

Parkinson's Research in Scotland, an event for World Parkinson's Day
Tuesday 23 April 2024

Morning Agenda

Time	Session	Speaker
09:30 - 13:30	Morning Session (Chair: Dr Esther Sammler)	
09:30 - 09:50	Arrival and refreshments, visit posters and information stands	
09:50 - 09:55	Welcome	Dr Esther Sammler, Dundee
09:55 - 10:25	Keynote: Understanding LRRK2 and its role in Parkinson's and lysosomes	Professor Dario Alessi, Dundee
10:25 - 10:40	Ending Parkinson's ASAP: An Open Science Approach	Dr Francesca Tonelli, Dundee
10:40 - 10:55	Mutational screen of the Parkinson's associated LRRK2, GBA1 and Parkin genes	Professor Grzegorz Kudla, Edinburgh
10:55 - 11:15	Refreshment break, visit posters and information stands	
11:15 - 11:30	Title TBC	Professor Tilo Kunath, Edinburgh
11:30 - 11:45	LRRC37A2 - a new gene that protects against Parkinson's risk?	Dr Kathryn Bowles, Edinburgh
11:45 - 12:00	Decoding Mitochondrial Mechanisms in Parkinson's	Professor Miratul Muqit, Dundee
12:00 - 13:30	Lunch & networking - arrival and registration for afternoon session attendees - visit posters and information stands	

Parkinson's Research in Scotland, an event for World Parkinson's Day

Tuesday 23 April 2024

Afternoon Agenda

Time	Session	Speaker
12:00 - 17:00	Afternoon Session (Chair: Dr Julie Jones)	
12:00 - 13:30	Lunch & networking - arrival and registration for afternoon session attendees - visit posters and information stands	
13:30 - 13:35	Welcome	Dr Julie Jones, Robert Gordon University, Aberdeen
13:35 - 13:55	Scotland Can't Wait report and campaign	Tanith Muller, Parkinson's UK
13:55 - 14:15	A round up of clinical trials across Scotland and how to take part	Dr Tom Russ, Neuroprogressive and Dementia Network
14:15 - 14:30	Reflections of living with Parkinson's, from 'passivist to activist'	Marc van Grieken, Dundee Research Interest Group (RIG)
14:30 - 14:45	Title TBC	Dr Angus Macleod, University of Aberdeen
14:45 - 15:00	Focused Ultrasound for the treatment of tremor	Dr Tom Gilbertson, University of Dundee
15:00 - 15:20	Refreshment break, visit posters and information stands	
15:20 - 16:50	Panel Discussion and Q&A Neil Morrison, North of Scotland RIG Dr Cassie Terry, London Metropolitan University Dr Esther Sammler, University of Dundee Lorna Fraser, Parkinson's UK Local Adviser Tanith Muller, Parkinson's UK Scotland Policy and Campaigns Manager Marc van Grieken, Dundee Research Interest Group Joy Milne, Dundee Research Interest Group	Chaired by John Minhinick, Dundee Research Interest Group (RIG)
16:50 - 17:00	Closing reflections	Jo Goodburn, Dundee RIG

Information stands

1. Parkinson's UK - Information and support
2. Parkinson's UK - Community fundraising and events
3. Parkinson's Research Interest Groups in Scotland and Parkinson's UK Research Team
4. Neuroprogressive & Dementia Network (NDN) - research opportunities for people with Parkinson's

Poster displays

1. Varsha Singh PhD, University of Dundee: Neuronal basis of perception of PD-associated odours by *Caenorhabditis elegans*
2. Cassandra Terry PhD & Fiona French PhD, London Metropolitan University: Non-invasive methods for personalised facial muscle physiotherapy using virtual reality
3. Neuroprogressive & Dementia Network (NDN): Permission to Contact - A recruitment tool for the Neuroprogressive & Dementia Network
4. Neuroprogressive & Dementia Network (NDN): Partners in Research
5. Sarah Patrick, Public & Patient Involvement & Engagement Consultant, University of Dundee: 'Exchanges' - A visual resource to inspire and support deeper conversations in the Parkinson's community

Morning speaker lay summaries

1. Professor Dario Alessi

Dario obtained a BSc (1988) and PhD (1991) from the University of Birmingham, United Kingdom. He carried out postdoctoral work at the University of Dundee from (1991 to 1997), where he became fascinated by how virtually all aspects of cell biology and human diseases are controlled by a class of enzyme called "kinases." In 1997 Dario became a program leader at the Dundee MRC Unit, where he was appointed as its Director in 2012. From Dario - My laboratory is focused on deciphering the molecular causes of Parkinson's. We believe that if we can comprehend what causes Parkinson's, this will enable Researchers, Clinicians and Pharmaceutical companies to work together to develop better ways to diagnose and treat the condition in the future. The approach we are taking is to study how mutations in certain genes known to cause Parkinson's exert their effects. Our work is currently focused on a gene termed "LRRK2". The LRRK2 gene is one of the most commonly mutated genes that causes familial inherited Parkinson's. The LRRK2 gene encodes for a protein that is called the "LRRK2 enzyme". Research by our

laboratory and others has shown that Parkinson's mutations activate the LRRK2 enzyme. This has led to the idea that drugs that target the LRRK2 enzyme could be developed for the better treatment of Parkinson's. Excitingly, Denali, a company based in San Francisco, has recently launched the first clinical trials in humans to test this idea. Several other companies are expected to initiate LRRK2 Parkinson's trials soon. These new drugs have the potential to slow down the progression of Parkinson's. I will talk about the recent highlights of our recent research that indicate that LRRK2 is at the centre of a physiological network critical to understanding Parkinson's. With this increasing knowledge of the genetics and biology underlying Parkinson's, I feel optimistic that with continued and expanded research efforts, major strides towards better treating Parkinson's can be made in the coming years. Patient's support and involvement in research is vital for success!

