinson's. However, in our 2014 survey of people affected by the condition and health professionals, stress and anxiety was rated the second highest priority area of research for improving quality of life. Around half of people have trouble with anxiety but we still don't understand why it develops or the best way to treat it.

Can existing drugs help the brain protect itself against Parkinson's?

Who? Dr Susan Duty

Where? King's College London

What? £77,758 over 12 months

Neurotrophic factors are proteins that are naturally produced and help to nourish and protect brain cells. FGF20 (fibroblast growth factor 20) is released by cells in the region of the brain affected in Parkinson's.

Unfortunately, these cells don't produce enough FGF20 to preserve dopamine-producing cells that are lost. But if the levels of FGF20 could be boosted, we may be able to protect these precious cells.

“Drugs that boost the production of FGF20 could hold the key to finding a protective treatment that can slow, stop or even reverse the development of Parkinson's. This would transform the lives of people with the condition, giving them better quality of life for longer and reducing their reliance on current drugs, which can cause significant side effects.”

Dr Susan Duty

Susan will use an approach called drug repurposing, which examines whether drugs that are already available for one condition may have benefits for another.

The team have already used computer software to look at the properties of thousands of approved drugs and have pinpointed 45 drugs with potential for boosting the production of FGF20.

They now want to identify the most promising candidates and start to test if they really can help brain cells produce more FGF20.

GDNF-7: a combined therapy for Parkinson's

Who? Dr Oscar Cordero Llana

Where? University of Bristol

What? £224,941 over three years

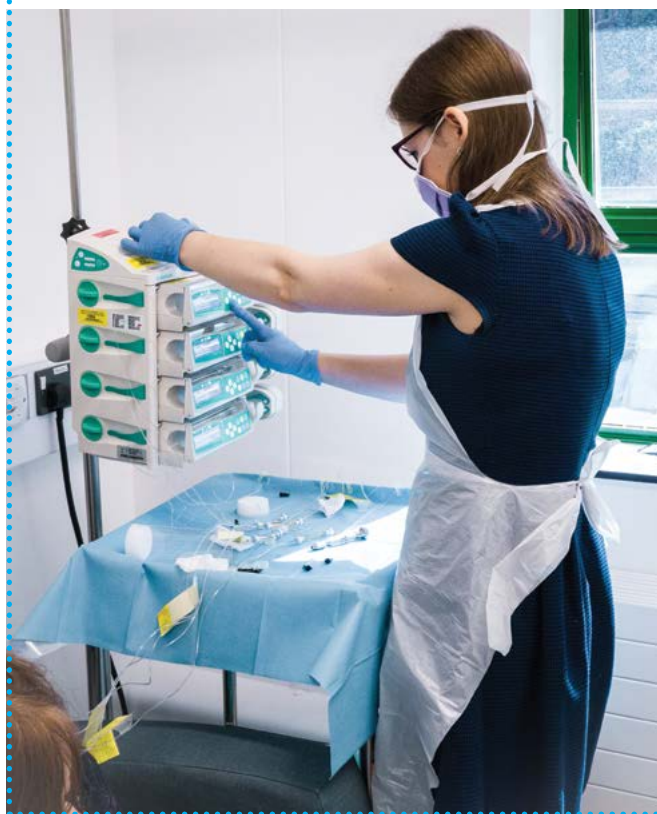
Growth factors are another type of natural protein that help support and protect brain cells. They are a promising avenue for developing new treatments.

GDNF (glial cell-derived neurotrophic factor) is a neurotrophic factor that supports the survival of many types of brain cell, including the cells lost in Parkinson's.

Trials of GDNF are currently underway. But even if the outcome of the trials is successful, GDNF may not be an effective treatment for everyone with Parkinson's.

Previous studies suggest that GDNF is not effective in models where there is an over-production of a protein called alpha-synuclein.

Oscar has been exploring the potential of another type of natural molecules called microRNAs, which help to regulate the protein levels. One microRNA – called miR-7 – helps keep alpha-synuclein levels under control.



RESEARCH RESULTS

We round up three of the latest results from the Parkinson's UK-funded research projects that are underway up and down the country.

What stops people reporting non-motor symptoms?

Dr Catherine Hurt's research aims to develop an online program to empower people to ask for help with problematic non-motor symptoms.

