

**Advancing Science,  
Promoting Community,  
Inspiring Hope**



**June 4 - 7, 2019**

**FINAL PROGRAM**

**最新の科学に出会い、共に意識を高め、  
希望へと導く究極のプログラム**

*Bringing the Parkinson's Community Together!*

# WPC 2019

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Dear friends:

On behalf of the WPC 2019 Steering Committee and the Board of Directors of the World Parkinson Coalition®, we welcome you to the Fifth World Parkinson Congress and to Kyoto, Japan.

WPC 2019 will unite the global Parkinson community for a high-level, inspirational Congress where we will welcome registrants from 60 countries including people living with PD, care partners, neuroscientists, clinicians, nurses, rehabilitation specialists, policy makers and others. Our Organizational Partners from 46 countries have graciously endorsed the Congress and, by so doing have helped to ensure the success of the WPC 2019 and the diversity of our delegates.

Be sure to visit the exhibit area to view the 600 plus scientific and living-with-Parkinson posters and sign up for the evening poster tours right in the poster area. We encourage you also to visit our exhibitors, from around the world, representing both industry and non-profit organizations.

When in the exhibit hall, visit the Clinical Research Village, where science meets advocacy and where researchers and clinical trial participants will talk about clinical trials, why we need them, how you can help and what you need to know before signing up.

If you need a break from the science, visit the Wellness Way where you can find the Renewal Room to sign up for a session on yoga, dance, boxing, or singing. For our care partners, we invite you to visit the Care Partner Lounge to connect, learn, and relax throughout the Congress.

When walking the halls, be sure to check out the Art Walk, showcasing five art exhibits produced by people with Parkinson disease, highlighting the power of creativity as part of a wellness plan and the talented community in which we live.

The World Parkinson Congresses are the only global conferences that bring together the entire Parkinson community, including the dedicated researchers and health professionals who study the disease and care for those who live with it, alongside the people and care partners who live with PD day in and day out – the real experts. This is the fifth time the WPC has convened. We will continue to strive to build a stronger, more cohesive PD community with new scientific insights for a better understanding of PD, always looking forward to newer advances and moving closer to a cure. We are pleased you have decided to join us for this unique learning opportunity.

This is a meeting of hope. The hope for better quality of life for those touched by Parkinson disease and one day a cure. This is also a meeting of inspiration. A meeting where researchers and clinicians learn about the latest research to stimulate their own work and develop new collaborations, and where they also meet people with PD who inspire them to continue their work and to never give up. It's also a place where people with PD and families meet others in the community who inspire them to power through their disease knowing they are part of a global Parkinson family that is working toward a common goal – to end PD once and for all.

We look forward to meeting many of you during the Congress.

Sincerely,



**A. Jon Stoessl**  
C.M., M.D., FRCPC  
WPC President



**Marie-Françoise Chesselet**  
M.D., Ph.D.  
WPC Vice President





Dear friends:

On behalf of the Program Committee, we thank you for your participation in the 5<sup>th</sup> World Parkinson Congress this week in Kyoto, Japan. The process of creating this program started almost three years ago with the selection of the outstanding members of the Program Committee who worked extensively to build the program you now hold in your hands.

Our goal was to create a vibrant and comprehensive program that would appeal to our diverse audience. We did this by first selecting the most important and exciting topics being discussed and researched today and then by inviting experts from the global community to share their knowledge and experience on these very topics. We not only wanted you to feel inspired by the research, and hopeful for where it will lead us, but also for you to learn valuable information to add to your PD Toolkit that you could start using as soon as you returned home.

Sessions were created for people with Parkinson's and care partners, neuroscientists, clinicians and movement disorder specialists, nurses, rehabilitation specialists and others. The pre-congress day on June 4 offers five different courses followed by the opening ceremony and welcome reception. The next three days begin each morning with Hot Topics presentations at 8AM highlighting some of the outstanding abstracts we received this year followed by morning plenaries which have been structured for maximum cross-fertilization of the diverse delegate body. We invite you to join us for these morning sessions to hear great talks, and to show your support for the five award recipients we'll honor who have been serving the global PD community for many years.

Over lunch each day we offer special talks by leaders in the clinical, advocacy, and scientific spaces. We are thrilled to welcome Nobel Laureate Dr. Shinya Yamanaka to the stage on Friday over lunch to discuss his seminal work on iPS cell and Parkinson's. During lunch you can also visit our WPC World Café to discuss young onset Parkinson's or the Clinical Research Village in the Exhibit Hall to learn about clinical trials and how to get more engaged. Each evening you may sign up to participate in poster tours or the daily wrap-sessions which will convene experts to help synthesize and highlight key take home points from the talks given throughout the day.

Each afternoon we have early and late afternoon tracks with large parallel sessions, interactive workshops, and intimate "meet the expert" roundtables supported by poster presentations that build upon and explore the topics covered through the program and beyond.

When you need a break from it all, visit the Renewal Room for an exercise class, the table tennis room for a game or two, or the massage and reiki room for a short massage. Or you may wish to take a walk through the various art installations that make up the Art Walk. The WPC is like a Parkinson's festival showcasing the best science, best treatment, and best care that exists today while reminding us of the things people with Parkinson's CAN do while living with this disease.

We hope you join us each and every day and that you make the most of your time at the WPC 2019.

**Warm regards,**

**Roger Barker**, BS, MBBS, PhD FMed Sci  
Chair, Program Committee

**Anne Louise Lafontaine**, MD  
Co-Chair, Program Committee,  
Comprehensive Care

**Etienne Hirsch**, PhD  
Co-Chair, Program Committee,  
Basic Science

**Hideki Mochizuki**, MD, PhD  
Co-Chair, Program Committee,  
Basic Science

**Atsushi Takeda**, MD, PhD  
Co-Chair, Program Committee,  
Clinical Science

**Miho Murata** (*in memoriam*),  
MD, PhD  
Co-Chair, Program Committee,  
Comprehensive Care





Dear friends:

It has been nearly 14 years since the first World Parkinson Congress was launched in 2006 in Washington, D.C., and now here we are, welcoming you to the fifth iteration of this Congress. Amazing to see how the WPC has grown.

As WPC Ambassadors, we represent a global community of people with Parkinson's. Because we know how important WPC 2019 can be, we took our role seriously and reached out to the world to invite neuroscientists and nurses; physiotherapists and physicians; those seeking a cure and those seeking to care. We invited you to Kyoto. You heard us, you responded, and here you are. Whatever your reason for coming, your presence is an inspiration to us, as well as to millions of others who gain hope and encouragement from your passion to help in the battle against Parkinson's.

Parkinson's is very complicated. We who live with it spend every second, every minute, every hour and every day of our lives trying to manage our symptoms. This is not an easy task and unfortunately most of us do this alone. None of us chose to have Parkinson's. We are all aware of it not being just the old man's portrait of shaky limbs and a stumbling gait. We know fatigue, balance, pain and loss of sleep are symptoms we have to deal with. We also know our medications don't always work and we can go into on /off states so quickly with no control to stop it. The disease takes over the confidence we had prior to diagnosis which in turn affects our mood, our families and friends. It can be a very isolating and lonely disease, which is one reason we turn to the WPC.

The WPC changes how we live with Parkinson's. For those attending their first congress get ready because you are going to leave with a life raft that is overflowing with support. The contacts that you are about to make along with the friendships and the knowledge will go with you when you return home. You will have them for the years to come.

To those who have so generously offered to speak and share your knowledge; We thank you from our hearts. Your work not only gives us a better quality of life, it gives us hope, inspiration, laughter and enthusiasm. We will remember you and your excitement when you talked about your research and new discoveries.

And so we welcome you, and sincerely thank you for making people with Parkinson's your priority.

**Sincerely,**

**WPC 2019 Ambassadors**

**Jillian Carson**, Chair  
Canada

**Meng Chuo Wong**  
Malaysia

**Andy McDowell**  
New Zealand

**Debbie Shapiro**  
Israel

**Rune Vethe**  
Norway

**Mike Atkinson**  
Australia

**Elisabeth Ildal**  
Denmark

**Cathy Molohan**  
Germany & Ireland

**Karyn Spilberg**  
Australia

**Cherry Vogt-Ward**  
Barbados & Switzerland

**Alejandra Borunda**  
Mexico & USA

**Emma Lawton**  
United Kingdom

**David Sangster**  
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**Tan Tien Seng**  
Singapore

**A.C. Woolnough**  
USA



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**Co-Chair: Tamami Nose**  
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 Benjamin Stecher  
 Jasmine Sturr  
 Martin Taylor

### WORLD PARKINSON COALITION STAFF

Elizabeth "Eli" Pollard, Executive Director  
 Kathleen Jordan  
 Brittany Marti

\* World Parkinson Coalition Board Member

## 概要

### WORLD PARKINSON COALITION® とは

World Parkinson Coalition は3年に1度開かれる世界パーキンソン病学会 (WPC) の運営母体です。2004年の発足以来パーキンソン病コミュニティの主導的役割を果たしてきました。WPCは、それまでばらばらに活動していたパーキンソン病の研究者、臨床医、患者の支援者、すなわちパーキンソン病コミュニティの全構成員をつなぐ場として、立上げ直後からそのリーダーシップが注目されています。

### 世界パーキンソン 病学会とは

世界パーキンソン病学会は、パーキンソン病に関連する最新の研究成果、治療実績、介護のあり方について話し合う国際会議です。会議には毎回、運動障害の専門家、内科医、神経科学者、神経科医、看護師、リハビリ専門家、介護者、患者の家族、そしてパーキンソン病患者が一堂に会し、この難病に対する治療法の発見を加速させ、最良の治療事例を発掘することを目的に協議を重ねています。

### 学会の対象者は?

パーキンソン病の研究者、患者の介護者、患者本人も含め、パーキンソン病に関わる全ての人を対象です。パーキンソン病コミュニティの変革のためには、関係各者が力を合わせる必要があります。WPCは、パーキンソン病界の世界的リーダーとの人脈を築く格好の機会となります。

WPCは患者参加型の会議です。毎回意思決定の場には必ず患者が立ち合い、神経科学者や臨床医と共にプログラムの作成や人選等に関わります。こうしたやり方を私たちは誇りにしています。

### プログラム

WPCのプログラムでは、基礎研究、臨床ケア、パーキンソン病患者の生活など、幅広いトピックを扱います。セッションには様々な種類のものがあり、それぞれ対象者が異なりますが、参加者はどのセッションにも参加することができます。また、英語を苦手と感じられる日本人関係者のかたがおられても、できるだけ気軽にプログラムに参加することができるように、次の3通りの措置を講じます。

1. モーニングホットトピックス、表彰式、全体会議ではヘッドフォンを介した同時通訳を利用できるようにします。
2. 全国パーキンソン病友の会および現地関係者と協力し、6月5日、午後のセッションでは日本語で様々なトピックを取り上げます。
3. 高橋良輔、服部信孝両教授が共同委員長を務める国内組織委員会の協力を得て、できるだけ多くのパワーポイントスライドを日本語に翻訳し、大切なメッセージが参加者に伝わるようはかります。



## 概要

### 展示会、特別イベント、 ネットワーキング

参加者ならどなたでも展示会を見学することができます。関連製品やパーキンソン病研究の最前線に触れるまたとない機会です。展示場にはWPCシアターを設け、連日、「技術とパーキンソン病」をテーマとしたトーク、ビデオコンペの入賞作の上映、Book Nookで取り扱う一部の書籍の著者を囲む会などを行います。

### パーキー

アライグマのパーキーはWPCの公式マスコットです。登録期間中にパーキーをお買い上げいただくと、その売り上げが、若手臨床医や研究者、パーキンソン病患者がWPCに参加するためのWPC旅費助成プログラムに活かされます。パーキーの詳細については[www.WherelsParky.org](http://www.WherelsParky.org)をご覧ください。パーキーが今世界のどこにいるのか、またこれまでにどのような人たちに迎えられたのかが分かります。日本でもパーキーがたくさんの家庭に迎えられ、日本のパーキンソン病コミュニティと世界のパーキンソン病コミュニティの関係強化に一役買うことを願っています。

### ウェルネスウェイ

あわただしいWPC期間中、学術的な話題はひとまず忘れてリラックスできるように、会場内の数か所にウェルネスウェイと名付けたオアシス空間をご用意します。どのスペースでも、自分自身をもっと労り、よりよい生活を送るために必要なツールを提供します。

### リニューアルルーム

交流型セッションを数多く盛り込んだプログラムを提供します。気分を一新し、楽しい時間をお過ごしください。太極拳、ヨガ、ダンスに加え、歌やドラム演奏などの音楽を楽しむセッションがあります。

### ケアパートナーラウンジ

介護者同士が交流するための安全なスペースです。支援団体の集まりの場としても、また介護者を対象とした日々の正式な話し合いの場としても利用できます。日本人介護者の皆さんにも利用していただけるように、日本語を話せる専門家を配置します。

### クワイエットルーム

休憩や瞑想のためのスペース、投薬効果が現れるまでの安静の場、あるいは礼拝の場などにも最適です。快適な座席と水をご用意します。

## ウェルネス・ウェイ(オアシス空間)

協賛：アコルダ・セラピューティクス社、バイオジェン社、大塚製薬株式会社

Wellness Wayは4つのプログラムからなりたっています。1) 運動プログラム、2) マッサージプログラム、3) 休憩所、4) 介護者交流プログラム。このウェルネス・ウェイ空間では、自分の身体と向き合い、学ぶ事が出来る場所となっています。パーキンソン病患者、介護者、医療専門家に限らず、自分の身体に責任を持ちケアする必要があります。その手助けとなるように、WPCはこの4つのプログラムを用意しました。是非、このオアシス空間で身体を動かしたり、マッサージを受けたり、瞑想体験をしたり、またPDに関わる人々との新たな出会いをお楽しみください。

## リニューアル・ルーム（運動プログラム）

場所: スワン・ルーム  
時間: 6月5日-7日  
8:00 AM-5:30 PM  
プログラム: 10-11を参考下さい

身体を動かしたり大きな声を出したり出来る体験交流型の運動プログラムです。内容はヨガ、太極拳、アルゼンチンダンス、ダンス、ボカルトレーニング、ボクシング、有酸素運動やPD運動など、様々なクラスに参加出来ます。人数制限がありますので、当日それぞれ興味のあるクラスに事前登録してください。

## マッサージ&レイキ（気功）ルーム

場所: 103B  
時間: 6月5日-7日  
10:00 AM-5:00 PM

WPC参加者の皆様に15分ほどのマッサージやReikiの提供が可能になりました（無料です）。ご希望の方はルーム103でお申し込み下さい。

WPC期間中にリラクゼーションルームにてボランティア参加して下さる以下の施術家・セラピストの皆様のご協力に心より感謝申し上げます。（敬称略）

### 兵庫県療術師協会

藤原 幸子, 佐々木 和輝,  
山田 敏夫, 攻發 未浦

### ヒーリングランドレイキ

高橋 旺礼南,  
ムニカイ・ムハメッド

### 湯川鍼灸院

湯川 享

### 株式会社フレアス

川上 詠昌, 中西 徹, 奈良 香澄,  
神田 浩士, 内田 朝美, 神 里子,  
有賀 広, 宮崎 恵史, 貝沼 洋之,  
木村 智

### 荒矢診療所

田中 登志夫

### 和煦琉

金山 昌子

### 訪問マッサージ り・ふあいん

横谷 泰利, 畑野 富美,  
若林 裕亮

### 三瀬鍼灸院

三瀬 公嗣

### A7 NeuroFit

田中 幸子  
栢橋 弘子  
入江 美和  
能 喜栄子

### はりきゅう治療院 蓬蓮花

吉田 伸大

## クワイエット・ルーム（休憩所）

場所: C2  
時間: 6月4日-7日  
9:00 AM-6:00 PM

薬を飲んだり、少し横になって身体を休めたり、瞑想体験も出来る、心も身体も落ち着かせるための場所になっています。

## ケアパートナー・ラウンジ（介護者交流の場）

場所: C1  
時間: 6月5日-7日  
9:30 AM-4:30 PM  
プログラム: 12を参考下さい

介護者同士が安心して話合える場所になっています。介護者同士の新たな出会いや、悩みなどの相談も出来ます。常時日本人スタッフが配置されていますので、お気軽にお立ち下さい。

