NEWSLETTER

Issue 8, Summer 2017

Oxford Parkinson's Disease Centre

National Institute for Health Research
Clinical Research Network Thames Valley and South Midlands

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CHANGE ATTITUDES. FIND A CURE. JOIN US.

Oxford Biomedical Research Centre
Enabling translational research through partnership

Discovery Cohort Update

OPDC Team:
Back row L-R Alexander Bernhardt, Lesley Catterall, Jeannette Smith, Marni Moran, Sam Evetts, Tom Barber, Jamil Razzaque, Johannes Klein, Christine Lo
Front Row L-R: Marie Crabbe, Stephanie Gallehawk, Michele Hu, Jane Rumbold, Kim Chuck

We stopped recruiting additional people with Parkinson's to the Discovery cohort in October 2015, having recruited a total of 1090 Parkinson's subjects since 2010. Since this time, 834 (77%) of the original Parkinson's cohort kindly agreed to be followed up to 2020, and have been reviewed mostly in clinic. A small proportion are being followed up by telephone review. This has been made possible by the hard work and dedication of our research team, capably led by Jane Rumbold and Amandine Louvel in the Discovery cohort office. Sadly, 59 (5.4%) of our original Parkinson's subjects have passed away since 2010. We remember their support and dedication to our research, and strive to ensure that their contribution continues to deliver the best possible benefit for patients.

Since 2010, we have continued to recruit individuals with rapid eye-movement sleep behaviour disorder (RBD) diagnosed on overnight sleep study. We now have a world-leading cohort of 195 RBD individuals to help us better understand the earliest changes occurring in Parkinson's. Dr Tom Barber, clinical research fellow, has summarised key findings to date in the publication update on page 3. A total of 319 control participants have now been assessed, so we can compare findings in RBD and Parkinson's individuals to those seen with normal ageing.

Thank you for working in partnership with us to ensure the ongoing success of the Discovery cohort!

Dr Michele Hu, Discovery Cohort Lead

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ABOUT OPDC

Website: www.opdc.ox.ac.uk
Twitter: @OxfordPDcentre
Facebook: www.facebook.com/OxfordPDCentre/

OPDC Cohort Team:
Phone: +44 (0) 1865 223166
Email: parkinsons.discovery@nhs.net

OPDC Research Administrator:
Phone: +44 (0) 1865 282358
Email: opdc.administrator@dpag.ox.ac.uk

New Discovery Cohort Staff Members

Marie Crabbe

We would like to welcome Marie Crabbe, research associate, who joined the Discovery clinical team in September 2016. She will be helping with clinic-based assessments and development of tools to predict memory impairment in the Discovery cohort.

Christine Lo

Dr Christine Lo, our new clinical research fellow started in July 2017. Christine will be focusing on research using wearables to measure motor symptoms and sleep in people with Parkinson's.

Mark Kelly

Dr Mark Kelly is spending 6 months out of his junior doctor training to complete a research project with OPDC. Working with Consultant Psychiatrist Dr David Okai, Mark's work looks at better understanding how Impulse Control Behaviours (ICB) and motor complications develop in the cohort.

Update on Key Cohort Findings from Michele Hu

We are now starting to understand much more about how Parkinson's presents and subsequently progresses through the cohort. I will summarise three key findings below:

1. Impulse control behaviours (ICB) occur when an individual is unable to resist an impulse or temptation, and has difficulty regulating their control of emotions and behaviours. In Parkinson's, the strongest risk factor is being treated with dopamine agonists (e.g. ropinirole, pramipexole). Using a screening questionnaire followed by a telephone interview in 932 Parkinson's subjects from the cohort, Drs Fahd Baig and Mark Kelly found that 9.3% of the early Parkinson's cohort had ICB, which significantly affected daily life in 2.4% of Parkinson's subjects. This problem is important to recognise as it can be easily treated by withdrawal of the dopamine agonist medication. Results are now being prepared for publication.

2. **Vascular risk and Parkinson's**: the most common age to develop Parkinson's within the Discovery cohort is 66 years. At this age, vascular problems are also more common and include high blood pressure, high cholesterol, diabetes, stroke, heart disease. Working with Prof Donald Grosset (Glasgow) we were able to study vascular risk in 2,909 people with recent-onset Parkinson's by combining the OPDC Discovery and the UK Tracking Parkinson's cohorts. We found that having both Parkinson's and vascular risk meant worse Parkinson's motor and memory symptoms. People with Parkinson's with high vascular risk were being undertreated with statin medications. This might slow down Parkinson's progression, and we look forward to the results of the PD STAT trial with interest.