Non-motor symptoms of Parkinson's include a wide variety of issues ranging from difficulties with memory and concentration, through to anxiety, bladder or bowel problems and sexual dysfunction. We know that these symptoms have a significant impact on quality of life but despite this, many non-motor symptoms remain unreported by patients and consequently untreated. To find out why, Catherine and her colleagues conducted in-depth interviews with 20 people with Parkinson's.

When they analysed the results they identified some key reasons why patients don't mention non-motor symptoms:

- 1 Not realising the symptom is related to Parkinson's or that it is treatable.
- 2 Embarrassment and not being able to 'find the right words' were barriers to reporting sensitive symptoms such as sexual dysfunction or bowel problems.
- 3 Concerns about possibly having to adjust medication.

Catherine comments:

"Hearing about the difficulties people face in talking to their healthcare professionals about non-motor symptoms gave us an amazing first-hand insight into what the real issues are.

"This is going to be absolutely crucial in guiding the next phase of my research, in which we're going to try and develop tools to help empower people to raise these issues – and ultimately receive the treatment they so urgently need."

This research was published in the *Journal of Health Psychology* in December 2016. The study was funded by a Parkinson's UK grant of £116,589.

Non-motor symptoms questionnaire

This is a simple questionnaire for people with Parkinson's to complete to help healthcare professionals assess their non-motor symptoms.

The questionnaire is available to download from our website at parkinsons.org.uk/nonmotorquestionnaire





A new brain scanning tool for Parkinson's

Researchers at Nottingham University Hospital have shown that brain scans can be used to spot changes in a pigment in the part of the brain affected by Parkinson's. These scans have the potential to be a new tool for diagnosing and monitoring the condition.

The brain cells affected by Parkinson's contain a pigment called neuromelanin, which gives them their characteristic dark colouring. As the cells get damaged and lost, this pigmentation is reduced and the cells lose their colour.

MRI brain scans are sensitive enough to detect this change. But because there are many different ways of recording MRI brain scans, it has previously made the results too variable to use as a diagnostic test.

In this study the team developed methods to standardise scans and results from different types of machines to make MRI brain scans more

accurate and reliable for looking at neuromelanin. The team used the improved brain scan and the standardisation procedure in 39 people with the condition and 30 healthy volunteers. They found it was highly accurate at identifying those with mild or moderate Parkinson's.

Dr Stefan Schwarz, who led the study, comments:

“We’re excited about this because our results suggest that MRI scans can potentially be used to monitor how damage in the Parkinson’s brain develops over time. Being able to see what’s happening inside the brain would be a huge step forward for research, giving us a vital new tool to use in clinical trials that are testing new treatments that may be able to slow, stop or even reverse this damage.”

This research was published in the journal *Radiology* in November 2016. The study is funded by a Parkinson’s UK grant of £657,104.



Study highlights importance of constipation

A small study carried out by researchers at Glasgow Caledonian University has highlighted the serious impact that constipation can have on quality of life for people with Parkinson's, and the urgent need for practical solutions to this common and distressing problem.

Fourteen people with Parkinson's who experience constipation took part in the study. Half were randomly assigned to receive lifestyle advice alone, and half were assigned to have both lifestyle advice and to learn to use abdominal massage to help them manage their constipation. After six weeks all the participants were interviewed to investigate their experiences.

Study leader, Professor Doreen McClurg, explains what they learnt:

"We were extremely grateful to our participants for their time and also for their honesty in discussing their experiences of constipation and the profound impact it has on their day to day lives. This really brought home to me just how devastating these types of bowel problems can be. It was disappointing to hear how little support most of them had received as part of their regular care.

"Encouragingly, many of our participants found receiving advice on how to manage constipation

to be really helpful and the abdominal massage techniques were also helpful for some people.

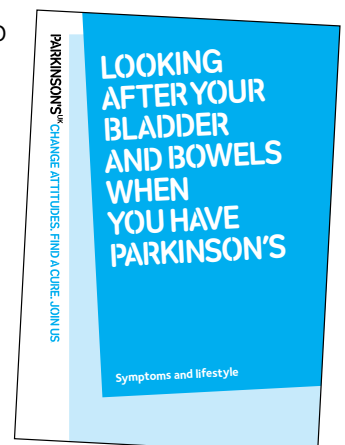
"Like so many aspects of Parkinson's, it seems that constipation is a variable symptom and different people find different approaches helpful. But the key message for me from this study is the need for us to start talking about constipation and making information about how to manage it more available to people who may be suffering in silence."