## 卓球ルーム

協賛: 株式会社スヴェンソン

場所: 104  
時間: 6月6日-7日  
12:00-5:00 PM

それぞれの部屋には日本語スタッフが配置されています。

卓球ルームでは、身体を動かし、沢山の方と交流できます。卓球は、体の動きやバランス、反射などに効果的ですし、純粋に楽しい！参加お待ちしております。

## ウェルネス・ウェイ(オアシス空間)

6月5日 水曜日			
時間	活動項目	演者	説明
7:45 - 8:45 AM	ヨガ：“グラウンディング法”で落ち着いた心身の状態をつくる	アミンタ・セイント オンジ	椅子ヨガのクラスでは“グラウンディング法”や呼吸法を紹介しします。これらの方法は、気持ちを落ち着かせたり、自分の姿勢やバランス感覚を微妙に調節出来ることに気づかせてくれます。クラスの最後には短い瞑想の時間を設けています。(フットローラーとスタンドは選択出来ます。)
9:00 - 10:00 AM	ザ・ラウド・クラウド	ジェニファー・コーディー	グループで行う楽しくエネルギッシュなボイストレーニングのクラスです。日々行えるスピークアウトプログラムにご参加下さい。
10:30 - 11:30 AM	ロックステディ・ボクシング：パーキンソン病にパンチ！	坂井美穂	アメリカ発！！10年の実績をもつ、パーキンソン病に立ち向かう為のボクシングエクササイズ(打ち合いはありません。)ストレッチ、瞬発力、持久力、反射やコグニサイズを含んだ楽しいグループプログラムです。仲間とともに楽しく盛り上がりましょう！！
11:45 AM - 12:45 PM	ドーパフィット：パーキンソン病の為の高負荷インターバル運動 (PHITT) プログラム	チャッド・モイヤー	ドーパフィット：パーキンソン病の特徴に配慮された高負荷(心拍数をあげる)インターバルトレーニング(PHITT)。アメリカ発パーキンソン病患者の為の運動プログラムです。ボクシング、筋力トレーニング、有酸素運動、関節運動などを含んでいます。その効果を是非体験してください。
1:15 - 2:30 PM	ダンス・フォーPD	デイビット・レベンサル	世界的に有名なマークモリス・ダンスグループでも絶賛された研究データに基づく国際的ダンスプログラム。パーキンソン病患者・家族が楽しみながら効果を実感出来る内容です。ダンス経験は必要ありません。創始者のデイビット・レベンサル氏とスペシャルゲストを招いてのクラスは楽しく、創造的で刺激的。リフレッシュ出来る運動プログラムです。
3:00 - 4:00 PM	ザ・トライアド：発声、動きと認知機能	ジョン・ディーン ジョセファ・ドミンゴス	ボイストレーニングとコグニサイズを兼ね備えた運動プログラムになっています。
4:30 - 5:30 PM	アダプテッド・タンゴ クラス	マデレイン・ハックニー	アルゼンチンタンゴを通して「自分の身体の動きを知る」ことができ、気分転換にもなります。このクラスでは、全身ウォーミングアップからペアーでの練習、リズムに合わせて簡単なタンゴステップを楽しむことが出来ます。1人でも参加出来ますので、パートナーと一緒にする必要はありません。



### 6月6日 木曜日

時間	活動項目	演者	説明
8:30 - 9:30 AM	キープ・ムービング：パーキンソン病の為の太極拳	ミルコ・ローレンツ	パーキンソン病の方が続けることが出来るようにアレンジされた太極拳プログラムです。バランス改善、筋力強化、リラクセス効果、集中力を養い、内面を落ち着かせることに有効です。
10:00 - 11:00 AM	マイティ・マエストロ	ジュディス・スペンサー	WPCコーラス担当のジュディと一緒に歌いましょう！歌うことでボイストレーニングや筋肉のストレッチを楽しみながら行えます！
11:30 AM - 12:30 PM	ブレイン・オン・ダンス	ジョセファ・ドミンゴス	ブレイン・ダンス・フォーPDではコグニサイズ・やる気・楽しさを全てを兼ね備えた運動プログラムです。ラテン音楽のリズムに合わせて楽しく動きましょう。
1:00 - 2:00 PM	PD ムーブメント・ラボ 協賛：アダマス製薬	パメラ・クイン 通訳：高橋裕秀	幅広いダンスの動き、素晴らしい音楽、そして実用的なキューイング戦略を使って、私たちは体に挑戦し、私たちの期待に反し、そして私たちの精神を高めます。
2:30 - 3:30 PM	PD フィットネス	布袋田 沙織	バランスと体幹コントロール、手足の動き、関節の可動域、筋肉への刺激や認知機能コントロールなどに重点を置いています。どなたでも参加できます。音楽あり、笑いあいの楽しいプログラムです。
4:00 - 5:00 PM	ロックステディ・ボクシング：パーキンソン病にパンチ！	坂井 美穂	アメリカ発！！10年の実績をもつ、パーキンソン病に立ち向かう為のボクシングエクササイズ（打ち合いはありません。）ストレッチ、瞬発力、持久力、反射やコグニサイズを含んだ楽しいグループプログラムです。仲間とともに楽しく盛り上がりましょう！！

### 6月7日 金曜日

8:30 - 9:30 AM	パーキンソン病の為の太極拳	白井 宣子	太極拳の基礎を学び、自分の心と身体を知ることで日々の生活での動きを良くしましょう。
9:45 - 10:45 AM	PD ムーブメント・ラボ 協賛：アダマス製薬	パメラ・クイン 通訳：高橋裕秀	ダンスや実質的な動きを用いることで、出来ないと思っていた動きが出来るようになります。ここでは心と身体にチャレンジします。
11:15 AM - 12:15 PM	PD フィットネス	布袋田 沙織	バランスと体幹コントロール、手足の動き、関節の可動域、筋肉への刺激や認知機能コントロールなどに重点を置いています。どなたでも参加できます。音楽あり、笑いあいの楽しいプログラムです。
12:45 - 2:00 PM	ダンス・フォーPD	デイビット・レベンサール	世界的に有名なマークモリス・ダンスグループでも絶賛された研究データに基づく国際的ダンスプログラム。パーキンソン病患者・家族が楽しみながら効果を実感出来る内容です。ダンス経験は必要ありません。創始者のデイビット・レベンサール氏とスペシャルゲストを招いてのクラスは楽しく、創造的で刺激的。リフレッシュ出来る運動プログラムです。
2:15 - 3:15 PM	ドーパフィット：パーキンソン病の為の高負荷インターバル運動 (PHITT) プログラム	チャッド・モイヤー	ドーパフィット：パーキンソン病の特徴に配慮された高負荷（心拍数をあげる）インターバルトレーニング (PHITT)。アメリカ発パーキンソン病患者の為の運動プログラムです。ボクシング、筋力トレーニング、有酸素運動、関節運動などを含んでいます。その効果是非体験してください。
3:45 - 4:45 PM	ザ・トライアド：発声、動きと認知機能	ジョン・ディーン ジョセファ・ドミンゴス	ボイストレーニングとコグニサイズを兼ね備えた運動プログラムになっています。

## 介護者の為の憩いの場

協賛：アコルダ・セラピューティクス社、バイオジェン社、大塚製薬株式会社

このラウンジは、パーキンソン病患者の家族や介護者の皆様にご参加いただけます。毎日9 AMから5 PMの時間ほどなたでもご自由にご利用いただけます。このスペースで他の方々と話したり、リラックスしたりと気楽にご利用下さい。日本人スタッフが居ます。

6月5日 水曜日		
時間	活動項目	演者
9:30 - 10:30 AM	若年性パーキンソン病患者の家族・介護者の会： (英語のみ)	ケイト・マクドウェル (ニュージーランド) イレイン・ブック (カナダ)
11:00 AM - 12:00 PM	日本語サポートグループ：“仲間を作ろう (自由参加)”	植竹 日奈 山本 澄子
12:30 - 1:30 PM	英語サポートグループ：“仲間を作ろうーサポートグループ (自由参加)”	イレイン・ブック (カナダ)
2:30 - 3:30 PM	無視するか、今後の計画を立てるのか…人生の分岐点での決断 (英語のみ)	リサ・カブスト (アメリカ)
4:00 - 4:30 PM	ビデオ鑑賞：介護者の日々 (日本語字幕付き)	
6月6日 木曜日		
9:30 - 10:30 AM	診断されたばかりの介護者の会 (英語のみ)	シェリリー・ホーグ (カナダ) イレイン・ブック (カナダ)
11:00 AM - 12:00 PM	日本人の介護者カフェ	荻野 裕 花井 亜紀子
12:30 - 1:30 PM	英語サポートグループ：“仲間を作ろうーサポートグループ (自由参加)”	リサ・カブスト (カナダ)
2:30 - 3:30 PM	日々のコミュニケーションの大切さ (英語のみ)	ゲイラ・ブラナー (イスラエル)
4:00 - 4:30 PM	ビデオ鑑賞：介護者の日々 (日本語字幕付き)	
6月7日 金曜日		
9:30 - 10:30 AM	後期パーキンソン病患者の会 (英語のみ)	ジュリー・カーター (アメリカ)
12:00 - 1:30 PM	Poise(ポイズ)と共に: 介護者のための「心身をいたわり、整える方法」を伝えるセッションです。	12:00 - 2:00 PM 研究論文ミーティング 招待者のみ
2:30 - 3:30 PM	不安、無関心、うつ病や認知問題などへの対応 (英語のみ)	英語：イレイン・ブック (カナダ) とリサ・カブスト (アメリカ) 日本語：植竹 日奈
4:00 - 4:30 PM	ビデオ鑑賞：介護者の日々 (日本語字幕付き)	ルーシー・ラチャンス (カナダ)



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advocacy, education  
and research

Sunovion is a global biopharmaceutical company whose spirit of innovation is driven by the conviction that scientific excellence paired with meaningful advocacy and relevant education can improve lives. We are proud to sponsor the 2019 World Parkinson's Congress to support innovation, education and advocacy for people living with Parkinson's disease.

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 **sunovion**

Innovation today, healthier tomorrows



## FINAL PROGRAM

2019年6月4日 火曜日



## プレングレス — コース I



**PC1 – PDの基礎： 病気の流れ (CME)**  
場所：Annex 2



対象：PWP、介護人、パーキンソン病の介護の初心者

到達点：プログラムで詳述される重要な話題を参加者にしてもらう。今後の予測とこの会を最大に活用する手段となるように。WPCの過去と同時にこの会の構成と成功に関わるPWPの役割を紹介する。

学習課題：1、パーキンソン病の基礎的な理解、原因、症状、治療の研究も含めて、2、PDと診断されたあとのケアとリハビリの概要、3、PDの将来的治療の理解、4、WPCの経験を最大に生かす方法

## PROGRAM

9:00 AM	歓迎式典	司会：	A.C.ウールナフ (アメリカ)
9:05 AM	提唱ピラミッド：患者の結束と交流	演者：	ソーニャ・マーサー (カナダ)
9:30 AM	PDの原因	演者：	バリー・スノー (ニュージーランド)
9:55 AM	PDの臨床症状	演者：	シェン・ヤン・リン (マレーシア)
10:20 AM	演者との質疑応答	司会：	ソーニャ・マーサー (カナダ)
		パネリスト：	バリー・スノー (ニュージーランド) シェン・ヤン・リン (マレーシア)
10:35 AM	Pamelaと一緒に動こう		パメラ・クイン (アメリカ)
10:45 AM	休憩		
11:15 AM	内服治療と外科治療のこれまで	演者：	大山彦光 (日本)
11:40 AM	最新の研究	演者：	高橋良輔 (日本)
12:05 PM	質疑応答	司会：	ジョン・スタンフォード (イギリス)
		パネリスト：	高橋良輔 (日本) 大山彦光 (日本)
12:20 PM	美穂と一緒に動こう		坂井 美穂
12:35 PM	昼食		
1:45 PM	PDと生きるためのヒントとテクニック、 内服治療のその先	司会：	A.C.ウールナフ (アメリカ)
	<ul style="list-style-type: none"> <li>• 会話と嚥下</li> <li>• バランスと歩行</li> <li>• 栄養と便秘</li> <li>• 認知機能訓練、生活をよくする工夫と自己管理</li> <li>• 障害と向き合い、逆境を克服する：家族、仕事、結婚</li> </ul>	パネリスト：	ハーネカ・カーフ (オランダ) リン・ロチェスター (イギリス) ローリー・ミッシェリー (アメリカ) リサ・カプスト (アメリカ) ビクター・マコンベィ (オーストラリア)
3:00 PM	休憩		
3:45 PM	診断を超えて立ち直る	演者：	キャット・ヒル (アメリカ) ナンシー・ピート (アメリカ)
4:15 PM	WPC2019の最大活用	演者：	ジョン・スタンフォード (イギリス)

開会式 > 5:45 — 6:45 PM (Main Hall)

歓迎会：ウェルカムレセプション > 7:00 — 9:00 PM

## FINAL PROGRAM

2019年6月4日 火曜日

DAY

0

## プレングレス — コース 5

## PC5 – 日本企業スポンサーセミナー (NON-CME)

場所: Room A



対象: 医療関係者、このセッションはCME単位の対象にはなりません。

到達点: 現在製薬業界で働いている人やそれに関係する人のためのパーキンソン病の現状と科学、研究およびケアについてのフォーラム。

学習課題: 1.世界中で行われている最新の研究や治療法をさらに知る事でパーキンソン病の理解をより深める; 2. PD治療は複雑なため包括的なアプローチの必要性を理解し; 3. パーキンソン病の今後の治療法を理解する; 4. パーキンソン病患者の現状を知り今後更にどのような事が必要となるのかを明確にする。

## PROGRAM

9:45 AM	エビデンスに基づくディレクショナルリードのプログラミング/ 効率的なディレクショナルリードのプログラミング 共催: アボット社	演者: 上利 崇 倉敷平成病院 ニューロモデュレーションセンター 演者: Stefan J. Groiss デュッセルドルフ大学 脳神経内科
10:45 AM	休憩	
11:15 AM	超高齢社会におけるパーキンソン病のマネジメントを考える ・ パーキンソン病と共に超高齢社会を生き抜く 共催: エフビー株式会社	司会: 服部 信孝 順天堂大学大学院医学研究科 神経学 教授 演者: 野川 茂 東海大学医学部付属八王子病院 副院長・神経内科教授
12:15 AM	ランチ	
1:00 PM	認知症と神経変性疾患 ・ 認知症と神経変性疾患 共催: エーザイ株式会社	司会: 高橋 良輔 京都大学大学院医学研究科 臨床神経学 教授 演者: 前田 哲也 岩手医科大学医学部内科学講座 神経内科・老年科分野 教授
2:30 PM	PDのリハビリテーション ・ 役に立つパーキンソン病体操とそのコツ ・ 楽しくわくわくするリハビリと新しく期待されるリハビリ: 当院での取り組み 共催: ノバルティス ファーマ株式会社	司会: 菊地 誠志 北海道医療センター 病院長 演者: 濱田 晋輔 北祐会 神経内科病院 理事長 演者: 中馬 孝容 滋賀県立総合病院 リハビリテーション科 科長
3:30 PM	休憩	
4:00 PM	パーキンソン病の症候とその背景にある病態: <i>in vivo</i> imagingによる解明 共催: 協和発酵キリン株式会社	司会: 高橋良輔 京都大学大学院医学研究科 臨床神経学 教授 演者: 澤本伸克 京都大学大学院医学研究科 人間健康科学系専攻 近未来型人間健康科学融合ユニット 教授

開会式 &gt; 5:45 — 6:45 PM (Main Hall)

歓迎会: ウェルカムレセプション &gt; 7:00 — 9:00 PM

FINAL PROGRAM

2019年6月5日 水曜日



最新トピック > 8:00 — 9:00 AM	授賞式 > 9:00 — 9:30 AM
場所：メインホール 未確定：提出された要旨に基づく アメリカン・パーキンソン病協会スポンサー	場所：メインホール 受賞者：TBA：未確定

モーニングセミナー > 9:30 — 11:30 AM	
<p><b>WPL - PLENARY</b>                  場所：メインホール  <b>αシヌクレインとパーキンソン病</b></p> <p>司会：グレンダ・ホリデー（オーストラリア）                  司会：サージ・プレゾスキー（アメリカ）</p> <p>議題1：αシヌクレインとは？生物学                  演者：ロナルド・メルキー（フランス）</p> <p>議題2：脳の献体（献脳）から見るαシヌクレインの病理学                  演者：ピーター・リーデラー（ドイツ）</p> <p>議題3：治験に参加する重要性：治療としてのデータだけではない患者の貢献度                  演者：ソーニャ・マーサー（カナダ）</p> <p>議題4：αシヌクレインをターゲットにした治験での効果                  演者：ジェシー・シダーバム（アメリカ）</p>	<p>コース目標：1. 脳内のA-シヌクレインの基本機能と余り知られていない働きについてを理解する；2. Aシヌクレインがどのような条件下でパーキンソン病を起こすのか、また、PDや関連疾患において進行と共に、脳内でどのような変化が起こっているのかを理解する；3. 治験においてAシヌクレインだけを標的とすることの難しさや、現在行われている治験について知る；4. 治験に参加するだけでなく、治験において患者が果たす役割の重要性の説明</p>