Swallow DM, Lawton MA, Grosset KA, Malek N, Klein J, Baig F, Ruffmann C, Bajaj N, Barker RA, Ben-Shlomo Y, Burn DJ, Foltynie T, Morris HR, Williams N, Wood NW, Hu MTM, Grosset DG. Statins are underused in recent-onset Parkinson's disease with increased vascular risk: findings from the UK Tracking Parkinson's and Oxford Parkinson's Disease Centre (OPDC) Discovery cohorts. JNNP 2016; 87:1183-1190.

3. Different subtypes of Parkinson's really do exist: our original study looked at how 769 Parkinson's subjects varied at diagnosis, and identified 5 main subtypes or clusters depending on psychological well-being, motor features, and memory/cognitive function. Work led by OPDC researchers Dr Michael Lawton and Prof Ben-Shlomo then replicated these clusters in 1600 early Parkinson's individuals from the separate UK Tracking Parkinson's cohort. Of great importance, these baseline patient clusters also predicted how fast or slowly an individual will progress over the next 3-5 years, and how well they responded to Parkinson's medications. We are now preparing follow-up data from over 2500 early Parkinson's subjects from both cohorts for publication soon.

Lawton M, Baig F, Rolinski M, Ruffman C, Nithi K, May MT, Ben-Shlomo Y and Hu MTM. Parkinson's disease subtypes in the Oxford Parkinson Disease Centre (OPDC) Discovery cohort. J Parkinson's Disease, 2015; 5:269-279.

Predicting Future Parkinson's Risk

Dr Tom Barber

Over the past 5 years OPDC has developed one of the world's largest cohorts of patients with REM sleep behaviour disorder (RBD), and we recently published an analysis of our initial clinical findings. RBD subjects have an increased risk of developing Parkinson's in future, but at the moment we do not know which RBD patients will develop Parkinson's, or when they will do so.

This study of 171 RBD subjects found that many of the non-motor features present in Parkinson's, such as poor sense of smell and blood pressure changes, are more common in RBD than control participants. This suggests that these might be very early signs of Parkinson's in some people. By putting together all of the different clinical characteristics, we were able to estimate which RBD subjects might be at higher future risk of developing Parkinson's. Long term follow up will be needed to assess the accuracy of this, but these simple techniques could be used in future to select higher risk patients whom we could offer trials of new treatments aimed at delaying the onset of symptomatic Parkinson's.

Barber TA, Lawton M, Rolinski M, Evetts S, Baig F, Ruffmann C, Gornall A, Klein JC, Lo C, Dennis G, Bandmann O, Quinnell T, Zaiwalla Z, Ben-Shlomo Y, Hu MT. Prodromal Parkinsonism and neurodegenerative risk stratification in REM sleep behaviour disorder. Sleep 2017, DOI: https://doi.org/10.1093/sleep/zsx071

A review article by Mark Moran highlighting Tom's RBD research also appears in the journal Neurology Today.

OPDC's George Tofaris Heads up New Consortium to Investigate Aggregated Proteins in Parkinson's and Alzheimer's

The Innovative Medicines Initiative (IMI) launched IMPRiND in March 2017, an innovative research project that is devoted to investigating whether mechanisms of propagation of aggregated proteins between cells could lead to new drugs for Alzheimer's and Parkinson's.

Recent evidence suggests that the progressive loss of brain cells in these neurodegenerative conditions may be due to the release and uptake of specific aggregated proteins which act as templates for further aggregation once inside cells. A complete understanding of such events and the underpinning cellular mechanisms is still lacking.