2. **Dr Francesca Tonelli**

Francesca is a senior scientist in the team of Prof. Dario Alessi at the MRC-PPU, University of Dundee. Her research focuses on unravelling the pathways that result in Parkinson's, working in collaboration with both academic and industrial partners. Francesca is also the Research Project Manager on a major international Parkinson's research programme sponsored by the Aligning Science Across Parkinson's (ASAP) initiative. The Aligning Science Across Parkinson's (ASAP) initiative, partnered with The Michael J. Fox Foundation for Parkinson's Research, is devoted to advancing research into the causes of Parkinson's (PD). Above and beyond funding basic research, ASAP is spearheading a new approach to accelerate the fight against PD by incentivising collaboration between different research teams. By actively promoting the candid exchange of ideas and research tools between scientists from different labs that are trying to solve the same scientific problem, ASAP is leading the way in influencing the culture behind the way we do science.

3. **Professor Grzegorz Kudla**

Grzegorz obtained his PhD in 2005 in Warsaw, Poland. He then was a postdoctoral fellow at Harvard University and at the University of Edinburgh, and since 2012 he has been leading a research group at the MRC Human Genetics Unit in Edinburgh. Grzegorz's group develops methods to systematically measure the effects of genetic mutations on important cellular functions, such as gene regulation and cell growth. Recently they completed a study of all possible mutations in a gene called "GCH1". Mutations in this gene are known to cause dopamine-responsive dystonia, also known as Segawa syndrome, a rare childhood disease which shares some symptoms with Parkinson's. While affected children respond well to treatment, they are often misdiagnosed as having cerebral palsy and remain untreated. Our group's experiments provide a comprehensive catalogue of the effects of mutations in GCH1, which should facilitate genetic diagnosis of this disease. In collaboration with

colleagues in Dundee, we are now embarking on a similar study to measure the effects of mutations in three genes most commonly mutated in Parkinson's: LRRK2, GBA1 and Parkin.

4. Professor Tilo Kunath

TBC

5. Dr Kathryn Bowles

Kathryn Bowles is a Group Leader in the University of Edinburgh UK Dementia Research Institute. Her primary research focus is understanding the cellular mechanisms that contribute to neurodegenerative diseases, using a combination of genetics and iPSC modelling. Our DNA is like an instruction manual for how our cells should behave. Within this manual, there are individual instructions for different things, which are named "genes." We have compared the DNA between people with and without Parkinson's, and found an interesting gene, called LRRK37A2. In people without Parkinson's, this instruction was repeated many times, causing their cells to make more LRRK37A2 than cells from people with Parkinson's. So far, very little is known about what LRRK37A2 instructs cells to do. This is important to know, as having more LRRK37A2 in the brain may prevent people from developing Parkinson's. This gene has never been studied, but we have found that LRRK37A2 is important for Astrocytes. Astrocytes are one of the main cell types in the brain. They protect other brain cells by paying close attention to their surroundings, and have been found to behave differently in Parkinson's brain. Our work suggests that LRRK37A2 may help tell astrocytes how to work properly. For example, having more LRRK37A2 in astrocytes made them respond more quickly to damaged cells. This could be one way that LRRK37A2 reduces risk for Parkinson's. We are now studying exactly what this gene does, and how it could be helpful.

6. Professor Miratul Muqit

Miratul Muqit is a Consultant Neurologist at the MRC Protein Phosphorylation and Ubiquitylation Unit at the University of Dundee. His lab is interested in the mitochondria (batteries of the cell) and how damage is linked to the development of Parkinson's. There is evidence that damage to the cell's batteries known as mitochondria is associated with the development of Parkinson's. Several genes that are linked to Parkinson's have functions relating to ensuring that the quality of the batteries is maintained. The talk will highlight new advances on how our understanding of several of these genes including PINK1 and Parkin function to improve the quality of these batteries in the brain.

Afternoon speaker information



1. Marc van Grieken, FLI & EUPATI Fellow

Reflections of living with Parkinson's, from 'passivist to activist': In this talk, which will span a period of almost 20 years from diagnosis to the present day, I will share some of my personal experience of living with Parkinson's. Over time this changed significantly as a result of the response and support from the people around me. I will talk about how I became involved with a variety of activities, such as Parkinson's UK's RIGs, fundraising, becoming a EUPATI Fellow and its follow on, PPI, Patient engagement and involvement, clinical trial participation and giving evidence to NICE. I will finish with a brief thought about how our exclusive club of PwPs can help 'shaking out' Parkinson's.

Panellist information

1. Neil Morrison

Neil Morrison was diagnosed with Parkinson's over 6 years ago. He is involved in the Caithness Parkinson's Group. He is a member of the North of Scotland Parkinson's Research Interest Group (NoSPRIG). He has been a Patient and Public Involvement volunteer which has been a very wide-ranging fun experience. Neil is also a member of the Research Involvement Steering Group at Parkinson's UK. Previously he was one of the organising volunteers for Par-Con 2021 - a national research event.

2. Dr Cassandra Terry

Dr Cassandra Terry is a Biochemist who is currently a Reader at London Metropolitan University. Her research is focussed on studying how the body's own proteins misfold and cause protein misfolding disorders such as Parkinson's and type 2 diabetes. She is particularly interested in understanding these conditions at the molecular level and is focussed on developing novel therapeutics for these disorders. One of her current research projects is developing a portable virtual-reality based physiotherapy device to help those with hypomimia. This project is in collaboration with Fiona French from the school of computing and Neil Morrison who is also one of the panellists today. Cassandra previously studied at St Andrews University and The University of Sheffield and previously worked at the MRC in Cambridge and UCL's Institute of Neurology.