ランチ > 11:30 AM — 1:30 PM	
故ジェームス・パーキンソン記念特別講演	CORPORATE LUNCH SESSIONS
<p>12:00 – 1:00 PM  <b>WSL - SPECIAL LECTURE</b></p> <p>場所：さくら</p> <p>司会：ロジャー・バーカー（イギリス）</p> <p>日本のパーキンソン病研究の歴史：過去、現在、未来                  演者：永津 俊治（日本）</p> <p>ミトコンドリア異常はパーキンソン病の病因なのか                  演者：水野美邦（日本）</p>	<p>見て良く分かるMDS-PD診断基準2015</p> <p>場所：Room A      司会：高橋 一司                  演者：渡辺 宏久</p> <p>医療関係者のみ日本語セッション                  Supported by Sumitomo Dainippon Pharma Co., Ltd.</p> <hr/> <p>患者さん中心のパーキンソン病リハビリテーション</p> <p>場所：Annex 2                  どなたでも参加可能—日本語セッション</p> <p>パーキンソン病の患者さんのニーズにそったリハビリテーション</p> <p>演者：中馬 孝容先生（日本）</p> <p>パーキンソン病のマネジメントとリハビリテーション                  ～音楽療法を含めて～</p> <p>演者：林 明人先生（日本）</p> <p>Supported by Takeda Pharmaceutical Company Limited,                  Japan Medical Office</p>



### FINAL PROGRAM

2019年6月5日 水曜日

DAY  
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日本語トラックプログラム 1:30 — 3:00 PM	ラウンドディスカッション 1:30 — 3:00 PM
<p><b>JP1 – 場所：Room A</b> 司会：渡辺宏久（藤田医科大学医学部脳神経内科 主任教授） 司会：大山彦光（順天堂大学 脳神経内科 准教授）</p> <p><b>テーマ：最新のパーキンソン病の診断と治療</b></p> <p><b>トーク1・・・パーキンソン病の新しい診断（20分）</b> 演者：澤本伸克（京都大学大学院医学研究科 教授）</p> <p><b>トーク2・・・パーキンソン病の最新治療（20分）</b> 演者：下 泰司（順天堂大学脳神経内科）</p> <p><b>質疑応答（5分）</b></p> <p><b>テーマ：それぞれの年齢や病期に応じた問題の解決と治療について</b></p> <p><b>トーク3・・・若年患者の抱える問題とその対策（20分）</b> 演者：秋山智（広島国際大学看護学部 教授）</p> <p><b>トーク4・・・病期や年齢に応じた患者との関わり方について（20分）</b> 演者：高橋裕秀（みどり野リハビリテーション病院パーキンソン病治療センター センター長）</p> <p><small>学習課題 1. 近年、DAT SCANをはじめとしたパーキンソン病の早期発見、早期治療につながる研究が行われている。実際にどれくらい早期診断が役にたつのか？ 2. パーキンソン病の新しい治療について新薬の開発状況、発売の見込みなど、またそれぞれどのような人に有効か？ 3. 若年患者は数が少ないが、社会生活上の問題、収入の問題、就業の問題、さらに妊娠・出産・育児など普通の高齢発症の場合とは異なった諸々の問題を抱えている。このような中で若年患者がより良く生きるためにはなにが必要か？ 若年患者以外の人も一緒に考えるべき問題である。 4. 介護者の関わり方、家でできるリハビリなど。病期と重症度により異なるリハビリテーションに求められること。</small></p>	<p><b>WRT1 – 場所：Rooms I, J, K</b> アメリカン・パーキンソン病協会スポンサー</p> <p><b>テーブル3*：遺伝学的視点から見たパーキンソン病原因遺伝子LRRK2の機能に対する新たな見解*。</b> マット・フアラール（カナダ） 通訳：寺尾元</p> <p><b>テーブル6*：(経頭蓋磁気刺激)を用いた治療法の効果と信頼性、今後の展望について</b> アンジェロ・クアトロネ（イタリア） 通訳：石尾政直</p> <p><b>テーブル7*：αシヌクレインとは何か—その生物学的特性</b> ロナルド・メルキ（フランス） 通訳：内藤惇</p> <p><b>テーブル10*：PDの為のヴォイストレーニング</b> ダーラ・フリーマン（アメリカ） 通訳：細江 弥生</p> <p><b>テーブル12*：患者と研究者二つの世界はどうすれば手を取り合えるのか？</b> サイモン・ストット（イギリス） A.C.ウールナフ（アメリカ） 通訳：上戸壽</p>
3:30 — 5:00 PM	3:30 — 5:00 PM
<p><b>JP2 – 場所：Room A</b> <b>テーマ：DBS及びdevice aided therapy (パネルディスカッション)</b></p> <p>司会：水野敏樹（京都府立医科大学 神経内科教授） 服部信孝（順天堂大学脳神経内科 教授）</p> <p>演者：梅村淳（順天堂大学運動障害疾患病態研究治療講座）（15分） 戸田弘紀（福井赤十字病院脳神経外科）（15分） 木村活生（横浜市立大学附属市民総合医療センター神経内科）（15分） 大山彦光（順天堂大学脳神経内科）（15分） 小倉眞一郎（患者、全国パーキンソン病友の会神奈川県支部）（5分） 伊藤克義（患者、全国パーキンソン病友の会京都府支部 支部長）（5分）</p> <p><b>ディスカッション（20分）</b></p> <p><small>学習課題 DBSは保険適応になって以来、PD治療に関してはかなり一般的な治療法となってきたが、患者の中には詳しい情報を知らずにDBSを選択し、後で後悔する例もある。 1. DBSによって改善される症状、改善されない症状、一時的に改善されるが長続きしない症状 2. DEVICEについて、患者は選択できるのか？ 3. 手術を受けるに際して病院選びの基準は？ 4. 痛み、姿勢、歩行、バランス、すくみ足、認知の問題 5. 非運動症状への効果 6. 家族として知っておくべきこと</small></p>	<p><b>WRT2 – 場所：Rooms I, J, K</b> Adamasスポンサー</p> <p><b>テーブル2*：パーキンソン病の認知機能を守る治療プログラム</b> 武田 篤（日本）</p> <p><b>テーブル5*：細胞移植治療の臨床応用</b> 森実飛鳥（日本）</p> <p><b>テーブル6*：パーキンソン病 (PD) での選択的な神経細胞死における細胞の閾値の役割</b> デイビッド サルザー（アメリカ合衆国） 通訳：山下真弥</p> <p><b>テーブル9*：パーキンソン病におけるAシヌクレインとそれに関わる免疫反応について</b> アシュリー・ハームズ（アメリカ） 通訳：喜多村恭平</p> <p><b>テーブル12*：ジスキネジアへの対応</b> 富山誠彦（日本）</p>

### WWU – パネリストによる本日のまとめ > 5:15 — 6:30 PM

場所：メインホール

演者：ミカライ・タグリアティ（アメリカ）

パネリスト：ジェニファー・ゴールドマン（アメリカ）、アンジェラ・チェンシーニルソン（スウェーデン）、サラ・リガー（スウェーデン）、パオロ・カラブレシ（イタリア）、高橋良輔（日本）

\* マークには日本語でのサポートあり

FINAL PROGRAM

2019年6月6日 木曜日



最新トピック > 8:00 — 9:00 AM

場所：メインホール  
未確定：提出された要旨に基づく

アメリカン・パーキンソン病協会スポンサー



授賞式 > 9:00 — 9:30 AM

場所：メインホール  
受賞者：TBA：未確定



モーニングセミナー > 9:30 — 11:30 AM

TPL – PLENARY

場所：メインホール

オーダーメイド医療へと向かっているのか？

司会：エティエン・ヒルシュ（フランス）  
司会：高橋良輔（日本）

議題1：パーキンソン病の異質性について  
演者：コニー・マラス（カナダ）

議題2：遺伝性パーキンソン病において今後の治療にどう影響をもたらすのか？  
演者：アンソニー・シャピラ（イギリス）

議題3：パーキンソン病治療のための新しい治験  
演者：オリバー・ラスコー（フランス）

議題4：パーキンソン病遺伝子を持ちながら生きるとは？  
演者：ベンジャミン・ステッチャー（カナダ）



コース目標：1.単独でのパーキンソン病バイオマーカーがない為、臨床分析や遺伝など様々な症状を認識する；2.パーキンソン病特有の症状に作用する可能性のある、特定遺伝子による最新の研究を学ぶ；3.より効果的な研究のためにパーキンソン病患者を細分化し（運動症状、非運動症状、振戦がメイン、拘縮がメイン、若年性など）グループ分けした上でさらに特化した研究やその研究の方法を学ぶ；4.神経疾患遺伝子を持ちながら生きる事がどのような事なのか、その事実により今後のライフプランから日常の生活までどう影響するのか、臨床研究などに参加する事が今後の研究にどう役に立つのかなどの説明

昼食・ポスター発表 > 11:30 AM — 1:30 PM

特別講演

12:00 - 1:00 PM

TSL – SPECIAL LECTURE

場所：さくら

パーキンソン病と上手に付き合う：その秘訣は？

司会：ラジャ・パワー（アメリカ）

パネリスト：オモトラ・トーマス（イギリス）  
岡田 芳子（日本）  
エマ・ラートン（イギリス）  
エリザベス・イルダ（デンマーク）  
ベンジャミン・ステッチャー（カナダ）



CORPORATE LUNCH SESSIONS

当セミナーは、HCP（医療従事者）とパーキンソン病患者さんのより良いコミュニケーションについてそれぞれの視点から議論する機会としています。

場所：Room A 司会：柏原 健一  
演者：望月 秀樹、大江田 知子、鈴木 しのぶ、片山 靖浩

医療関係者のみ—日本語セッション  
Supported by AbbVie GK

パーキンソン病におけるウェアラブルテクノロジーを用いた定量的評価

場所：Annex 2 司会：宇川 義一  
演者：ルンロン ビダヤシリ

医療関係者のみ—日本語セッション  
Supported by Takeda Pharmaceutical Company Limited,  
Japan Medical Office



### FINAL PROGRAM

2019年6月6日 木曜日



#### ラウンドディスカッション > 1:30 — 3:00 PM

TRT1-

場所：Rooms I, J, K

**テーブル1:** 「若年発症性パーキンソン病との上手な付き合い方」

ティム・ヘイグ(カナダ)

通訳：平井将隆

**テーブル3:** 「パーキンソン病は栄養素（食物のみならず環境、社会性を含む）で緩和される証拠はあるのか？」

ローリー ミッシュェリー(アメリカ)

通訳：津野 明美

#### ラウンドディスカッション > 3:30 — 5:00 PM

TRT2 -

場所：Rooms I, J, K

**テーブル2:** iPS細胞とパーキンソン病にとって2019年はどのような一年になるか

高橋 淳 (日本)

**テーブル3:** パーキンソン病になる人を予測する

イザベル・アルヌルフ (フランス)

通訳：中西令

**テーブル4:** パーキンソンに注ぐ光：光遺伝学による大脳基底核の活動制御"-

ステラ・パパ (アメリカ)

通訳：池田桜

**テーブル5:** パーキンソン病における痛みに対する治療の探求と臨床試験

オム ジェオン(韓国)

通訳：中川隆太郎

**テーブル6:** パーキンソン病の多様性—それが持つ意味と重要性—

コニー・マラス (カナダ)

通訳：大島正義

**テーブル7:** 若年性パーキンソン病と共に生きる～楽観的にバランスよく仕事・子育てを乗り切る方法～

レベッカ・ミラー (アメリカ)

通訳：岡本佳奈子

#### TWU – パネリストによる本日のまとめ > 5:15 — 6:30 PM

場所：メインホール

演者：セルジュ・プレゼドスキー (アメリカ)



パネリスト：ティム・アンダーソン (ニュージーランド)、ロジャー・バーカー (イギリス)、  
ジュリー・カーター (アメリカ)、アンソニー・シャピラ (イギリス)、キャロライン・スー (オーストラリア)

#### セッションのレベル



クロス・トーク  
初級：科学や医学の知識が余りなくても理解出来るレベル



中級：科学や医学の知識がある程度必要



上級：科学や医学の知識がないと理解出来ない

#### セッションの種類



基礎科学



臨床科学



総合ケア

#### 言語



英語から日本語への同時通訳



日本語トラック



別途有料

\* マークには日本語でのサポートあり

## FINAL PROGRAM

2019年6月7日 金曜日

DAY  
3

## 最新トピック &gt; 8:00 — 9:00 AM

場所：メインホール  
未確定：提出された要旨に基づく

米国パーキンソン病協会スポンサー



## 授賞式 &gt; 9:00 — 9:30 AM

場所：メインホール  
受賞者：未確定

## モーニングセミナー &gt; 9:30 — 11:30 AM

FPL – PLENARY

場所：メインホール



パーキンソン病はただの脳の病気だけではない！

司会：望月秀樹（日本）

司会：ロジャー・パーカー（イギリス）

議題1：新しい生き方：様々な問題に対してどのように工夫しながら対応していくか

演者：ヘザー・ケネディ（アメリカ）

議題2：パーキンソン病における非運動症状問題について

演者：ジェフリー・コードワー（アメリカ）

議題3：パーキンソン病は「脳」以外の場所から始まっている？

演者：パー・ボーガマー（デンマーク）

議題4：パーキンソン病で起こる非運動症状への対処法

演者：シェン・ヤン・リン（マレーシア）

コース目標：1. 脳内ドーパミンにより起こる運動問題だけではなく、末梢神経系によるパーキンソン病の非運動症状問題を理解する；2. パーキンソン病による非運動症状問題のまとめ；3. 末梢神経系によるパーキンソン病非運動症状の問題に対しての現在の治療方法、現在処方されている運動機能系の治療薬の効能・効果を阻害しない非運動症状に対する治療薬を理解する；4. パーキンソン病が脳以外の場所（腸や便秘）で発症し、その後脳内へ進行するという研究に対する反対の意見などを理解する

## 昼食・ポスター発表 &gt; 11:30 AM — 1:30 PM

## 特別講演 &gt; 12:00 — 1:00 PM

12:00 – 1:00 PM

FSL – SPECIAL LECTURE

場所：メインホール



iPS細胞の現状と医療応用に向けた取り組み

司会：水野美邦（日本）

演者：山中伸弥（日本） – 2012年度のノーベル生理学・医学賞受賞者





### FINAL PROGRAM

2019年6月7日 金曜日



#### ラウンドディスカッション > 1:30 — 3:00 PM

FRT1- 場所 : Rooms I, J, K

**テーブル4:** 臨床試験の代用としての診療データ活用  
パス プルーム (ニュージーランド)  
通訳: 上戸壽

**テーブル5:** パーキンソン病の発症原因解明に向けた幹細胞、オルガノイド (ミニ臓器) 活用  
アーネスト アレナス (スウェーデン)  
通訳: 山下真弥

**テーブル7:** 一病態生理の更なる理解を深めるために遺伝学が担う役割  
ジョン・ハーディー (イギリス)  
通訳: 大島正義

**テーブル10:** PINK1, Parkin, およびユビキチンシステム  
松田憲之 (日本)

**テーブル12:** パーキンソン病診断後も前向きであり続ける本人と介護者からのアドバイス  
キャリン・スピルバーク (オーストラリア)  
スー・ハーパー (オーストラリア)  
通訳: 高明 薬師川

#### ラウンドディスカッション > 3:30 — 5:00 PM

FRT2 - 場所 : Rooms I, J, K

**テーブル1:** パーキンソン病動物モデルでの大脳基底核ネットワークにおける電気信号異常について  
南部篤 (日本)

**テーブル5:** パーキンソン病に有酸素運動は効果的なのか?  
テリー・エリス (アメリカ)  
通訳: 坂井 美穂

**テーブル7:** 免疫系の老化と、脳の健康及びパーキンソン病へのその関連  
ヴィー ヴィー ヨン (カナダ)  
通訳: 斉藤成美

**テーブル8:** パーキンソン病における薬物治療および外科治療の進歩  
大山 彦光 (日本)

**テーブル9:** 家族全体の問題としてのパーキンソン病~パーキンソン病患者とその家族の幸福を考える~  
ジャスミン・スター (アメリカ)  
通訳: 岡本佳奈子

**テーブル10:** パーキンソン病に対する音楽・ダンスの効果  
メグ・モリス (オーストラリア)  
通訳: 内藤惇

#### FWU - パネリストによる本日のまとめ > 5:15 — 6:15 PM

場所 : Annex 1  
演者 : ジョン・ストーシ (カナダ)

パネリスト : テッド・ダウソン (アメリカ) 、 ホアキン・フェレイラ (ポルトガル)  
スザンヌ・シュナイダー (ドイツ) 、 アンネ・ハンド (イギリス) 、 服部信孝 (日本)



#### 閉会式 > 6:30 — 7:00 PM

#### レセプション > 7:00 — 8:30 PM

##### セッションのレベル

クロス・トーク  
初級 : 科学や医学の知識が余りなくても理解出来るレベル

中級 : 科学や医学の知識がある程度必要

上級 : 科学や医学の知識がないと理解出来ない

##### セッションの種類



基礎科学



臨床科学



総合ケア

##### 言語



英語から日本語への同時通訳



日本語トラック



別途有料

\* マークには日本語でのサポートあり

## GENERAL INFORMATION

### BADGES

Delegates must wear their badge at all times in the Convention Center.