"We are seeking to understand how aggregated proteins are handled once inside brain cells and how they are passaged from cell to cell. To this end, we will work collaboratively to develop standardised tools and assays to establish disease-relevant mechanisms that could enable future therapies against disease progression in this area of unmet need."- Dr George Tofaris, Project Coordinator

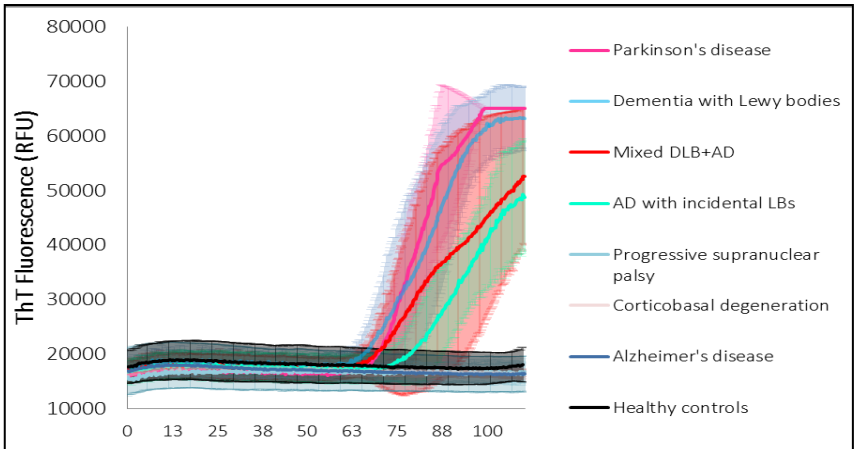
IMPRiND aims to fill this knowledge gap and develop tools and assays for targeting these pathways to pave the way for novel therapeutics that could delay the progression of Alzheimer's and Parkinson's. IMPRiND which will run from 2017-2021 has a total budget of 11.4 million Euros from the IMI, industrial partners and the Swiss Federation.

IMPRiND
Blocking propagation of protein aggregates in neurodegenerative diseases

New Test for Parkinson's Moves a Step Closer

Laura Parkkinen and colleagues from OPDC and the Edinburgh Prion Unit have developed a new diagnostic test for Parkinson's. The test measures the "stickiness" of a particular protein in the cerebrospinal fluid.

This protein, known as alpha-synuclein, forms sticky clumps known as Lewy bodies within the brain cells of patients with Parkinson's. There is currently no definitive test that allows doctors to determine if someone has Parkinson's or a related disorder, especially at an early stage. Therefore diagnosis is currently based purely on clinical symptoms and can only be confirmed with a post-mortem examination of the brain. Previous efforts to test for alpha-synuclein have produced inconsistent results because the protein is also found in the brain and cerebrospinal fluid of healthy subjects. It is only when the protein clumps together that it causes problems.



Positive RT-QuIC signal is only detected in the CSF of patients with pathologically confirmed alpha-synucleinopathy.
ThT=thioflavine T; RFU= relative fluorescence unit.

A novel technology called real-time quaking-induced conversion (RT-QuIC) allows the measurement of stickiness of proteins; this approach has already been used to detect a prion protein in the cerebrospinal fluid in Creutzfeldt-Jakob disease. Dr Laura Parkkinen and her team were funded by the Michael J Fox Foundation to use this technology for the first time in brain material derived from the Oxford Brain Bank and cerebrospinal fluid samples from the Oxford Discovery cohort. They were able to detect "sticky" alpha-synuclein protein in 95% of Parkinson's subjects, but in none of the Alzheimer's and control subjects.

Interestingly, some individuals known to be at risk of developing future Parkinson's (those with REM sleep behaviour disorder) also had a positive result. This suggests that the test could potentially detect patients before their motor symptoms appear and thus allow the initiation of early treatment that could slow or even stop the disease.

"These are hugely promising results and we are extending our analysis to a larger cohort of REM sleep behaviour disorder patients collected world-wide to understand how early these changes can be detected and whether our assay could be used as a predictive test. We also want to apply this test to other tissues collected from Parkinson's subjects including nasal brushings, collected through a simple outpatient procedure. Thank you to all Discovery participants who donated their spinal fluid to help us develop this crucial test!" – Dr Laura Parkkinen.