This research was published in the journal *Parkinson's Disease* in October 2016. The study is now complete and was funded by a Parkinson's UK grant of £33,576.

Looking after your bladder and bowels when you have Parkinson's

Our handy booklet contains information about bladder and bowel problems that may affect people with Parkinson's, the treatments available and who to contact for professional advice. It also gives practical tips on what you can do to make living with bladder and bowel problems easier.

You can view, download and order our publications from parkinsons.org.uk/publications



YOUR BRAIN CAN HELP US BEAT PARKINSON'S

We collect more than
120 brains per year

The Parkinson's UK Brain Bank helps researchers all over the world to better understand the condition. And it is the only one in the world dedicated to Parkinson's research.

The Brain Bank team collect precious tissue from people with and without the condition who have donated their brain to research.

This research could lead to discoveries that help us find a cure and improve life for everyone affected by Parkinson's.

Find out about becoming a donor at parkinsons.org.uk/brainbank, or contact the team at brainbank@imperial.ac.uk or on 020 7594 9732.

Did you know?

If you are already a donor you can share your email address with the Brain Bank so they can keep in touch – email them at brainbank@imperial.ac.uk

AFTER THE PROJECT ENDS

Parkinson's UK-funded researchers are looking into all aspects of Parkinson's – from searching for a cure to finding ways to improve life with the condition now. But what happens after the projects end? What do the researchers get up to next?

Discovering how genes cause Parkinson's

In 2010, Patrick Lewis from the University of Reading started his research into LRRK2 (leucine-rich repeat kinase 2). Not much was known about it then, other than it was one of the most common genes linked to Parkinson's.

We didn't know why having a mutation in the LRRK2 gene increased the risk of the condition.

The goal of the project was to find out how changes or mutations in the LRRK2 gene affect the behaviour of the LRRK2 protein.

Clues about LRRK2

In their project, Patrick and his team compared the normal, healthy form of LRRK2 to faulty forms that cause Parkinson's.

They found some initial clues about how LRRK2 works – such as how LRRK2 is involved in the process cells use to recycle unwanted or damaged proteins, called autophagy.

We know that this process is important – when the recycling system isn't working properly, unwanted proteins can build up, causing brain cells to become stressed and die.

Developing knowledge

Towards the end of his project, Patrick received

government funding to find out how LRRK2 controls autophagy in more detail. In 2016, they published their most recent findings – that autophagy can be controlled by either LRRK2 or another gene, but these two genes control autophagy independently.

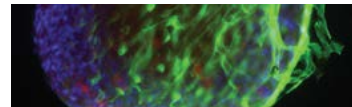
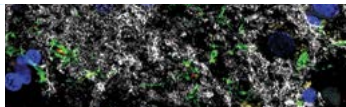
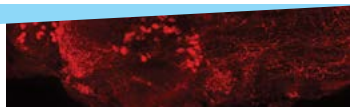
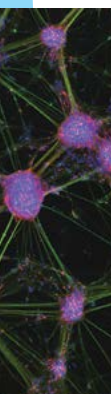
The team have also pinned down other proteins that are needed for the LRRK2-controlled autophagy.