- |                            |               |                                 |              |
|----------------------------|---------------|---------------------------------|--------------|
| • Health Professionals     | <b>RED</b>    | • Exhibitor Staff (floor only)  | <b>GREEN</b> |
| • Non-health Professionals | <b>BLUE</b>   | • Volunteers/Registration Staff | <b>CLEAR</b> |
| • Accompanying Person      | <b>YELLOW</b> |                                 |              |
| • Media                    | <b>BLACK</b>  |                                 |              |

### BANKING AND EXCHANGE FACILITIES

For currency exchange you will need to have your passport. Generally, weekday hours for banks are 9:00 AM – 3:00 PM or 5:00 PM, closed Saturdays and Sundays. You can also change currency at Post Offices or in department stores such as Takashimaya or Daimaru (procedures are often less laborious than in banks).

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### DRESS CODE

You may dress informally for the congress. The dress code for the social program and special events is also informal.

### ELECTRICITY

The voltage in Japan is 100 volts AC. There are two possible frequencies: 50 hertz in Eastern Japan and 60 hertz in Western Japan.

### EMERGENCIES & FIRST AID

**Severe Medical Emergency:** In case of severe medical emergency (requiring an ambulance), call 119 immediately. Give them essential details, including location, condition, gender and any other information regarding the patient. Then contact the Security Center by calling the 075-705-1311 (ext. 2271) or by contacting the staff on site so that they can help to guide the ambulance.

**Earthquake:** In case of JMA seismic intensity of 5-upper or above, an emergency message will be broadcast. Please follow the indications given by the staff and the emergency message.

**Fire:** In case of fire, an emergency message will be broadcast. Please follow the indications given by the staff and the emergency message.

### EXHIBITION

<b>Tuesday, June 4</b>	7:00 – 9:00 PM
<b>Wednesday, June 5</b>	11:00 AM – 6:45 PM
<b>Thursday, June 6</b>	11:00 AM – 6:45 PM
<b>Friday, June 7</b>	11:00 AM – 2:00 PM

Location: The WPC 2019 will offer space in two exhibit halls, the Event Hall, and the New Hall. See floor plan, list of exhibitors and details on pages 116–118.

## GENERAL INFORMATION

### EXHIBIT HALL PASSPORT

The WPC Passport sponsors invite you to visit their booths to discover their products and services and to get your passport stamped for the drawing. One lucky winner will walk away with ¥10,000 (USD\$100) at the end of each day of the exhibition, three winners in all! Raffles take place in the WPC Theater (Event Hall) at 6:30 PM on Wednesday and Thursday and in the Plenary Room at 6:00 PM on Friday.

### FOOD SERVICES

Daily boxed lunches as well as tea and coffee during the official afternoon breaks are included in your registration fee. There will be lunch tables in the two exhibition halls of the Kyoto International Conference Center (Event Hall and New Hall). Light food and drinks will be served during the Opening Reception on June 4, the Music & Movement evening activity on June 6 and the Closing Remarks on June 7.

### ICONS Session Levels



Crosstalk – Minimal or no scientific background required



Moderate-level scientific sessions



High-level scientific sessions

### Session Type



Basic Science



Clinical Science



Comprehensive Care

### Language



Simultaneous interpretation from English to Japanese  
英語から日本語



Japanese track  
日本語トラック



Ticketed event  
別途有料

### INTERNET ACCESS

Free Wi-Fi is offered at the Kyoto International Conference Center during the congress.

### LANGUAGE

The official language of the World Parkinson Congress is English. Simultaneous interpretation from English to Japanese will be available for morning sessions and the program will also include a special Japanese-language track each afternoon.

### MAKING KYOTO PARKINSON READY

Did you know that we trained city members throughout Kyoto to welcome you to the city? We trained front of house staff, the convention center staff, airport staff, tour guides, and others to better understand Parkinson's. This training has been done at every WPC since 2010 and is designed to help them prepare for welcoming you, but it's also part of the WPC Legacy, leaving our mark behind well after we are gone by educating these community members to better understand Parkinson's.

### MAPS & FLOOR PLANS

See back of program, pages 116–117 & 148–150.

### MOBILE APP

The free WPC 2019 mobile app allows you to carry the WPC details on your smartphone or tablet, including program, general information, side activities, list of participants and the opportunity to exchange messages with fellow delegates. To download visit any App Stores and look for World Parkinson Congress 2019.

### MOBILE PHONES AND DEVICES

Mobile phones must be switched off or muted in the session meeting rooms.

## GENERAL INFORMATION

### PHOTOGRAPHY AND VIDEOTAPING

Photography and videotaping are not permitted in any of the oral or poster sessions without the express permission of the relevant oral presenter or poster authors.

An official photographer/videographer will be on site to capture the essence of the congress for the WPC web site and records. These images may be used for promotion of the World Parkinson Coalition.

### POSTERS

Posters will be displayed throughout the congress dates in the exhibition (Event Hall and New Hall). Official poster sessions are scheduled on Wednesday and Thursday from 11:30 AM to 1:30 PM, at which time poster presenters will be stationed by their poster to discuss with delegates. See the poster session program for details on when posters will be hosted.

Poster set-up time is Tuesday from 8:00 AM to 5:00 PM and Wednesday 8:00 to 10:30 AM. All posters must be taken down by 3:00 PM on Friday.

### POSTER TOURS

Poster tours will be held from 5:15 to 6:30PM on Wednesday and Thursday evenings, June 5 and 6, at which times a select number of posters will be hosted. Sign up for tours in the New Hall, at the table near the first row of posters at the back of the hall (rows for posters P01.01 – P02.09).

### MEDITATION, PRAYER AND QUIET ROOM

This room (Location: C2) will be open daily from 9:00 AM – 6:00 PM for a quiet space for resting, napping on a futon, or just sitting quietly in meditation or prayer.

### REGISTRATION HOURS

#### At the lobby of Hotel Vischio

<b>Sunday, June 2</b>	10:00 AM – 8:00 PM
<b>Monday, June 3</b>	8:00 AM – 6:00 PM

#### In the lobby of Event Hall of the Kyoto International Conference Center (KICC)

<b>Tuesday, June 4</b>	7:00 AM – 8:00 PM
<b>Wednesday, June 5</b>	7:00 AM – 6:30 PM
<b>Thursday, June 6</b>	7:00 AM – 6:30 PM
<b>Friday, June 7</b>	7:00 AM – 3:30 PM

### SMOKING POLICY

Please do not smoke on streets and sidewalks. Only smoke in designated outdoor areas. All indoor areas of the Convention Center are non-smoking.

### SOCIAL MEDIA

Connect with other delegates and Congress organizers using social media:



Like us on **Facebook**  
@World Parkinson Congress.



"Follow" **World Parkinson Coalition**.



Follow us on **Twitter**  
@WorldPDCongress  
The hashtag is #wpc2019.



See the WPC community on **Instagram@worldpdcongress**.  
Join our photo feed by using  
hashtag #wpc2019.



The WPC **YouTube** channel  
is **WorldPDCongress**.



## GENERAL INFORMATION

### SPEAKER READY ROOM

All invited speakers can go to the Speaker Ready Room 157 where computers are available to invited speakers wishing to review or modify their presentation.

#### Speaker Ready Room Schedule

<b>Monday, June 3</b>	3:00 PM – 7:00 PM
<b>Tuesday, June 4</b>	7:00 AM – 6:00 PM
<b>Wednesday, June 5</b>	7:00 AM – 6:00 PM
<b>Thursday, June 6</b>	7:00 AM – 6:00 PM
<b>Friday, June 7</b>	7:00 AM – 5:00 PM

### TRANSPORTATION

The bus networks in Kyoto work very well. Tickets can be bought on the bus, only by cash. It is best to prepare your change before boarding. One bus ticket is ¥230 (\$2 US, €1.84) if you stay within the city fare zone. If you go outside of the city fare zone, you will pay according to the distance (you will have to take a numbered ticket when you get in and a screen in the bus will broadcast your number and your fare). The bus stop for the Kyoto International Conference Center is Kokusaikaikan-eki-mae stop on the Kyoto City Bus and Kyoto Bus lines. It is located five minutes walk from the Kyoto ICC.

Most major cities in Japan have a subway network. In Kyoto, a ticket costs range from ¥170 (\$1.53 US, €1.40) for 1 to 6 km, ¥200 (\$1.80 US, €1.70) for 7 to 11 km, etc. Rates vary according to the companies. The subway station for the Kyoto International Conference Center is Kokusaikaikan Station on the Karasuma Subway Line. Take the Exit 4-2. It is located five minutes walk from the Kyoto ICC.

Even if taxi drivers do not always speak English, they are very helpful in working out how to get you to where you need to go. The invoice is delivered by an electronic box. Depending on the time of year, coverage varies from ¥400–700 approximately (\$3.59–6.29 US, €3.21–5.61); the meter then increases from 2 km. All taxis accept cash and some of them accept credit card. It is better to check with the driver if your credit card is accepted before boarding.

### VOLUNTEERS

The WPC leadership thanks the many volunteers who donated their time to help welcome the thousands of delegates who traveled from around the world to attend the WPC 2019. More than 100 volunteers from 19 countries prepared to welcome and support you. Please thank a volunteer when you see them in their blue shirts. They improve the WPC experience!

### WPC STORE

The WPC Store is located in the lobby of the Main Building and is open from 11:30 AM – 5:00 PM Wednesday through Friday. Stop by to pick up a WPC t-shirt, baseball hat, your very own Parky the Raccoon, or a handmade bracelet. One hundred percent of the store profits go into the WPC Travel Grants program to support junior investigators, clinicians, and people with PD to attend the next WPC.

## WELLNESS WAY

*Supported by Acorda Therapeutics, Biogen and Otsuka Pharmaceutical Co., Ltd  
Support for Japanese-speaking delegates will be available in each space*

**Wellness Way** is made up of the areas at the Congress that focus on taking care of oneself. Whether a person with Parkinson's, care partner, or health professional, we all need to engage in self-care to ensure we are living our best. To help delegates achieve this goal, we offer spaces at the WPC where people can try a variety of exercises, massage therapies, networking and just resting peacefully. Be sure to make time during the WPC to visit these spaces so you are working your body as much as you work your mind!

**Location: SWAN ROOM**  
8:00 AM – 5:30 PM  
June 5-7  
See pages 27-28

### RENEWAL ROOM

A place to get the blood moving, the space will offer a variety of classes to move the body, voice, and mind. Participate daily in a wide range of classes including: Yoga, Tai chi, Dance, Vocal training, Boxing and more!

**Location: 103B**  
10:00 AM – 5:00 PM  
June 5-7  
See page 31

### MASSAGE & REIKI ROOM

A place to relax and unwind, this room will offer short complimentary massage and Reiki treatments on massage tables or massage chairs. Participants remained fully clothed.

**Location: C2**  
9:00 AM – 6:00 PM  
June 4-7

### MEDITATION, PRAYER & QUIET ROOM

This room will be open daily for a quiet space for resting, napping on a futon, or just sitting quietly in meditation or prayer.

**Location: C1**  
9:30 AM – 4:30 PM  
June 5-7  
See page 29

### CARE PARTNER LOUNGE

*Made possible with support from Acadia*

Back by popular demand, this room offers a safe space for care partners to meet and greet each other. Care partners will enjoy both support group space during lunch time and have a formal roundtable talk each day geared to care partners.

**Location: ROOM 104**  
12:00 – 5:00 PM  
June 5-6  
See page 30

### TABLE TENNIS ROOM *Made possible with support from Svenson Holdings*

Join us in the table tennis room for some exercise, wellness, and friendship. Table tennis helps with balance, mobility, reflexes and is just plain fun to do!



## RENEWAL ROOM SCHEDULE

Location: SWAN ROOM

WEDNESDAY, JUNE 5			
Time	Activity	Presenter(s)	Description
7:45 – 8:45 AM	Yoga: 'Grounding to Rise' for Stability and Mind/Body Connection	Aminta St. Onge	This Chair Yoga Session will introduce breathing and 'grounding' technique allowing for calming and centering as well as bring awareness of how slight adjustments can help with stability and balance. Session will end with short meditation. (Foot rolling and standing are optional.)
9:00 – 10:00 AM	The LOUD Crowd®	Jennifer Cody	Practice your daily SPEAK OUT!® exercises with us in this fun and energizing group speech practice session!
10:30 – 11:30 AM	Rock Steady Boxing – Fighting back against Parkinson's disease	Miho Sakai	Rock Steady Boxing empowers people with Parkinson's to "fight back." We will introduce participants to non-contact boxing-inspired exercise program.
11:45 AM – 12:45 PM	DopaFit: Parkinson's High Intensity Interval Training (PHIT)	Chad Moir	Come learn the benefits of exercise and Parkinson's with DopaFit: Parkinson's High Intensity Interval Training (PHIT), a Parkinson's specific exercise program based in the USA which consists of boxing, strength training, aerobic and mobility exercises.
1:15 – 2:30 PM	Dance for PD®	David Leventhal	Dance for PD® is the Mark Morris Dance Group's acclaimed, research-backed global program that invites people with Parkinson's and their families to experience the joys and benefits of dance--no experience necessary. Join founding teacher David Leventhal and special guest teaching artists to explore movement and music in ways that are refreshing, stimulating, creative and fun.
3:00 – 4:00 PM	The TRIAD – Voice, Movement & Cognition	John Dean Josefa Domingos	The Triad – Voice, Movement & Cognition integrated exercise program.
4:30 – 5:30 PM	Adapted Tango Class	Madeleine Hackney	Improve motor cognitive and psychosocial function through Argentine Tango dance. This class will include a full body warm-up, partnering exercises, rhythmic entrainment, modified tango steps and lots of fun dancing to the music. A partner is not necessary but bring a friend if you can who is willing to participate.

## RENEWAL ROOM SCHEDULE

Location: SWAN ROOM

THURSDAY, JUNE 6			
Time	Activity	Presenter(s)	Description
8:30 – 9:30 AM	<b>Keep Moving: Tai Chi Training for People with Parkinson's</b>	<b>Mirko Lorenz</b>	Keep Moving is based on Chinese martial arts, Tai Chi and created for people with Parkinson's. It is good for balance, strength, relaxation and concentration and inner silence.
10:00 – 11:00 AM	<b>Mighty Maestro!</b>	<b>Judith Spencer</b>	Come and sing with Judi, WPC Choir Director and the Mighty Maestro! Stretch those singing muscles and have fun!
11:30 AM – 12:30 PM	<b>Brain on Dance</b>	<b>Josefa Domingos</b>	Brain on dance for PD – Bringing cognition, motivation and fun into physical activity while immersed in Latin rhythms.
1:00 – 2:00 PM	<b>PD Movement Lab</b> <i>Supported by Otsuka Pharmaceutical Co., Ltd</i>	<b>Pamela Quinn</b> <i>Interpreter:</i> <b>Hirohide Takahashi</b>	Using a wide range of dance movement, wonderful music and practical cueing strategies, we challenge the body, defy expectations, and uplift our spirits.
2:30 – 3:30 PM	<b>PD Fitness</b>	<b>Saori Hoteida</b>	PD fitness focuses on stability and trunk control, limb control, range of motion, stimulation to the muscles, accuracy, and speed. Everyone can participate in this fun program with lots of laughter and music.
4:00 – 5:00 PM	<b>Rock Steady Boxing – Fighting back against Parkinson's disease</b>	<b>Miho Sakai</b>	See previous session description.