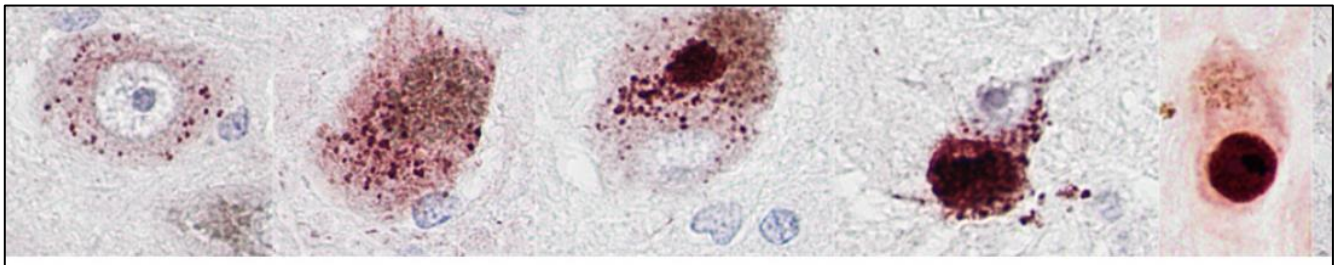
Rhinoscope is inserted into nasal cavity and nasal brushings collected with a sterile brush. This sample can be potentially then be used to diagnose or even predict the future diagnosis of Parkinson's.

Fairfoul G, McGuire LI, Pal S, Ironside J, Neumann J, Christie S, Joachim C, Esiri M, Evetts S, Rolinski M, Baig F, Ruffmann C, Wade-Martins R, Hu M, Parkkinen L, Green WJE. RT-QuIC for the detection of alpha-synuclein in the CSF of patients with apha-synucleinopathies. Ann Clin Transl Neurol 2016;28:812-818.

Importance of Brain Donation for Parkinson's Research

Laura Parkkinen and Michele Hu

Many fundamentally important discoveries including levodopa - the gold-standard treatment for motor symptoms of Parkinson's - were developed by looking at changes in human brain tissue. Our new promising diagnostic test also used human brain tissue to detect "sticky" alpha-synuclein protein in the brain first and then detected these same changes in cerebrospinal fluid of people with early Parkinson's.



Alpha-synuclein protein gradually accumulating and forming "sticky" clumps inside Parkinson's brain cells.

These discoveries have only been made possible through brain donation after death from people with Parkinson's. Brain donations are more vital now than ever before, because we need to understand how genetic risk causes the changes we see in the brain tissue in large-scale studies. This will allow us to understand how Parkinson's develops, and design treatments that stop it progressing. While cell and animal-based models of Parkinson's can help, there is no substitute for what is really happening in the human brain.

Oxford has a strong multidisciplinary record of tissue banking and post-mortem based research. Our team comprises individuals with longstanding experience in patient liaison services and consent procedures as well as neuropathology research. Individuals from the Discovery cohort both with Parkinson's and controls are invited to consider brain donation after death through the existing Parkinson's UK Brain Bank scheme (https://www.parkinsons.org.uk/content/parkinsons-uk-brain-bank). All cohort participants should now have received written information and consent forms on brain donation. If not please contact your local research team or visit the Parkinson's UK website. We would be very happy to discuss any questions and help you complete the form during your clinic visit or by phone.

So far around 100 Parkinson's subjects from the Discovery cohort have signed up to brain donation. We would like to encourage many more people to consider helping us in this way. Tissue generously donated via the Brain Bank will help us to match the clinical symptoms carefully recorded in life through the cohort to real brain changes. This will ultimately lead to better symptomatic treatments and make your cohort participation even more valuable.

The Parkinson's UK Brain Bank

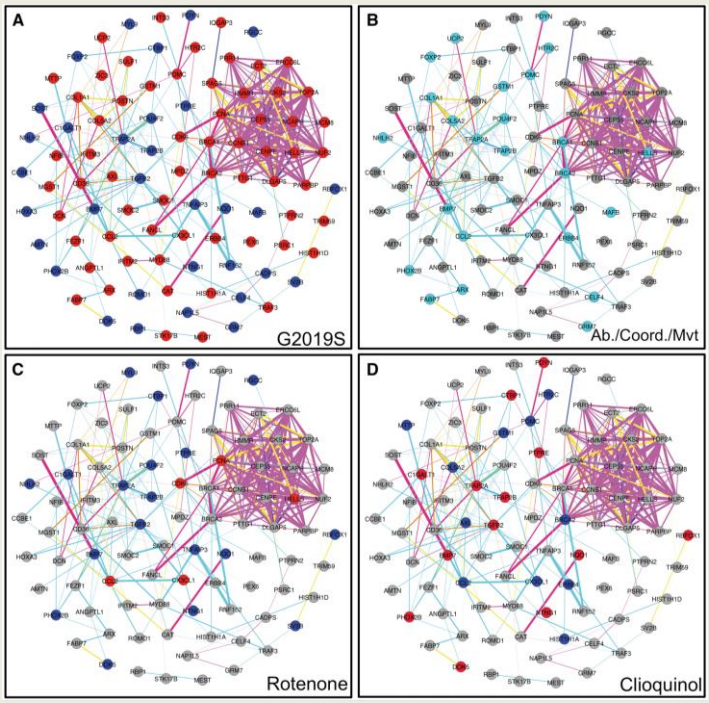
Studying human brain tissue is an essential part of Parkinson's research to understand the condition and develop new and better treatments. But this work is completely dependent upon the generosity of people with and without Parkinson's who pledge their brains to research.