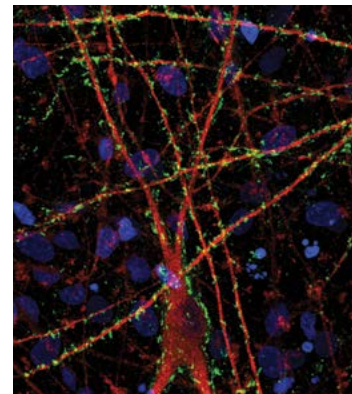
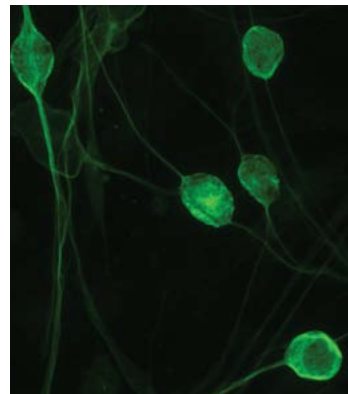
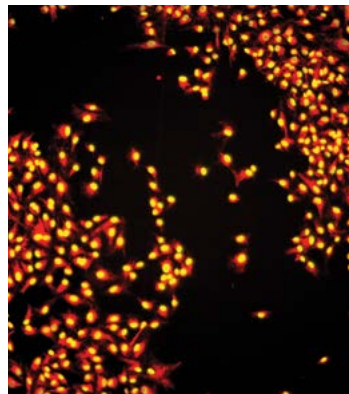
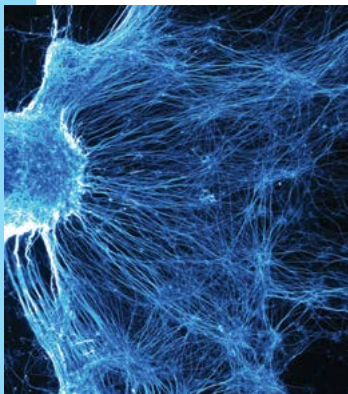
This new knowledge of the proteins and processes involved in autophagy is critical for determining the link between LRRK2 and Parkinson's, and for developing treatments.

It also has the potential to identify new drug targets that might be of relevance.

Patrick has funding to continue investigating how LRRK2 works, and has been collaborating with other scientists from across the world to speed up the progress of their research.

He has shared his research with many people, influencing policy by talking to members of parliament, visiting schools to inspire the next generation of scientists and recently commenting on Parkinson's research for the *Inside Science* program on BBC Radio 4.





Developing new methods for delivering treatment

In 2012, Matthew Wood and his team at Oxford University started their project to deliver a new treatment to brain cells affected by Parkinson's.

But they faced a significant challenge – finding a way to get the treatment to cross from the blood into the brain, to get to the affected cells. They believed the key may be to use tiny packages called exosomes.

Making treatment filled exosomes

A major goal for this study was to find out if exosomes – tiny packages that the body uses to transport materials between cells – can cross the blood-brain barrier.

Matthew believed that if they could, exosomes might be used to deliver treatments to the cells affected by Parkinson's.

Matthew's team started by developing techniques to efficiently collect lots of exosomes from cells. The plan was to use these exosomes to target a protein called alpha-synuclein, which is known to be involved in the condition.

The exosomes were loaded with proteins to steer the exosomes towards the brain and the treatment – DNA that blocks the production of alpha-synuclein. To test these treatment-packed exosomes, the team injected them into mice models of Parkinson's.

Successful delivery

Seven days after injection, the team found there was less alpha-synuclein in the brains of the mice. This included the areas of the brain most significantly affected by the condition. They had discovered that exosomes can successfully cross the blood-brain barrier to deliver treatments for Parkinson's and potentially other conditions that affect the brain.

Since then...

Matthew's group has pioneered the development of exosome delivery technology. In May 2016, they launched Exovs Therapeutics after attracting £10 million of investment. The spin-out company is continuing to improve exosome technology for new therapies for Parkinson's and other neurological conditions. They've also trained other medical researchers on their techniques and are part of a European-wide collaborative network on exosomes. Since publication, their results have helped guide and influence other research, appearing in almost 60 other papers since 2014.

What is the blood-brain barrier?

Our brains are protected by the blood-brain barrier, which stops harmful things – like bacteria that might be in our bodies – from getting into the brain. While this protection is vital for us to remain healthy, this barrier poses a challenge for research. And many drugs and treatments cannot cross from the blood into the brain.



MY LIFE IN RESEARCH

By Professor David Dexter

In this issue our new Deputy Director of Research, Professor David Dexter, tells us about his life in Parkinson's research and why he's joining the charity.

My first experience of Parkinson's was as a reluctant stand-in dance partner for my mother after my father died when I was 15 years old.

I remember being fascinated by the way music appeared to free the movement of people with Parkinson's, allowing them to dance far better than they could walk.

Trying to understand what was happening to bring about this effect was what first sparked my interest in research.

When I started out in the 1980s, amazingly little was known about what happens inside the brain cells that die in Parkinson's.

I was fortunate to be part of a new wave of discovery, working with some of the leading lights in the field.

Professor Peter Jenner and the late Professor David Marsden supervised my PhD, which was funded by Parkinson's UK (or the Parkinson's Disease Society as it was then).