FRIDAY, JUNE 7			
Time	Activity	Presenter(s)	Description
8:30 – 9:30 AM	<b>Tai Chi for People with Parkinson's</b>	<b>Noriko Shirai</b>	Learn basic exercises based on Tai Chi. It improves your daily movements and enhances your mind-body awareness.
9:45 – 10:45 AM	<b>PD Movement Lab</b> <i>Supported by Otsuka Pharmaceutical Co., Ltd</i>	<b>Pamela Quinn</b> <i>Interpreter:</i> <b>Hirohide Takahashi</b>	See previous session description.
11:15 AM – 12:15 PM	<b>PD Fitness</b>	<b>Saori Hoteida</b>	See previous session description.
12:45 – 2:00 PM	<b>Dance for PD®</b>	<b>David Leventhal</b>	See previous session description.
2:15 – 3:15 PM	<b>DopaFit: Parkinson's High Intensity Interval Training (PHIIT)</b>	<b>Chad Moir</b>	See previous session description.
3:45 – 4:45 PM	<b>The TRIAD – Voice, Movement &amp; Cognition</b>	<b>John Dean</b> <b>Josefa Domingos</b>	See previous session description.



## CARE PARTNER LOUNGE SCHEDULE

**Location: C1** Supported by Acorda Therapeutics, Acadia Pharmaceuticals, Biogen, and Otsuka Pharmaceutical Co., Ltd

All care partners & caregivers are welcome to enter and enjoy this space. Even when sessions are being held in a different language, the room itself is open to caregivers daily from 9:00 AM – 5:00 PM. Please come and enjoy the space, relax and meet other caregivers and partners.

WEDNESDAY, JUNE 5		
Time	Activity	Presenter(s)
9:30 – 10:30 AM	YOPD Care partner group discussion <i>(English only)</i>	Kate McDowell (New Zealand) Elaine Book (Canada)
11:00 AM – 12:00 PM	Japanese support group “Creating Connections – an open support group”	Hina Uetake (Japan) Sumiko Yamamoto (Japan)
12:30 – 1:30 PM	English support group “Creating connections – an open support group”	Elaine Book (Canada)
2:30 – 3:30 PM	Making decisions at the crossroads of care...procrastinator or planner <i>(English only)</i>	Lissa Kapust (USA)
4:00 – 4:30 PM	Video – Caregiver Journey	
THURSDAY, JUNE 6		
9:30 – 10:30 AM	New Diagnosis Care partner group discussion <i>(English only)</i>	Sheryl Hague (Canada) Elaine Book (Canada)
11:00 AM – 12:00 PM	Japanese Caregiver Café	Yutaka Ogino (Japan) Akiko Hanai (Japan)
12:30 – 1:30 PM	English support group “Creating connections – an open support group”	Lissa Kapust (Canada)
2:30 – 3:30 PM	Maintaining intimate communication <i>(English only)</i>	Gila Bronner (Israel)
4:00 – 4:30 PM	Video – Caregiver Journey	
FRIDAY, JUNE 7		
9:30 – 10:30 AM	Late Stage Parkinson’s group discussion <i>(English only)</i>	Julie Carter (USA)
12:00 – 1:30 PM	Partnering with “Poise” – A Self Care Session for Care Partners	English: Elaine Book (Canada) Lissa Kapust (USA) Japanese: Hina Uetake (Japan)
	12:00 – 2:00 PM Focus group INVITATION ONLY	
2:30 – 3:30 PM	Dealing with anxiety, apathy, depression and cognitive change <i>(English only)</i>	Lucie Lachance (Canada)
4:00 – 4:30 PM	Video – Caregiver Journey	

## TABLE TENNIS SCHEDULE

**Location: 104**  
*Room made possible with support from Svenson Holdings*

Table tennis, a popular sport worldwide, is great exercise for people with Parkinson’s and others. It helps increase your heart beat, while forcing participants to focus on balance, shifting from one leg to the other, all while working on eye-hand coordination to return the volley.

We invite you to this room to play a game of table tennis, challenge your doctor or physical therapist to a match or just have fun and give this exercise a try for the first time.

WEDNESDAY, JUNE 5 & THURSDAY, JUNE 6		
Time	Activity	Teacher
12:00 – 5:00 PM	Table tennis volleys and games	Masaaki Sano

## WPC THEATER

**Location: EVENT HALL**

Open to all, the WPC Theater is a lively space for special performances and talks. When performances are not taking place, videos from the WPC Video Competition will run continuously on the screen for delegates’ viewing pleasure.

WEDNESDAY, JUNE 5		
Time	Activity	Presenter
12:00 – 1:00 PM	<b>Music &amp; Dance:</b> Live performances	See details in theater
5:30 – 6:00 PM	<b>Technology:</b> How a wearable technology designed by Not Impossible could counter the symptoms of PD	<b>Not Impossible Labs (USA)</b>
THURSDAY, JUNE 6		
12:00 – 1:00 PM	<b>Music &amp; Dance:</b> Live performances	See details in theater
5:30 – 6:30 PM	<b>Movie:</b> Kinetics	<b>Ben Wylie (UK)</b>
FRIDAY, JUNE 7		
12:00 – 1:00 PM	<b>Music &amp; Dance:</b> Live performances	See details in theater
1:05 – 1:25 PM	<b>Technology:</b> TAT-ON: the solution for an objective evaluation of PD motor symptoms. A three-day real-time experience in Kyoto	<b>Sense4Care (Spain)</b>

## MASSAGE & REIKI ROOM

**Location: 103B**

We are pleased to thank the volunteer massage and Reiki masters who are donating their time to ensure the WPC delegates get the support they need during the WPC. Sign up for a short massage outside Room 103B. Thank you to the following companies and therapists:

**Fureasu Co., Ltd.**

Eishou Kawakami  
Osamu Nakanishi  
Kasumi Nara  
Hiroshi Kanda  
Asami Uchida  
Satoko Jin  
Hiroshi Aruga  
Satoshi Miyazaki  
Hiroyuki Kainuma  
Satoshi Kimura

**Healing Land Reiki**

Reina Takahashi  
Muniqui Muhammad

**Hyogo Prefecture Practitioner Association**

Sachiko Fujiwara  
Kazuteru Sasaki  
Toshio Yamada  
Miho Kaihatsu

**Hourenka Acupuncture**

Nobuhiro Yoshida

**Mise Acupuncture**

Kouji Mise

**Yukawa Acupuncture**

Tohru Yukawa

**Visiting Massage Re • Fine**

Yasutoshi Yokotani  
Tomi Hatano  
Yusuke Wakabayashi

**Araya Clinic**

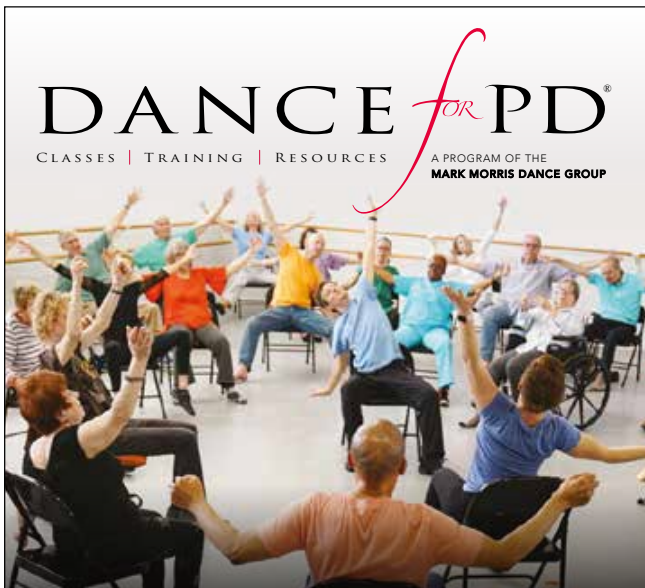
Toshio Tanaka

**Wakuru Holistic Massage**

Masako Kanayama

**A7 NeuroFit**

Sachiko Tanaka  
Hiroko Kayahashi  
Miwa Irie  
Kieko Nou



**DANCE for PD**  
CLASSES | TRAINING | RESOURCES  
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Fostering transformative dance experiences for people with Parkinson's in 25 countries through global partnerships, training, and research.

For information, media resources, and class listings:

[www.danceforpd.org](http://www.danceforpd.org)

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## WPC ART WALK

Supported by Acorda Therapeutics

Welcome to the WPC 2019 Art Walk. Creativity plays a major part in the world of Parkinson's, from painting and singing, to dance, music and beyond. Creativity lifts spirits, inspires people and in some cases, helps soften or diminish symptoms, even if just temporarily. This is why we celebrate creativity at the WPC.

Please explore the art exhibits we have on display throughout the convention center. Stop by the WPC Theater to enjoy some live music and dance, view the photos from the Face of Parkinson's photo exhibit, be mesmerized by the thousands of folded cranes carrying messages of hope. Don't forget to add a poem or two to the Haiku display.

If you love ceramics, be sure to visit the Rigor Vitae exhibit. Pieces are for sale and half of all sales will go into the WPC Travel Grants program for the next WPC.

Let the art move you!

### SOARING WITH HOPE FOR PD

Location: EVENT HALL

Designed and created by three people living with young onset Parkinson's this visually stimulating and carefully created art installation really soars.

More than 500 volunteers worked 1,800 hours to fold and string 15,000 cranes to umbrellas.

**Messages of hope and cranes** came from 39 countries and have raised awareness of Parkinson's and inspired many people around the world to fold their first origami crane.



### POETRY

Location: NEW HALL

Haiku is an ancient form of poetry originating in Japan in the 17<sup>th</sup> century. Started by the poems submitted to the **WPC Haiku competition** in 2018, this project took on a life of its own. Help us grow this exhibit!

In your congress bag, or at the exhibit area, you'll find cards and pens to write your own poem to add to the haiku exhibit. All languages welcome!





## CERAMIC ART

Location: NEW HALL

The tremendous fire of the kiln transforms clay into stone, making a flexible thing become firm, impervious to water, weather, and time.

**Tina Gebhart is an accomplished potter** who has Early Onset Parkinson's. As she creates her work, the artist and the artwork begin to merge, both finding ways to be simultaneously fluid and rigid. Her pots reference wares of Mino (Japan), Koryo (Korea), Ironstone (USA), as well as Mashiko and Joman corded pottery (Japan).



## DANCE & VIDEO

Location: EVENT HALL

The **PD Crane Dance Project** was inspired by the Soaring with Hope art installation. This project invited people from around the world to contribute creative movement pieces. With more than 50 dance groups from 17 countries with over 1700 dancers, it has become the world's largest PD Dance Project.

The compilation video knits together over 153 two-minute dances inspired by origami cranes. These dances are very creative, inspirational and uplifting, giving one a sense of Hope through dance.



## PHOTOGRAPHY

Location: OUTSIDE  
ANNEX HALL 1

Started at the WPC 2016, this exhibit captures the **images of 63 individuals from 15 countries** who represent the members of the community. They are people with Parkinson's, family members, caregivers, doctors, researchers, nurses, occupational therapists and more.

WPC was founded on the premise that we will succeed in finding better treatments and a cure when we sit together around a table rather than in silos. This photo exhibit captures faces of the community and inspires with stories about those who are part of the global Parkinson's team.



## MUSIC & MOVEMENT PERFORMANCES

Location: EVENT HALL

Supported by Adamas

**Daily musical and movement performances** can be found in the WPC Theater in the Event Hall.

Artists from around the world will be taking the stage to showcase the talent in the Parkinson's community and the power of music, song, and movement.



## WPC AWARDS

The **WPC Award for Distinguished Contribution to the Parkinson Community** was created to honor those whose efforts best embody the goals of the World Parkinson Congress. While those being honored with this award each served the Parkinson's community differently, they have all made great impact beyond their corner of the globe. Whether it was: to expand collaboration on basic and clinical research that engaged patients; to create new and innovative treatment options; to inspire community building and engagement by people with Parkinson's and care partners; or to engage in specific advocacy efforts to impact the Parkinson community.

Winners of the **WPC Award for Distinguished Contribution to the Parkinson Community** in 2019 are Dr. Soania Mathur, Dr. Lorraine Ramig, and Ms. Susanna Lindvall.



### **SOANIA MATHUR, BSC, MD, CCFP**

Dr. Soania Mathur is a family physician living outside of Toronto, Ontario, Canada who had to resign her practice as a result of her Young Onset Parkinson's Disease a full twelve years after her diagnosis at age 27. Now she is a dedicated speaker, writer, educator and Parkinson's advocate. She speaks passionately about the challenges of adjusting physically and emotionally and the coping strategies available to patients to take charge of their lives, to live well with Parkinson's.



### **LORRAINE (LORI) RAMIG, PhD, SLP-CCC**

Dr. Ramig is a Research Professor at the University of Colorado-Boulder, an Adjunct Professor at Columbia University-New York City and Chief Scientific Officer of LSVT Global-Tucson. For thirty years, Dr. Ramig has been leading the research team that pioneered LSVT LOUD, the first evidence-based speech treatment for Parkinson disease (PD). Dr. Ramig led the NIH-funded research team that pioneered LSVT LOUD, the first evidence-based speech treatment for Parkinson disease, currently being delivered in 60 countries.



### **SUSANNA LINDVALL, BS Chem**

An organic chemist by profession, Ms. Lindvall has been the vice-president of the European Parkinson's Disease Association (EPDA) since 2005 where she has been the driving force of the EPDA Awareness Campaign "Life with Parkinson's." Ms. Lindvall has always promoted the importance of research, and collaboration between patients, healthcare professionals, academia and industry in order to improve care and services for those living with Parkinson's disease. She has served as president of both the Swedish Parkinson's Disease Association, and the Swedish Parkinson Foundation, and is a co-founder of the Swedish Parkinson Academy.

## WPC AWARDS

The **WPC Robin A. Elliott Award for Service to the Community** was created to honor the service of Robin A. Elliott who helped launch the World Parkinson Congresses in 2004. Robin's 20 years of service to the community, as the head of the recently renamed Parkinson's Foundation, and his commitment to supporting young researchers, clinicians, and people with Parkinson's was evident in every decision he made. This award honors the work of individuals who aimed to better the lives of people with PD with their daily service and support that impacted their region of the world and profoundly improved, and continues to improve, the lives of the individuals they serve.

Winners of the **WPC Robin A. Elliott Award for Service to the Community Award** in 2019 are Sara Lew Lai Heong and Nancy Tingey.



### SARA LEW LAI HEONG

Ms. Lew, President of the Malaysian Parkinson's Disease Association (MPDA) has been serving the association for the past 24 years. Sara became involved in Parkinson's work in 1995 because of her late father who had Parkinson's disease for 21 years before he passed away in 2011. Her work to improve the lives of people with Parkinson's includes securing more cost-affordable medications across Malaysia, getting Parkinson's designated as a disability, which increased services and benefits from the government, and helping to secure funding to purchase a permanent home for the organization's members to be able to meet regularly and get the support they need.



### NANCY TINGEY, OAM, CF, MA, BA

Ms. Tingey is a caregiver and art facilitator who, following her husband's diagnosis with Parkinson's, founded *Painting with Parkinson's* in Canberra Australia, the longest running art program in the world designed specifically to address Parkinson's symptoms and running continuously for nearly 25 years. She holds an Order of Australia Medal for services to community health.

## WPC CLINICAL RESEARCH VILLAGE

Made possible with support from the Michael J Fox Foundation for Parkinson’s Research and in-kind support from the Cure Parkinson’s Trust

Join us in the Clinical Research Village in the Exhibit Hall to learn about the clinical trial process. Panelists will include clinical trials participants, senior investigators, coordinators and others. Learn about your rights as a clinical trial participant, why you should participate, and what you should know before you sign on the dotted line.

TUESDAY, JUNE 4	
Time	Activity
7:15 – 9:15 PM	<b>Hear from your Peers:</b> Fellow members of the Parkinson’s community available to answer your questions around taking part in research, patient involvement in designing research
WEDNESDAY, JUNE 5	
11:30 AM	<b>Hear from your Peers</b> (See Tuesday 7:15 PM)
12:00 – 1:00 PM <i>Hosted by Parkinson’s Foundation and Parkinson’s UK</i>	<b>East Meets West</b> understanding the differences of carrying out research in different territories
1:00 – 3:00 PM	<b>Hear from your Peers</b> (See Tuesday 7:15 PM)
3:00 – 3:30 PM	<b>Two short films about research:</b> Tom Isaacs’s Advocacy Pyramid & iPSC Trial
5:30 – 6:30 PM	<b>Patient Involvement in Practice:</b> Panel discussion featuring a case study of a clinical trial <ul style="list-style-type: none"> <li>• Understanding how PwPs help shape a research project</li> <li>• What was involved, what would they do differently?</li> <li>• What changed as a result of patient engagement?</li> <li>• How can others implement patient involvement effectively into their proposals and what’s the benefit?</li> <li>• How does patient involvement help communication around a project?</li> </ul>
THURSDAY, JUNE 6	
11:30 AM	<b>Hear from your Peers</b> (See Tuesday 7:15 PM)
12:00 – 1:00 PM <i>Hosted by The Michael J. Fox Foundation and Cure Parkinson Trust</i>	<b>Common Concerns and Myths about Research Participation Dispelled</b> Participation in research may seem scary or overwhelming. Learn answers to common questions about participating in research and understand the different ways people can get involved. <ul style="list-style-type: none"> <li>• What is the difference between an observational study and a study that tests a drug/therapy?</li> <li>• There is a research opportunity for almost everyone who is interested, regardless of stage of disease or geographic, mobility or other challenges</li> <li>• Why are genetics important? How can I get involved?</li> <li>• How to act as an advocate for research and spread the word in your community</li> </ul>
1:00 – 3:00 PM	<b>Hear from your Peers</b> (See Tuesday 7:15 PM)
3:00 – 3:30 PM	Two short films about research
5:30 – 6:30 PM	<b>Patient Involvement in Practice</b> (See Wednesday, 5:30 PM)
FRIDAY, JUNE 7	
11:30 AM	<b>Hear from your Peers</b> (See Tuesday 7:15 PM)
11:00 AM – 12:00 PM	<b>Surgical Trials</b>



## SOCIAL PROGRAM and SPECIAL EVENTS

### WELCOME RECEPTION

**Tuesday, June 4**

7:00 – 9:00 PM | **Event Hall and New Hall**

Open to all registered delegates.