To find out more about the Parkinson's UK Brain Bank or to request an information pack:

- Visit www.parkinsons.org.uk/brainbank
- Call 020 7594 9732
- Email brainbank@imperial.ac.uk

New Way of Repurposing Drugs Could Lead to Better Parkinson's Treatments

By bringing together cutting-edge stem cell technologies and computational biology, researchers at OPDC have developed a unique way to identify existing drugs that could potentially be repurposed for treating Parkinson's.



Links between the functions of different genes were studied to find possible drugs already in clinical use which could be potential Parkinson's treatments.

A stem cell technique was used to turn small pieces of skin taken from the Oxford Discovery cohort into dopamine-producing brain cells – identical to those that are lost in Parkinson's. Researchers then studied the patterns of gene activity in these Parkinson's brain cells and compared them to those observed in the same brain cell types grown from people of a similar age without the condition.

"When we compared gene activity between Parkinson's brain cells and healthy brain cells grown in the laboratory we found some key differences. These specific changes in gene activity, which are like a Parkinson's fingerprint, help tell us why the cells die in Parkinson's, and how we might save them. This is exciting because it means that we can study the behaviour of brain cells grown in a dish and learn important new things about the real human condition."- Dr Caleb Webber

The team used a global database which holds information about the effects of thousands of different drugs, many which are already in clinical use, to look for ones that could normalise the gene activity of the Parkinson's brain cells.

They identified clioquinol – a drug which was first developed in the 1930s that is still used today in creams to treat skin infections. When taken orally, and over extended periods of time clioquinol can have serious side effects. Due to this, clioquinol as originally developed, is unlikely to be a future treatment for Parkinson's. However, new drugs based on clioquinol may deliver the benefits without the risks.

"We're excited by the power and precision of this new approach for identifying drugs that could be helpful for Parkinson's. 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.

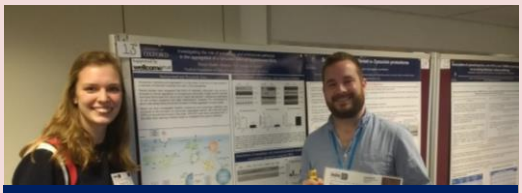
"It's particularly exciting that this new approach immediately identified clioquinol – a drug whose properties are already being investigated for neurodegenerative conditions like Parkinson's and Alzheimer's.

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

Sandor C, Robertson P, Lang C, Heger A, Booth H, Vowles J, Witty L, Bowden R, Hu M, Cowley SA, Wade-Martins R, Webber C. Transcriptomic profiling of purified patient-derived dopamine neurons identifies convergent perturbations and therapeutics for Parkinson's disease. Hum Mol Genet. 2017 Feb 1;26(3):552-566.

OPDC Research Day March 2017

This March, Parkinson's researchers from around the Thames Valley region gathered to discuss updates in Parkinson's research in Oxford. Speakers at the event included clinicians, scientists and students from OPDC as well as invited speakers Professor Masud Husain from Oxford University whose research focuses on inattention, impulsivity, apathy and disorders of memory and Professor Birgit Liss from the University of Ulm in Germany who studies dopamine in the brain. The day began with a welcome address from Parkinson's UK research director Dr Arthur Roach. We also heard from Ewan Stutt who is the face behind Parkinsons.me and author and local Parkinson's UK member John Foster. As well as the full day of talks over 35 research posters were presented.