Together we discovered for the very first time that brain cell loss is linked to the build-up of iron inside the brain, resulting in damage to cells. Working with Professor Tony Schapira, we also demonstrated that problems with mitochondria are also central in the condition.

I established my own research group at Imperial College in 1994. Over the years we've made lots of important discoveries but I'm particularly proud of the work we did to show that drugs which bind and detoxify iron can help remove excess iron from the brain and have protective effects in animal models of Parkinson's.

Our work paved the way for a small clinical trial with a drug called deferiprone. This produced promising results and it's now being tested in a larger trial funded by the EU.

During my career there has been a revolution in our understanding of the mechanisms that contribute to the development of Parkinson's, which I'm proud to have been part of.

However, despite this vast increase in our knowledge, there have been no major advances in treatments in the last decade.

As a scientist, you dream of seeing your research make a difference to peoples lives. I've been excited to see Parkinson's UK develop a clear strategy to deliver new and better treatments and it feels like the perfect time to join the charity.

I can bring my experience to help deliver the novel drugs and therapies I've spent my whole career striving for. I can't wait to get started.

MORE PROGRESS?

Progress magazine is our free, twice-yearly magazine focused on the latest research into Parkinson's.

You can find previous issues and subscribe to *Progress* on our website at parkinsons.org.uk/progress or by contacting the Research team directly by email research@parkinsons.org.uk or phone **020 7963 9313**



Progress is produced by the Parkinson's UK Research team in collaboration with Editorial and Creative Services.

Dr Beckie Port (Editor)

Senior Research Communications Officer

Gabs Abrahams

Graphic Designer

Emma Hypher

Copywriter

Contributors to this issue

Isabelle Abbey-Vital

Research Involvement Officer

Claire Bale

Head of Research Communications and Engagement

Prof David Dexter

Deputy Director of Research

Pauline Euinton

Research Supporter

Hanna Gillespie-Gallery

Research Grants and Evaluation Officer

Amelia Hursey

Senior Research Participation Officer

Sophie McLachlan

Research Communications Officer

Dr Arthur Roach

Director of Research

Aran Shaunak

Research Communications Volunteer

Anna-Louise Smith

Research Support Network Manager

Mike Wharrad

Research Support Network member

Helpline

0808 800 0303 (freephone)

18001 0808 800 0303 (text relay for text phone users)

hello@parkinsons.org.uk

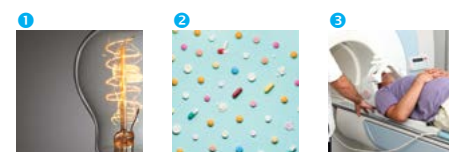
The helpline is open Monday-Friday 9am-7pm,
Saturday 10am-2pm

Your thoughts help make *Progress* magazine better. You can fill in our survey online at parkinsons.org.uk/progressfeedback, email us your comments at research@parkinsons.org.uk or call **020 7963 9313**. Or write your feedback in the space below and post it back to us at Research team, Parkinson's UK, 215 Vauxhall Bridge Road, London SW1 1EJ.

Do you have any comments about *Progress* magazine?

Photos from iStockphoto

- 1 Cover © by choness. Photo ID:474505468
- 2 p16 © by Eugene_Axe. Photo ID: 525975516
- 3 p29 © by arfosn. Photo ID: 152546715



Parkinson's UK is the operating name of the Parkinson's Disease Society of the United Kingdom. A charity registered in England and Wales (258197) and in Scotland (SC037554). © Parkinson's UK 03/17 (CS2303)



NEW FOR
2017

BOXCAM 200

BRISTOL - OXFORD - CAMBRIDGE

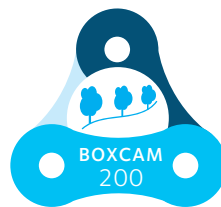
16-17 September 2017

Join us for a unique cycling challenge, tackling 200 miles of rolling roads in one incredible weekend.

This event is taking place in 2017 – marking 200 years since Parkinson's was identified. Because 200 years of Parkinson's is too long, your fundraising will go directly towards our research for new and better treatments in years, not decades.

[parkinsons.org.uk/
boxcam200](http://parkinsons.org.uk/boxcam200)

Parkinson's UK is the operating name of the Parkinson's Disease Society of the United Kingdom. A charity registered in England and Wales (258197) and in Scotland (SC037554). © Parkinson's UK 03/17



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