### NETWORKING EVENING FOR NURSES, PTS, OTS, SLPS, & SWS

*(Registration required)*

**Wednesday, June 5**

6:30 – 8:00 PM | **5<sup>th</sup> Floor**

Open for nurses, PTs, OTs, SLPs, and SWs who are specializing in Parkinson's disease to come together, meet, network, share knowledge and expand their professional community.



### WPC MUSIC & MOVEMENT PD LOUNGE

*Supported by Adamas Pharmaceuticals*

**Thursday, June 6**

6:30 – 9:00 PM | **Gold Room, Grand Prince Hotel**

### CLOSING REMARKS & RAFFLE

**Friday, June 7**

6:15 – 7:15 PM | **Annex Hall 1**

Come join in the fun as we wrap up a week of Parkinson's presentations, dance classes, inspiring talks, art work and more. The Stanley Fahn Young Investigator Award winner will be announced this evening and we'll be sure you leave the WPC on a high that will last for the next three years until we meet again at the WPC 2022.

## OPTIONAL TOURS

### TOUR 1

**Cost: ¥16,500**

*(Lunch included)*

**Saturday, June 8**

**KYOTO & NARA ONE-DAY TOUR**

Departure 9:00 AM from Kyoto Train Station | Return at 6:30 PM

A day trip where you will enjoy an exclusive guided tour of Kyoto and Nara. Includes Kinkakuji temple (Golden Pavilion) and Nijo Castle, the Todaji Temple that is an historical treasure in Japan and finally the Kasuga Taisha Shrine. Travel by coach.

### TOUR 2

**Cost: ¥7,600**

*(Japanese style lunch included)*

**Saturday, June 8**

**KYOTO MORNING TOUR**

Departure 9:00 AM from Kyoto Train Station | Return at 12:30 PM

Enjoy an exclusive city tour of Kyoto with visits to the Kinkakuji temple (Golden Pavilion) as well as the Heian Shrine, which will open their doors to reveal some of their secrets.

**Book the tour on the WPC website at [www.wpc2019.org/tours](http://www.wpc2019.org/tours) or stop by the registration desk for more details.**

## TRAVEL GRANT RECIPIENTS

### JUNIOR RESEARCHERS AND HEALTH PROFESSIONALS

Somayeh Abbasi (Iran)  
Patricia Rosalía Ancer Rodríguez (Mexico)  
Laura Andreoli (Sweden)  
Joanne August (USA)  
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Samuel Stuart (USA)  
Aan Terrens (Australia)  
Dhivya Venkatesan (India)  
Mattia Volta (Italy)  
Zachary Wallen (USA)  
Irene Wong-Yu (Hong Kong)

### PEOPLE WITH PARKINSON'S

Gary Ballenger (USA)  
Linda Berard (Canada)  
Madonna Brady (Australia)  
Lai Sheung Chan (China)  
Joe Condon (Ireland)  
Geoff Constable (Australia)  
Rui Couto (Portugal)  
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Nadia Tagliabracci (Canada)  
Amarsanaa Tervee (Mongolia)  
Allison Toepperwein (USA)

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### WPC thanks the sponsors and donors who have made the WPC 2019 Travel Grants program possible:

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Pamela Woolnough  
Robert Wright  
Masako Yamane  
Annie Yamashita  
Maki Yanagawa  
Norman Yarrow  
Toshiaki Yorikawa  
Mark Zeug

Plus many anonymous donations from congress delegates.

“I feel really lively,  
like I’m young again.  
I’ve got my life  
back. I now  
have huge  
expectations  
for the future.  
I still have  
a lot to do.”



Parkinson’s patients like Pedro are starting to experience the benefits of a new outlook on life thanks to Deep Brain Stimulation.

## CONTINUING EDUCATION

The 5<sup>th</sup> World Parkinson Congress will offer continuing education credits to medical doctors, nurses, and speech-language pathologists.

Those interested in learning more should reference the insert in the Congress bag, outlining the details on how to secure continuing education credits, and listing all speaker disclosures. Visit the WPC website at [www.wpc2019.org/continuingeducation](http://www.wpc2019.org/continuingeducation) for more details.

Certificates for continuing education credits will be emailed to delegates who pre-paid the \$50 US after the congress and after completion of the survey that will be emailed out at the close of the WPC. If you are using a travel agency to book your registration for the congress, be sure that they include your email address on the registration form. This avoids the confusion of having the certificate being sent to the travel agency.

## CERTIFICATE OF ATTENDANCE

Each delegate, regardless of registration category, will receive a Certificate of Attendance via email post WPC. This is NOT the same as receiving continuing education credits.

If you wish to receive continuing education credits, these must be requested prior to the WPC and can be done during the registration process, or by writing to [secretariat@worldpdcoalition.org](mailto:secretariat@worldpdcoalition.org). On site, credits can be requested at the Registration Desk. The fee for CE credits is \$50 US.



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Booth #117

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With over 25 years of Deep Brain Stimulation (DBS) experience, we know DBS and we're committed to providing you the technology you need every step of the journey.



## PROGRAM-AT-A-GLANCE

	TUESDAY JUNE 4	WEDNESDAY JUNE 5	
8:00 AM 9:00 AM	<p><b>PRE-CONGRESS COURSES I – V</b></p> <p><b>COURSE I</b>  Simultaneous interpretation available</p> <p><b>COURSE V</b>  Held in Japanese only</p> <p></p> <hr/> <p><b>Buddies Meet &amp; Greet</b> (4:00 – 5:30 PM)</p> <p><b>Opening Ceremony</b>  (5:45 – 6:45 PM)</p> <p><b>Welcome Reception</b> (7:00 – 9:00 PM)</p> <p><b>Exhibition</b> (7:00 – 9:00 PM)</p>	<p><b>Hot Topics</b> </p>	
9:00 AM 9:15 AM		<p><b>WPC Award</b> </p>	<p><b>Morning Plenary</b> </p>
9:30 AM 11:30 AM		<p><b>James Parkinson Lecture</b> </p>	<p><b>Renewal Room</b> (7:45 AM – 5:30 PM)</p> <p><b>Care Partner Lounge</b> (9:30 AM – 4:30 PM)</p> <p><b>WPC Theater</b> (11:30 AM – 6:30 PM)</p>
11:30 AM 1:30 PM		<p><b>Lunch</b></p>	
1:30 PM 3:00 PM		<p><b>Parallel Sessions &amp; Workshops</b> </p>	<p><b>Exhibition</b> (11:00 AM – 6:45 PM)</p>
3:30 PM 5:00 PM		<p><b>Parallel Sessions &amp; Workshops</b> </p>	<p><b>Coffee Break</b></p>
5:15 PM 6:30 PM		<p><b>Poster Tours &amp; Daily Wrap-Up</b> </p>	<p><b>Networking Events:</b> RNs, PTs, OTs, SLPs, SWs (6:30 – 8:00 PM)</p>
6:30 PM 9:00 PM			

### プログラム概要

	THURSDAY JUNE 6	FRIDAY JUNE 7
8:00 AM 9:00 AM	Hot Topics 	Hot Topics 
9:00 AM 9:15 AM	WPC Award 	WPC Award 
9:30 AM 11:30 AM	Morning Plenary 	Morning Plenary 
11:30 AM 1:30 PM	Poster Session Special Lectures  Lunch	Poster Session Special Lectures  Lunch
1:30 PM 3:00 PM	Parallel Sessions & Workshops Coffee Break	Parallel Sessions & Workshops Coffee Break
3:30 PM 5:00 PM	Parallel Sessions & Workshops	Parallel Sessions & Workshops
5:15 PM 6:30 PM	Poster Tours & Daily Wrap-Up 	Daily Wrap-Up  Closing Remarks & Raffle
6:30 PM 9:00 PM	Music & Movement PD Lounge (6:30 – 9:00 PM) 	

Exhibition (11:00 AM – 6:45 PM)

Renewal Room (8:30 AM – 5:00 PM)

Care Partner Lounge (9:30 AM – 4:30 PM)

WPC Theater (11:30 AM – 6:30 PM)


Exhibition (11:00 AM – 2:30 PM)

Renewal Room (8:30 AM – 4:45 PM)

Care Partner Lounge (9:30 AM – 4:30 PM)

WPC Theater (11:30 AM – 2:30 PM)

#### Language

 Simultaneous interpretation from English to Japanese  
英語から日本語への同時通訳

 Japanese track  
日本語トラック

 Ticketed event  
別途有料

At Adamas, we share your commitment to people living with Parkinson's disease.



**Adamas Pharmaceuticals, Inc.** is driven to improve the lives of those affected by chronic disorders of the central nervous system.

For more information, please visit our website at [www.adamaspharma.com](http://www.adamaspharma.com).



## SESSION DESCRIPTIONS

Sessions are open to all delegates. Some sessions require an additional fee.



### PRE-CONGRESS COURSES

Tuesday

(Ticket required – Additional fee)

To take place on Tuesday, June 4, these day-long courses focusing on specific areas of Parkinson's disease will allow unique access to some of the leaders in the community and will help introduce many topics to be covered in the main program giving participants a taste of what's to come. They will require registration and a nominal fee to participate.

### HOT TOPICS

Wednesday/Thursday/Friday  
8:00 – 9:00 AM

Each morning, just before the opening plenary, four of the hottest topics from the poster abstracts will be selected for presentation to the broader audience. Oral presentations will be given on some of the most exciting, cutting-edge work happening today.

### PLENARY SESSIONS

Wednesday/Thursday/Friday  
9:30 – 11:30 AM

Designed to bring together all Congress attendees each morning to hear topics of great interest. Plenary speakers will be available in workshops or roundtables later each day to continue discussing the topics in more detail.

### PARALLEL SESSIONS

Wednesday/Thursday/Friday  
1:30 – 3:00 PM and  
3:30 – 5:00 PM

Designed to offer in-depth sessions focused on specific research in the field of Parkinson's. These sessions will appeal to those who want to understand the basic and clinical science underlying the research conducted to better understand the many facets of Parkinson's disease.

### WORKSHOPS

Wednesday/Thursday/Friday  
1:30 – 3:00 PM and  
3:30 – 5:00 PM

Workshops are designed for smaller groups of attendees. Speakers will give an overview of the assigned topic then work together presenting case studies or research that highlights the topic in ways that are unique and easy to digest. These sessions are designed to allow for more discourse and longer question and answer periods.

### ROUNDTABLES

Wednesday/Thursday/Friday  
1:30 – 3:00 PM and  
3:30 – 5:00 PM

These popular and specially designed roundtable sessions will allow for delegates to sit down with an expert on a wide range of fields in a very small, intimate group, to get to the nitty-gritty about the topics. Experts will give short talks and will then take questions. *(Limited seating. First come, first seated with 10 per table for 90-minute session.)*

### SPECIAL LECTURES

Wednesday/Thursday/Friday  
12:00 – 1:00 PM

Special Lectures will be held during the WPC daily: the "WPC James Parkinson Lecture", "Living well with Parkinson's", and the "Current status of iPS cells and efforts for medical application". Learn more about our special guests for these lectures by viewing the program in the following pages.

### DAILY WRAP-UP PANELS

Wednesday/Thursday/Friday  
5:15 – 6:30 PM

The wrap-up sessions are designed to bring together delegates at the end of each day to discuss the highlights from the day. Panelists will be leaders in the field who will have the tough task of preparing these talks each day. This is a great way to catch some key topics you may have missed.

### POSTER TOURS

Wednesday/Thursday  
5:15 – 6:30 PM

Tours to meet young researchers and clinicians and hear about their work will be held on Wednesday and Thursday evenings from 5:15 – 6:30 PM. Be sure to stick around to meet these researchers and to thank them for their service to the Parkinson's community. *(Limited place. Sign-up required.)*

### 日本語トラック JAPANESE TRACK

会議期間中、毎日午後日本語のセッションを行います。



英語から日本語への同時通訳



日本語トラック



別途有料

FINAL PROGRAM

Tuesday, June 4, 2019



PRE-CONGRESS – COURSE I



**PC1 – Fundamentals of PD: The journey (CME)**

Location: Annex 2



**Target Audience:** People with Parkinson’s, caregivers, people new to Parkinson’s care, others

**Goal:** Expose participants to key topics that will be elaborated on in the program. Give them a glimpse of what is to come and tools to get the most out of the meeting. Introduce the role of PwPs into the meeting design and success as well as the legacy of the WPC.

**Learning Objectives:** 1. Gain a basic understanding of Parkinson’s, including the research into the cause(s) of the disease, symptoms, and therapies; 2. Learn the spectrum of care and rehabilitation options once diagnosed with Parkinson’s; 3. Understand future therapies for Parkinson’s; 4. To understand how to get the most out of the WPC experience.

**PROGRAM** *Made possible with support from the International Parkinson and Movement Disorder Society*

9:00 AM	Welcome	Emcee:	A.C. Woolnough (USA)
9:05 AM	Advocacy pyramid: Patient engagement and communication	Speaker:	Soania Mathur (Canada)
9:30 AM	What causes PD ?	Speaker:	Barry Snow (New Zealand)
9:55 AM	What are the clinical features of PD?	Speaker:	Shen Yang Lim (Malaysia)
10:20 AM	Q&A panel with speakers	Moderator:	Soania Mathur (Canada)
		Panelists:	Barry Snow (New Zealand) Shen Yang Lim (Malaysia)
10:35 AM	Let's get moving!	Facilitator:	Pamela Quinn (USA)
10:45 AM	COFFEE BREAK		
11:15 AM	How has medical & surgical treatment evolved over time?	Speaker:	Genko Oyama (Japan)
11:40 AM	What's new in research?	Speaker:	Ryosuke Takahashi (Japan)
12:05 PM	Q&A panel with speakers	Moderator:	Jon Stamford (UK)
		Panelists:	Ryosuke Takahashi (Japan) Genko Oyama (Japan)
12:20 PM	Let's get moving!	Facilitator:	Miho Sakai (Japan)
12:35 PM	LUNCH		
1:45 PM	Tips and tricks for living with Parkinson’s that go beyond medication:	Moderator:	A.C. Woolnough (USA)
	<ul style="list-style-type: none"> <li>• Speech and swallowing</li> <li>• Balance and gait</li> <li>• Nutrition and constipation</li> <li>• Cognitive training, life hacks, and self-management</li> <li>• Facing challenges and overcoming adversity: Family, work, marriage</li> </ul>	Panelists:	Hanneke Kalf (The Netherlands) Lynn Rochester (UK) Laurie Mischley (USA) Lissa Kapust (USA) Victor McConvey (Australia)
3:00 PM	COFFEE BREAK		
3:45 PM	Resilience – Beyond a diagnosis	Speakers:	Kathie Hill (USA) Nancy Peate (USA)
4:15 PM	Getting the most out of the WPC 2019	Speaker:	Jon Stamford (UK)

OPENING CEREMONY > 5:45 – 6:45 PM (Main Hall)

WELCOME RECEPTION > 7:00 – 9:00 PM



FINAL PROGRAM

Tuesday, June 4, 2019



PRE-CONGRESS – COURSE II



**PC2 – Interdisciplinary care and Parkinson’s disease: State of the evidence, how to build a center, and working through cases with a team (CME)**

Location: **Room B-1**

**Target Audience:** Neurologists, nurses, rehab specialists, social workers, clinic coordinators

**Goal:** To provide a forum for discussion of the evidence surrounding the impact of interdisciplinary care models and the realities of building a center.

**Learning Objectives:** 1. Be able to explain multidisciplinary and interdisciplinary care and the evidence supporting these models; 2. Detail at least two cultural implications that impact the design of team care; 3. Discuss real life case studies with team members to understand how teams address complex issues and how various team member decisions can impact other decisions (by other team members).