Poster prize winners Margaux Teil and Martin Madill with their poster on α- synuclein misfolding.

OPDC's Professor Clare Mackay to Play Major Role in New NIHR Oxford Health Biomedical Research Centre

The new National Institute for Health Research (NIHR) Oxford Health BRC brings together researchers and healthcare professionals across the University of Oxford and Oxford Health NHS Foundation Trust, with the common goal of translating innovative research into practice. The £12.8M funding from the NIHR will cover the centre from 2017-2022. OPDC's Professor Clare Mackay will be the dementia theme lead. Professor MacKay hopes to make brain imaging a routine part of assessing brain health in older adults.

OPDC Scientist Dr Ludovica Griffanti Talks about her Research in the Pub at Sell-Out Event

Pint of Science is a non-profit organisation that brings some of the most brilliant scientists to your local pub to discuss their latest research and findings. This May, Dr Ludovica Griffanti was among scientists who spoke at the sell-out Beautiful Minds session at the St Aldates Tavern, Oxford. Dr Griffanti is a researcher at the Oxford Centre for Functional Magnetic Resonance Imaging of the Brain (FMRIB). Her talk dealt with her current research which focuses on using advanced MRI analysis to understand risk for Parkinson's and Alzheimer's. Dr Griffanti volunteered to speak having really enjoyed a pint of science event a few years ago on an event unrelated to her own field of expertise. After the event Dr Griffanti said, "I found a relaxed and friendly environment, which was perfect for my first talk to a lay audience. Great experience, highly recommended! "

Going North by Bike in August 2017

The bikes are ready, the path awaits and we will soon be setting off on our 15 day ride from Oxford to Durham. It's a bit of a challenge, but when we decided to do it earlier this year, we thought it would give us the opportunity to raise some awareness and some funds for the Oxford Branch of Parkinson's UK. The Branch is very much involved both with helping people who have the condition and with the important research being carried out at OPDC.

Since being diagnosed with idiopathic Parkinson's seven years ago aged 64, I have learned quite a lot about the history of the disease in the two centuries from the year in which "An Essay on the Shaking Palsy" was first published by Dr Parkinson and now it seems that we are at a point when some major breakthroughs in the neurological sciences may become a reality. Progress is already being made in identifying and measuring the early signs of Parkinson's and there is much more understanding of everything from the role of the gut to the role of the mitochondria. But at the same time the number of people afflicted with the condition is growing.

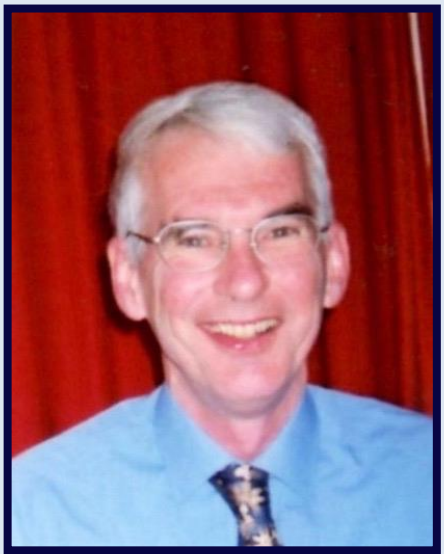
So there seems to be good reason for as many PwP's (People with Parkinson's) as possible to get involved in supporting the research to arrest the progress of the disease, reverse the decline and find new ways to alleviate the symptoms. Our cycle ride of 350 miles is just a small way of contributing to this.

It will be an interesting and varied journey travelling from one magnificent Cathedral city to another, both centres of history and learning, going through some wonderful countryside and incorporating some of the industrial heritage of the Midlands and the North. On a personal level, I have studied in both Oxford and Durham, so it's a bit of a trip down memory lane as well. Our route will take us through the Cotswolds, the National Forest, the Derbyshire Dales and the Vale of York as well as cities, towns and villages. We will be using the national cycle routes wherever possible and trying to stay on quiet roads, ancient tracks and canal towpaths.