PROGRAM

8:55 AM	Welcome remarks	Speaker: <b>Omotola Thomas (UK)</b>
9:00 AM	Multidisciplinary and interdisciplinary care and the current state of the evidence	Speaker: <b>Julie Carter (USA)</b>
10:00 AM	How do I build a multidisciplinary or interdisciplinary center? Challenges we may face in the process	Speakers: <b>Michael Okun (USA)</b> <b>Genko Oyama (Japan)</b>
11:00 AM	Models of care across different regions of the world: What can we learn from each other?	Speaker: <b>Bas Bloem (The Netherlands)</b>
12:00 PM	LUNCH	
1:00 PM	Case discussions I: Motor features of Parkinson’s disease	Moderator: <b>Michael Okun (USA)</b> Panelists: – Speech Language Pathologist: <b>Corinne Jones (USA)</b> – RN: <b>Lucie Lachance (Canada)</b> – Occupational Therapist: <b>Lisa Warren (USA)</b> – Physical Therapist: <b>Meg Morris</b> – Surgeon: <b>Kelly Foote (USA)</b> – Neurologist: <b>Suketu Khandar (USA)</b>
2:30 PM	COFFEE BREAK	
3:00 PM	Case discussions II: Non-motor features of Parkinson’s disease	Moderator: <b>Suketu Khandar (USA)</b> Panelists: – Social Worker: <b>Elaine Book (Canada)</b> – Neurologist: <b>Anne Louise Lafontaine (Canada)</b> – Occupational Therapist: <b>Lisa Warren (USA)</b> – Psychiatrist: <b>Daniel Weintraub (USA)</b> – Neuropsychologist: <b>Kathy Dujardin (France)</b> – Person with Parkinson’s: <b>Omotola Thomas (UK)</b>
4:30 PM	Closing remarks	Speaker: <b>Michael Okun (USA)</b>

OPENING CEREMONY > 5:45 – 6:45 PM (Main Hall)

WELCOME RECEPTION > 7:00 – 9:00 PM

**FINAL PROGRAM**

Tuesday, June 4, 2019



**PRE-CONGRESS – COURSE III**



**PC3 – Advances in research, science & care (CME)**

Location: **Annex 1**

**Target Audience:** These will be exciting crosstalk sessions appropriate for a mix of the community, including clinicians, researchers, people with Parkinson’s and others interesting in hearing about what’s new in the research in both basic and clinical sciences as well as the world of care.

**Goal:** To expose participants to unique and exciting research outcomes as well as innovative and impactful programs being implemented for community members.

**Learning Objectives:** 1. Gain more elaborate understanding of research being done to advance the understanding of Parkinson’s and find improved treatment options; 2. Learn about ongoing efforts to advance advocacy work in the community and engage community members; 3. Understand future therapies for Parkinson’s.

**PROGRAM**

<b>8:00 AM</b>	<i>MORNING COFFEE</i>	
<b>8:50 AM</b>	<b>Welcome</b>	<i>Emcee:</i> <b>A. Jon Stoessl (Canada)</b>
<b>9:00 AM</b>	<b>Surgical advances and infusions in Parkinson’s</b>	<i>Moderator:</i> <b>Elena Moro (France)</b>
	<b>1–</b> Deep brain surgery: Differentiating different devices	<i>Speaker:</i> <b>Kelly Foote (USA)</b>
	<b>2–</b> DBS programming with different devices. Advantages of using different devices for optional programming	<i>Speaker:</i> <b>Michele Tagliati (USA)</b>
	<b>3–</b> Infusion and other novel drug therapies in the treatment of PD	<i>Speaker:</i> <b>Peter LeWitt (USA)</b>
	<b>4–</b> Potential of immune-based therapies	<i>Speaker:</i> <b>Seung Jae Lee (South Korea)</b>
	<i>Session supported by an unrestricted educational grant from Boston Scientific</i>	
<b>11:00 AM</b>	<i>LUNCH AND LEARN: GRAB A BOXED LUNCH AND LISTEN WHILE YOU EAT</i>	
<b>11:30 AM</b>	<b>Non-motor complications and treatment options</b>	<i>Moderators:</i> <b>Barry Snow (New Zealand)</b> <b>Rebecca Miller (USA)</b>
	<b>1–</b> Dizziness and PD, what is it and how can my doctor help? Non-motor autonomic problems of PD and what’s their impact?	<i>Speaker:</i> <b>Tim Anderson (New Zealand)</b>
	<b>2–</b> Has the treatment paradigm changed for PD psychosis?	<i>Speaker:</i> <b>Jennifer Goldman (USA)</b>
	<b>3–</b> Autonomic challenges and PD	<i>Speaker:</i> <b>Shen Yang Lim (Malaysia)</b>
	<b>4–</b> Advancing treatment options for PD cognitive impairment	<i>Speaker:</i> <b>Daniel Weintraub (USA)</b>
	<i>Session supported by an unrestricted educational grant from Lundbeck</i>	
<b>1:30 PM</b>	<i>COFFEE BREAK</i>	
<b>2:00 PM</b>	<b>Motor complications and treatment options</b>	<i>Moderator:</i> <b>Peter LeWitt (USA)</b>
	<b>1–</b> Dyskinesia vs tremor, the realities of living with dyskinesia, clinical forms of dyskinesia, how to we treat it?	<i>Speaker:</i> <b>Raj Pahwa (USA)</b>
	<b>2–</b> Emergency treatment options for PD	<i>Speaker:</i> <b>Simon Lewis (Australia)</b>
	<b>3–</b> Treatment of Off periods vs Off time	<i>Speaker:</i> <b>Stuart Isaacson (USA)</b>
	<b>4–</b> The future of treatments for dyskinesias	<i>Speaker:</i> <b>M. Angela Cenci Nilsson (Sweden)</b>
	<i>Session supported by unrestricted educational grants from Kyowa Kirin and Acadia Pharmaceuticals</i>	
<b>4:30 PM</b>	<b>Understanding genetics and Parkinson’s: A powerful tool for improving research, care &amp; quality of life</b>	<i>Moderator:</i> <b>Jim Beck (USA)</b> <i>Panelists:</i> <b>Anna Naito (USA)</b> <b>Anne Hall (USA)</b>
	<i>Session supported by an unrestricted educational grant from Parkinson’s Foundation</i>	

**OPENING CEREMONY > 5:45 – 6:45 PM (Main Hall)**

**WELCOME RECEPTION > 7:00 – 9:00 PM**

FINAL PROGRAM

Tuesday, June 4, 2019



PRE-CONGRESS – COURSE IV



**PC4 – Activism, awareness, and roles patients play (Non-CME)**

Location: **Room B-2**

**Target Audience:** People with Parkinson’s, caregivers, people new to Parkinson’s care, others

**Goal:** Bring together highly engaged people with Parkinson’s with the objective to become more engaged and involved in the global Parkinson’s community.

**Learning Objectives:** 1. For participating people with Parkinson’s understand the scope of activism and how to engage with community members; 2. to help build a network of engaged people who are eager to work together for a larger common good; 3. Be able to explain activism for Parkinson’s and tools that exist for engaging and helping to keep the Parkinson’s agenda front and center as an urgent need for governments, researchers, patients, and others.

**PROGRAM** *Made possible with the support of US WorldMeds*

12:00 PM	LUNCH	
1:00 PM	Welcome	Speaker: Tim Hague (Canada)
1:05 PM	Roles patients can play in advocacy & activism	Speaker: Therese Scott Duncan (Sweden)
1:40 PM	Block I – A: Research activism B: Wellness activism C: Tools for activism	Speakers: Karen Raphael (USA) Tim Hague (Canada) Martin Taylor (UK)
2:30 PM	COFFEE BREAK	
2:40 PM	Block II – A: Research activism B: Wellness activism C: Tools for activism	Speakers: Karen Raphael (USA) Tim Hague (Canada) Martin Taylor (UK)
3:30 PM	BREAK FOR REFRESHMENTS	
4:00 PM	Panel discussion – Where do we go from here?	Moderator: Tim Hague (Canada) Panelists: Benjamin Stecher (Canada) Martin Taylor (UK) Karen Raphael (USA)
4:55 PM	Next steps	Speaker: Tim Hague (Canada)

OPENING CEREMONY > 5:45 – 6:45 PM (Main Hall)

WELCOME RECEPTION > 7:00 – 9:00 PM

Session Levels



Crosstalk – Minimal or no scientific background required



Moderate-level scientific sessions



High-level scientific sessions

Session Type



Basic Science



Clinical Science



Comprehensive Care

Language



Simultaneous interpretation from English to Japanese  
英語から日本語



Japanese track  
日本語トラック

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Tuesday, June 4, 2019



PRE-CONGRESS – COURSE V



**PC5 – Japanese corporate sessions (Non-CME)**

Location: **Room A**



**Target Audience:** Sessions in this section are all non-CME corporate sessions designed by companies for an audience of Japanese-speaking health professionals only.

**Goal:** The aim of this pre-congress course is to provide a forum for discussion on the current state of science, research and care for people who currently work in the pharmaceutical industry.

**Learning Objectives:** 1. Gain more elaborate understanding of research being done globally to advance the understanding of Parkinson's and find improved treatment options; 2. Understand how the complexity of PD highlights the need for interdisciplinary care; 3. Understand future therapies expected for Parkinson's; 4. Be able to articulate what people with Parkinson's are experiencing and what they need most from the industry designed to help them.

**PROGRAM** Supported by unrestricted educational grants from Abbott, FP Pharmaceutical, Eisai, Novartis and Kyowa Hakko Kirin

9:45 AM	Abbott
10:45 AM	COFFEE BREAK
11:15 AM	FP Pharmaceutical
12:15 PM	LUNCH
1:00 PM	Eisai
2:30 PM	Novartis
3:30 PM	COFFEE BREAK
4:00 PM	Kyowa Hakko Kirin

OPENING CEREMONY > 5:45 – 6:45 PM (Main Hall)

WELCOME RECEPTION > 7:00 – 9:00 PM

Session Levels

- Crosstalk – Minimal or no scientific background required
- Moderate-level scientific sessions
- High-level scientific sessions

Session Type

- Basic Science
- Clinical Science
- Comprehensive Care

Language

- Simultaneous interpretation from English to Japanese  
英語から日本語
- Japanese track  
日本語トラック



**DAY**

**1**





# FINAL PROGRAM

Wednesday, June 5, 2019



## HOT TOPICS > 8:00 – 9:00 AM

Location: **Main Hall**

Supported by American Parkinson Disease Association



Chair: **D. James Surmeier (USA)**

**Talk 1: A novel target for neuroprotection: The small GTPase Rin inhibits LRRK2 to promote autophagy and reduce  $\alpha$ -synuclein pathology**

P06.31

Speaker: Mattia Volta (Italy)

**Talk 2: A cross-sectional natural history of Parkinson's disease as reported by >10,000 patients**

P13.08

Speaker: Ira Shoulson (USA)

**Talk 3: A randomized clinical trial on the evaluation of the effect of vestibular exercises on dizziness and postural control in Parkinson patients**

P22.01

Speaker: Somayeh Abbasi (Iran)

**Talk 4: The Fox Insight Study: An empowering opportunity to fuel Parkinson's research and help advance scientific breakthroughs from the comfort of home**

P42.01

Speaker: Roseanne Dobkin (USA)

## AWARD CEREMONY > 9:00 – 9:30 AM

Location: **Main Hall**

Presenter: **Marie-Françoise Chesselet (USA)**



**WPC Award for Distinguished Contribution to the Parkinson Community**

Award Recipients: Lorraine (Lori) Ramig, PhD, CCC-SLP (USA) and Susanna Lindvall, BS Chem (Sweden)

## MORNING PLENARY > 9:30 – 11:30 AM

**WPL – PLENARY**

Location: **Main Hall**



**What is alpha-synuclein?**

Co-Chair: **Glenda Halliday (Australia)**

Co-Chair: **Serge Przedborski (USA)**

**Talk 1: What is  $\alpha$ -synuclein – The biology**

Speaker: Ronald Melki (France)

**Talk 2: The pathology of  $\alpha$ -synucleinopathies (brain donation)**

Speaker: Peter Riederer (Germany)

**Talk 3: Patients as living science: The importance of participating in clinical trials**

Speaker: Soania Mathur (Canada)

**Talk 4: Clinical trials and efficacy of clinical trials targeting  $\alpha$ -synuclein**

Speaker: Jesse Cedarbaum (USA)

**Learning Objectives:** 1. To be able to explain what is known and not known about the normal function of  $\alpha$ -synuclein in the brain; 2. To understand what makes  $\alpha$ -synuclein pathological in certain conditions and what this looks like in the brains of patients dying with Parkinson's disease and related disorders; 3. To discuss the challenges of targeting  $\alpha$ -synuclein in clinical trials and where we are currently with such trials; 4. To explain the roles patients can play in clinical trials, beyond being in the trial itself.

### FINAL PROGRAM

Wednesday, June 5, 2019



LUNCH > 11:30 AM – 1:30 PM		
CORPORATE LUNCH SESSIONS		
<p><b>12:00 – 1:00 PM</b> Location: <b>Annex 1</b> Open door: <b>11:30 AM</b></p> <p><b>Empowering people with advancing Parkinson's disease</b></p> <p>Co-chairs: TBD (Japan) Per Odin (Sweden)</p> <p>Speakers: Angelo Antonini (Italy) Bas Bloem (The Netherlands)</p> <p>Open to all – Talks in English Supported by <i>AbbVie</i></p>	<p><b>12:00 – 1:00 PM</b> Location: <b>Room A</b> Open door: <b>11:30 AM</b></p> <p>Health professionals only Talks in Japanese</p> <p>Supported by <i>Sumitomo Dainippon Pharma Co., Ltd.</i></p> <p>(See Japanese program on page 16.)</p>	<p><b>12:00 – 1:00 PM</b> Location: <b>Annex 2</b> Open door: <b>11:30 AM</b> (in English)</p> <p><b>Rehabilitation for people with Parkinson's disease</b></p> <p>Chair: Kazushi Takahashi (Japan)</p> <p><b>Rehabilitation according to the needs of people with Parkinson's disease</b></p> <p>Speaker: Takayo Chuma (Japan)</p> <p><b>Management and rehabilitation for Parkinson's disease</b></p> <p>Speaker: Akito Hayashi (Japan)</p> <p>Open to all – Japanese (English translation) Supported by <i>Takeda Pharmaceutical Company Limited, Japan Medical Office</i></p>
<b>BOOK NOOK</b>	<b>POSTER SESSION 1</b>	<b>CARE PARTNER LOUNGE</b>
<p><b>11:30 AM – 1:30 PM</b> Location: <b>Event Hall</b></p> <p>Meet the Authors: John Ball (USA) Tim Hague (Canada)</p>	<p><b>11:30 AM – 1:30 PM</b> Location: <b>Event Hall &amp; New Hall</b></p>	<p><b>12:30 – 1:30 PM</b> Location: <b>Room C-1</b></p> <p>Creating connection An open support group Supported by <i>Acadia</i></p>
WSL – JAMES PARKINSON SPECIAL LECTURE		
<p><b>12:00 – 1:00 PM</b> Location: <b>Sakura Room</b> Introduction by: <b>Roger Barker (UK)</b></p> <p><b>History of Parkinson's disease research in Japan: Past, present and future</b> Speaker: Toshiharu Nagatsu (Japan)</p>		<p>Supported by <i>Acorda Therapeutics</i></p> <p><b>Mitochondrial energy crisis as a pathogenesis of Parkinson's disease</b> Speaker: Yoshikuni Mizuno (Japan)</p>
<b>WPC THEATER</b>	<b>WORLD CAFÉ</b>	<b>CLINICAL RESEARCH VILLAGE</b>
<p><b>12:00 – 1:00 PM</b> Location: <b>Event Hall</b></p> <p>Music and dance performances</p>	<p><b>12:00 – 1:00 PM</b> Location: <b>Room 101</b></p> <p>Question of the day: <b>How do we change patient dialogue?</b></p> <p>*Limited seating up to 30. Sign-up outside door.</p>	<p><b>12:00 – 1:00 PM</b> Location: <b>Event Hall</b></p> <p><b>East Meets West</b> understanding the differences of carrying out research in different territories</p> <p>Supported by <i>The Michael J. Fox Foundation</i></p>