As we set out on what we hope will be an enjoyable couple of weeks, we will endeavour to keep anyone interested in touch with our progress (or possible lack of it) via our blog (bit.do/gonorth). More importantly if you can persuade anyone to sponsor us, we hope it will show that crazy things are still possible with the disease and generate a worthwhile total of funds raised. Any contributions will be welcomed, either online at http://uk.virginmoneygiving.com/NigelHamilton2 or via Carys Redmond, Treasurer Parkinson's UK (Oxford Branch), Greenways, Grimms Hill, Great Missenden, Bucks HP16 9BG (cheques to be made payable to Parkinson's UK Oxford Branch) please.

You can contact us at hamilton@newmailbox.net. Thank you, Nigel & Debbie Hamilton

Robert Ridgeway Reflects on his Experience as a Discovery Cohort Member



Robert Ridgeway

Why did you decide to take part in the Monument Discovery Study?

My wife was diagnosed in 2002 with Parkinson's, but it had little effect on either of us at the beginning. She has always been phlegmatic about illnesses or uncertainties, and so we just carried on with life as the disease very slowly progressed. Her diagnosis was made by an excellent consultant in the John Radcliffe Infirmary, as it was known then, and he continued to be involved for the first seven years. After three years my work took me overseas and my wife joined me, returning every few months for regular check-ups at the JR. When we returned to the UK on my retirement in 2012, I learnt of the Monument Discovery Study and of the generous support given to it by the Sainsbury family. I resolved to help, when asked if I would volunteer as a healthy control subject.

What has been your experience of the study so far?

All of my experiences of the study have been positive. The staff involved with me have always been efficient in keeping me informed of appointments and helping me through the various tests and questions when I visit their offices or answer follow-up phone calls. I have enjoyed being like a "fly on the wall" as I have experienced professionalism and commitment whilst they work on me. This has included everything from having a blood sample taken and monitoring my computer game reaction times, to being given a lumbar puncture and an MRI brain scan.

What do you hope to get out of your participation in the study?

I have learnt something of how Parkinson's affects the body and the brain as it progresses, much more than just causing tremor and rigidity. This has given me an awareness and better understanding of what my wife is going through, and hopefully made me a little more considerate carer. I trust that the Discovery team members have got something out of the results of their tests on me, which will further their research towards finding better treatments and eventually a cure.

Is there anything you would like to say to other participants?

Go for it! In the short time your body and mind are tested by considerate medics, you gain more in understanding of Parkinson's than you give. From each participant on the study something unique is being learnt by the cohort team. For no one else is quite like you, and how Parkinson's affects every sufferer is only understood by your getting involved in the study and all it aims to achieve.

Parkinson's UK Christmas Concert at Christ Church 2016

by Paul Mayhew-Archer

Here's a little known fact. Every year the lovely folk of Christ Church Cathedral in Oxford offer the place to a local charity. For nothing. "Pick an evening in the run up to Christmas" they say "and put something on." I think they assume you'll put on a concert not a 'bring and buy' sale or a pop-up restaurant. Last year they offered the place to us, and when you're handed one of the most beautiful buildings in the world you don't say no. Especially not when you've got Parkinson's and you're trying to raise money for research and one of the best research centres in the world happens to be down the road. I can actually walk from Christ Church to the OPDC in under forty-five minutes. And when my Sinemet kicks in I can do it in ten. So we said yes.

Paul Mayhew-Archer

When I say we I mean the Oxford branch of Parkinson's UK and we're very lucky when it comes to putting on concerts. We have a wonderfully active group and committee, I was able to call on some friends in the comedy world and Sally Bromley our Chair seems to have taught every famous musician who ever went to school in Oxford. She didn't teach them music. She taught them sex education but they seem so grateful they are happy to come and help. Mind you, it wasn't easy - one of the problems with famous, successful people is that they tend to be busy as well. But somehow we got our acts together.

Sally Bromley

We also made life more difficult for ourselves. We knew that publicity and selling tickets through agencies could eat into the money we could send OPDC so we decided to have almost no publicity and sell the 800 tickets ourselves. Were we insane? Possibly. But somehow we sold pretty well all the tickets through a process of emails and word of mouth and members of the Oxford group persuading all their friends ("either you come to our concert or next time you're at the supermarket checkout, I'll be there. Just in front of you. Trying to get my money out").

And somehow we managed to get pretty well all the tickets to the right people. There were times at 2am when I was noting down ticket applications or putting tickets into envelopes when I wondered what I'd let myself in for - especially as my hands are rubbish and I can't read my handwriting - but somehow we managed it.

Also, Christ Church may be beautiful but it is a nightmare when it comes to seating audiences. People sitting in many parts of the Cathedral have limited view and quite a lot can't see a thing - it's like religion itself - you don't actually know if the voice you can hear is a Vicar in front of the altar, you've just got to have faith. But somehow we got everyone seated - in a record time I am told by the folk at Christ Church - and our audience seemed to love our concert.

Ian Hislop

One thing that was especially important to us was to show that Parkinson's is not the end of the world. People with Parkinson's can still do things. That meant showing we can not only put on a concert, but also we can take part in that concert. Apart from contributions from Sally and myself, the wonderful writer, John Foster, performed some of his poetry and our newly formed Parkinson's choir kicked off proceedings with a special version of a piece by Howard Goodall.

It was an evening I'll never forget (unless the Lewy Body sets in). Friends like Ian Hislop and Rory Bremner coming to perform and being brilliant, Michele Hu speaking so passionately about research, glorious music from Tom Poster and Clemmie Franks and the most wonderful choir I've ever heard - Commotio. And the exquisite new carol by Bob Chilcott written for us and dedicated to me and Parkinson's UK - all for a cause dear to my heart and caused by my brain.

Thank you OPDC for all you do. We hope that the money raised by the concert (about £16,000 I am told) helps you to help us.

Dr Michele Hu

OPDC's Professor Steph Cragg Opens the 2016 Oxford Parkinson's Walk

Despite a very soggy start to the day there was a brilliant turnout for the 2016 Oxford Parkinson's Walk on October 16th. The event, organised by the Oxford branch of Parkinson's UK, raises funds to support research here at OPDC. This year the funds are to be directed to Steph Cragg's GABA project looking at alternatives to dopamine.

Steph Cragg started the walkers this year and after a great countdown the crowd took to the road as thankfully the skies cleared and the rain eased off. Professor Cragg was among members of Team OPDC who completed the beautiful walk in and around Oxford.

We are very grateful for all who come out to raise funds for our research and would like to thank the team at Oxford Parkinson's UK for organising another fantastic event.

We are already excited about the 2017 event on September 10th. You can register to join us at:

www.parkinsons.org.uk/content/walk-parkinsons-oxford

- To keep updated on future events organised by Parkinson's UK visit http://bit.ly/OxParksUK

Oxford Parkinson's Disease Centre Participants' Open Day

Monday 4th September 2017

1:30 - 4:30 pm

Jury's Inn, Godstow Rd, Oxford, OX2

An afternoon of talks from OPDC scientists and clinicians on how our work is helping to improve our understanding of Parkinson's and drive us closer to a cure.

To find out more including how to register for this **FREE** event please call 01865 223166 or visit **www.opdc.ox.ac.uk/openday2017**

Giving to OPDC

At the OPDC, we are working hard to understand Parkinson's and to develop new treatments. As we look to the future, we want to ensure that our work is sustainable, and that it can continue for years to come.

If you would like to specifically support our research projects working on Parkinson's at the University of Oxford, you can make a one-off **donation** or set up a regular payment to OPDC via www.opdc.ox.ac.uk/donate.

The OPDC is funded by the Monument Discovery award from Parkinson's UK. If you would like to support the work done nationally by Parkinson's UK, please visit www.parkinsons.org.uk/content/donate.

A Legacy gift will help the OPDC to continue vital research programmes, to find a cure and to improve the lives of everyone affected by Parkinson's. Large or small, your support will really make a difference to our work.

If you would like to know more about leaving a gift to the OPDC in your will, please contact our administrator Melanie Witt on **01865 282358** or opdc.administrator@dpag.ox.ac.uk.

www.opdc.ox.ac.uk/giving

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Information on all our current research activities can be found on our website www.opdc.ox.ac.uk and in the 'OPDC' section of Parkinson's UK website http://www.parkinsons.org.uk/content/oxford-parkinsons-disease-centre

Oxford Parkinson's Disease Centre

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NHS National Institute for Health Research

Clinical Research Network Thames Valley and South Midlands

Oxford Biomedical Research Centre
Enabling translational research through partnership

THE MICHAEL J. FOX FOUNDATION FOR PARKINSON'S RESEARCH