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PARALLEL SESSIONS > 1:30 - 3:00 PM			JAPANESE TRACK 1:30 - 3:00 PM
<p><b>WP1 –</b>  <b>STEM CELLS IN PARKINSON'S DISEASE</b> <i>Location: Annex 2</i></p> <p><b>Co-Chair: Roger Barker (UK)</b> <b>Co-Chair: Hideki Mochizuki (Japan)</b></p> <p><b>Talk 1: Patient-derived cells to study Parkinson's disease: Are astrocytes passive or active players of the disease?</b> <i>Speaker: Laurent Roybon (Sweden)</i></p> <p><b>Talk 2: Making authentic midbrain dopamine neurons – The challenges</b> <i>Speaker: Agnete Kirkeby (Denmark)</i></p> <p><b>Talk 3: Clinical application of stem cell transplantation therapy</b> <i>Speaker: Asuka Morizane (Japan)</i></p> <p><b>Learning Objectives:</b> 1. Understand the basics of cellular reprogramming and in more detail how one can differentiate iPSCs into midbrain dopamine neurons. Understand the features of iPSC-derived dopamine neurons that they must exhibit for them to be suitable for transplantation; 2. Be familiar with the potential advantages that iPSC-derived dopamine neurons might have as disease models and obtain insight into some of the pitfalls of these models (e.g. great variation between cell lines and the need for isogenic controls for mutations in isogenic cells; young age of the cells so generated); 3. Understand the challenges of translating an experimental stem cell-based approach to a clinical therapy (e.g. identifying and producing the right type of dopamine neuron, upscaling production, surgical approach, immunosuppression, clinical trial design, imaging etc).</p>	<p><b>WP2 –</b>  <b>DIAGNOSIS, MECHANISMS, AND MANAGEMENT OF COGNITIVE DEFICITS IN PARKINSON'S DISEASE</b> <i>Location: Annex 1</i></p> <p><b>Co-Chair: Jennifer Goldman (USA)</b> <b>Co-Chair: Rebecca Miller (USA)</b></p> <p><b>Talk 1: Cognitive deficits in Parkinson's disease: Clinical features, diagnosis, and evolution</b> <i>Speaker: Caroline Williams-Gray (UK)</i></p> <p><b>Talk 2: Neuropathology of cognitive deficits in PD and its insights into therapeutic interventions</b> <i>Speaker: Tom Montine (USA)</i></p> <p><b>Talk 3: Therapeutic programs for cognitive health in PD - interventions and preventions</b> <i>Speaker: Atsushi Takeda (Japan)</i></p> <p><b>Learning Objectives:</b> 1. Discuss the clinical features, diagnosis, and progression of different cognitive impairments in Parkinson's disease 2. Identify risk factors associated with cognitive decline in Parkinson's disease and the pathological basis for it; 3. Discuss established and emerging pharmacological and non-pharmacological therapies for cognitive deficits in Parkinson's disease.</p>	<p><b>WP3 –</b>  <b>SLEEP DISORDERS</b> <i>Location: Room Sakura</i></p> <p><b>Co-Chair: Anne Louise Lafontaine (Canada)</b> <b>Co-Chair: Simon Lewis (Australia)</b></p> <p><b>Talk 1: An overview of sleep disorders in Parkinson's disease</b> <i>Speaker: Isabelle Arnulf (France)</i></p> <p><b>Talk 2: The restorative function of sleep</b> <i>Speaker: David Breen (UK)</i></p> <p><b>Talk 3: Tips and tricks to managing sleep disorders in Parkinson's</b> <i>Speaker: Aleksandar Videnovic (USA)</i></p> <p><b>Learning Objectives:</b> 1. To provide an overview of sleep disorders in Parkinson's disease and understand their importance in the prediction of evolution and profile in <math>\alpha</math>-synucleinopathies; 2. To outline the importance of sleep in maintaining brain health (in people with and without Parkinson's) and to summarize the evidence linking poor sleep with later-life neurodegenerative disease; 3. To provide a review of strategies to improve sleep both using pharmacological and non-pharmacological approaches.</p>	<p><b>JP1 –</b>  <i>Location: Room A</i></p> <p><b>Moderators: Hirohisa Watanabe (Japan)</b> <b>Genko Oyama (Japan)</b></p> <p><b>THE NEWEST METHODS OF DIAGNOSIS AND TREATMENT OF PD</b></p> <p><b>Talk 1: New methods of diagnosing PD</b> <i>Speaker: Nobukatsu Sawamoto (Japan)</i></p> <p><b>Talk 2: The newest treatments of PD</b> <i>Speaker: Yasushi Shimo (Japan)</i></p> <p><b>Q&amp;A</b></p> <p><b>THE SOLUTION OF THE PROBLEM ACCORDING TO AGE AND STAGE OF THE DISEASE</b></p> <p><b>Talk 3: The problems of YOPD and their counterplan</b> <i>Speaker: Satoshi Akiyama (Japan)</i></p> <p><b>Talk 4: The interaction with PWPs concerning their stage and age</b> <i>Speaker: Hirohide Takahashi (Japan)</i></p> <p><b>Learning Objectives:</b> 1. To know the research connecting to early diagnosis and early Treatment of PD following DAT scan. 2. To be able to discuss the discovery of new medications and who will benefit from them. 3. The number of YOPD is small, but they have many problems such as income, job, and pregnancy, delivery etc. which are different from the problems of late onset PD. What is necessary for young PWP to live well? 4. The role of caregivers in the home.</p>

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#### WORKSHOPS > 1:30 – 3:00 PM

**WW1 – SELECTIVE NEURONAL VULNERABILITY: WHAT WE CAN AND CANNOT LEARN ABOUT THE PATHOGENESIS OF PD USING DISEASE MODELS**

*Location: Room B-2*

**Co-Chair: Etienne Hirsch (France)**  
**Co-Chair: Jeffrey Kordower (USA)**

**Talk 1: Developmental genes lay the foundation for neurodegeneration in PD**  
*Speaker: Ernest Arenas (Sweden)*

**Talk 2: The role of cellular thresholds in driving the selective neuronal vulnerability of PD**  
*Speaker: David Sulzer (USA)*

**Talk 3: The role of neural circuits in PD**  
*Speaker: D. James Surmeier (USA)*

**Learning Objectives:** 1. Survey and understand current modeling approaches to define selective molecular and cellular vulnerability of neuronal populations in Parkinson's disease; 2. Identify existing knowledge gaps in the selective neuronal vulnerability of PD; 3. Discuss application of current knowledge and updated modeling approaches to improve our knowledge and treatment for Parkinson's disease.

**WW2 – WEARABLE APPS FOR MONITORING PD AND ITS TREATMENT**

*Location: Room D*

**Co-Chair: Elena Moro (France)**  
**Co-Chair: Peter LeWitt (USA)**

**Talk 1: State of the art of wearable devices in Parkinson's disease**  
*Speaker: Joachim Ferreira (Portugal)*

**Talk 2: Applications of wearable devices in clinical trials**  
*Speaker: Tanya Simuni (USA)*

**Talk 3: "Wearables" for monitoring PD and its treatment**  
*Speaker: Walter Maetzler (Germany)*

**Learning Objectives:** 1. To describe the current array of wearable devices for monitoring aspects of Parkinson's disease; 2. To discuss the advantages and limits of these new technologies; 3. To define the optimal way to clinically use such appliances in PD patients.

**WW3 – LEVODOPA AND DOPAMINE AGONISTS: HOW TO FIND A BALANCE BETWEEN THE GOOD AND THE NOT SO GOOD**

*Location: Room B-1*

**Co-Chair: M. Angela Cenci Nilsson (Sweden)**  
**Co-Chair: Andy McDowell (New Zealand)**

**Talk 1: The history of levodopa and dopamine agonists – Benefits and myths**  
*Speaker: Stanley Fahn (USA)*

**Talk 2: Learn how to recognize and manage L-dopa induced dyskinesias**  
*Speaker: Masahiko Tomiyama (Japan)*

**Talk 3: To learn how to recognize and manage impulse control disorders and dopa-dysregulation syndrome**  
*Speaker: Annette Hand (UK)*

**Learning Objectives:** 1. To review the history of Levodopa and its benefits and myths linked to its use. To know the mechanisms underlying the common adverse effects of dopaminergic therapies; 2. To learn how to recognize and manage these adverse effects including dyskinesia; 3. To learn how to manage impulse control disorder.

#### ROUNDTABLES 1:30 – 3:00 PM

**WRT1 – Location: Rooms I, J, K**  
*Supported by American Parkinson Disease Association*

**Table 1: Coping day to day – Managing the emotional roller coaster**  
*Allison Allen (USA)*

**Table 2: Tips on getting your research published**  
*Elena Becker-Barroso (UK)*

**Table 3\*: Insights into the function of LRRK2 from a genetic point of view**  
*Matt Farrer (Canada)*  
*Interpreter: Hajime Terao*

**Table 4: LRRK2 and PD**  
*Jie Shen (USA)*

**Table 5: Combined pharmacotherapy and neuromodulation approaches to PD**  
*John Rothwell (UK)*

**Table 6\*: Effectiveness and reliability of TMS treatment, new methods and future perspectives**  
*Angelo Quartarone (Italy)*  
*Interpreter: Masanobu Ishio*

**Table 7\*: What is  $\alpha$ -synuclein – The biology**  
*Ronald Melki (France)*  
*Interpreter: Atsushi Naito*

**Table 8: Pathological features of  $\alpha$ -synucleinopathies**  
*Peter Riederer (Germany)*

**Table 9: The importance of participating in clinical trials**  
*Soania Mathur (Canada)*

**Table 10\*: Approaches to voice training in PD**  
*Darla Freeman (USA)*  
*Interpreter: Yayoi Nakai*

**Table 11: How PD affects sexuality and intimacy of PwPD and their care partners**  
*Sheila Silver (USA)*

**Table 12\*: Planet Patient vs Planet Research: How do we align instead of collide**  
*A.C. Woolnough (USA) & Simon Stott (UK)*  
*Interpreter: Hisashi Kamido*

#### COFFEE BREAK > 3:00 – 3:30 PM

\* Roundtables with Japanese translator/Japanese-language support

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PARALLEL SESSIONS > 3:30 - 5:00 PM			JAPANESE TRACK 3:30 - 5:00 PM
<p><b>WP4 – LRRK2 AND ITS RELATIONSHIP TO ENDOSOMAL BIOLOGY</b>                      Location: Annex 2 </p> <p><b>Co-Chair: Mark Cookson (USA)</b>  <b>Co-Chair: Peter LeWitt (USA)</b></p> <p><b>Talk 1: New insights into the function of LRRK2 from a genetic point of view</b>                      Speaker: Matt Farrer (Canada)</p> <p><b>Talk 2: LRRK2 in dopaminergic neuronal survival and Parkinson's disease</b>                      Speaker: Jie Shen (USA)</p> <p><b>Talk 3: LRRK2 as a therapeutic target</b>                      Speaker: Brian Fiske (USA)</p> <p><b>Learning Objectives:</b> 1. To learn about the genetics of LRRK2 in PD and its role in vesicular trafficking; 2. To learn about the cellular function of LRRK2 and its relationship with other PD-linked proteins such as GBA, VPS35 and ATP13A2; 3. To learn about new models for LRRK2.</p>	<p><b>WP5 – THE MICROBIOME AND DIET IN PARKINSON'S DISEASE</b>                      Location: Annex 1 </p> <p><b>Co-Chair: Marie-Françoise Chesselet (USA)</b>  <b>Co-Chair: Frank Church (USA)</b></p> <p><b>Talk 1: The vermiform appendix contributes to the development of Parkinson's disease</b>                      Speaker: Viviane Labrie (USA)</p> <p><b>Talk 2: What is evidence for, and the relevance of, GIT pathology in PD?</b>                      Speaker: Pascal Derkinderen (France)</p> <p><b>Talk 3: Is there any evidence that nutrients modify PD?</b>                      Speaker: Laurie Mischley (USA)</p> <p><b>Learning Objectives:</b> 1. Review the evidence for the role of the Microbiome to the underlying pathology of PD; 2. Review the range of problems with the GIT function including constipation and the role of <i>Helicobacter pylori</i>; 3. Discuss issues related to diet and supplements in PD.</p>	<p><b>WP6 – DEPRESSION, ANXIETY, AND APATHY IN PD – PART 1</b>                      Location: Room Sakura </p> <p><b>Co-Chair: Shen Yang Lim (Malaysia)</b>  <b>Co-Chair: Jon Stamford (UK)</b></p> <p><b>Talk 1: Understanding apathy: What it is, what it is not and its impact on disease</b>                      Speaker: Kathy Dujardin (France)</p> <p><b>Talk 2: Anxiety in Parkinson's disease – symptoms, frequency, and neurobiology</b>                      Speaker: Roseanne Dobkin (USA)</p> <p><b>Talk 3: Understanding depression in Parkinson's disease – Symptoms, frequency, and neurobiology</b>                      Speaker: Murat Emre (Turkey)</p> <p><b>Learning Objectives:</b> 1. To recognize apathy in PD and how better to assess and treat it; 2. To understand the extent and basis of anxiety disorders in PD; 3. What constitutes depression in PD and how can it optimally be managed.</p>	<p><b>JP2 – DBS AND DEVICE-AIDED THERAPY (PANEL DISCUSSION)</b>                      Location: Room A </p> <p><b>Moderators: Ryosuke Takahashi (Japan)</b>  <b>Toshiki Mizuno (Japan)</b></p> <p><b>Panelists:</b>                      Atsushi Umemura (Japan)                      Hiroki Toda (Japan)                      Katsuo Kimura (Japan)                      Genko Oyama (Japan)                      Shinichiro Ogura (Japan)                      Katsuyoshi Itoh (Japan)</p> <p><b>Discussion</b></p> <p><b>Summary:</b> DBS has become a rather common treatment for PD treatment since it received insurance indication, but some patients choose DBS without knowing the necessary details.</p> <p><b>Learning Objectives:</b> 1. To know the effects of DBS; 2. The symptoms which will be improved by DBS; 3. About the device – How can PWP select the devices? 4. The symptoms which are not expected to improve; 5. The effects to non-motor symptoms; 6. The information which caregivers should know.</p>

Session Levels

- Crosstalk – Minimal or no scientific background required
- Moderate-level scientific sessions
- High-level scientific sessions

Session Type

- Basic Science
- Clinical Science
- Comprehensive Care

Language

- Simultaneous interpretation from English to Japanese 英語から日本語
- Japanese track 日本語トラック



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Wednesday, June 5, 2019



WORKSHOPS > 3:30 - 5:00 PM		ROUNDTABLES 3:30 - 5:00 PM	
<p><b>WW4 – TRANSCRANIAL MAGNETIC STIMULATION IN PARKINSON'S DISEASE: FROM BASIC TO CLINICAL RESEARCH</b> </p> <p><i>Location: Room B-2</i></p> <p><b>Co-Chair: Paolo Calabresi (Italy)</b> <b>Co-Chair: Stephane Lehericy (France)</b></p> <p><b>Talk 1: Deciphering transcranial magnetic stimulation mechanisms in early and late experimental parkinsonism</b> <i>Speaker: Veronica Ghiglieri (Italy)</i></p> <p><b>Talk 2: Combined pharmacotherapy and neuromodulation approaches to PD</b> <i>Speaker: John Rothwell (UK)</i></p> <p><b>Talk 3: Effectiveness and reliability of TMS treatment, new methods and future perspectives</b> <i>Speaker: Angelo Quartarone (Italy)</i></p> <p><b>Learning Objectives:</b> 1. Understand the synaptic and non-synaptic mechanisms underlying the therapeutic effects of TMS in the cortex and basal ganglia; 2. Share new findings on functional markers of synaptic plasticity and its in clinical implications for TMS; 3. Developing a dialogue between basic and clinical research on methodological aspects of TMS as a necessary translational aspect of this treatment.</p>	<p><b>WW5 – HOW TO DISTINGUISH FAKE FROM REAL SCIENTIFIC AND CLINICAL ADVANCES</b> </p> <p><i>Location: Room D</i></p> <p><b>Co-Chair: Jonathan Kimmelman (Canada)</b> <b>Co-Chair: Simon Stott (UK)</b></p> <p><b>Talk 1: How do journals decide what to publish and promote?</b> <i>Speaker: Elena Becker-Barroso (UK)</i></p> <p><b>Talk 2: How does the media choose stories and sell them?</b> <i>Speaker: Jon Palfreman (USA)</i></p> <p><b>Talk 3: How do you assess all the information that is out there?</b> <i>Speaker: Benjamin Stecher (Canada)</i></p> <p><b>Learning Objectives:</b> 1. Describe the modern media landscape and publishing incentives and how it can and has been manipulated; 2. Give insights into the process of research impact based on information “factoids, fragmented data, news out of context, and hypes vs evidence-based medicine and old school processes”; 3. Give examples of what can be done to provide sound, unbiased information and efforts to protect patients by legislation.</p>	<p><b>WW6 – SEXUALITY AND INTIMACY IN PARKINSON'S DISEASE FOR PEOPLE WITH PARKINSON'S AND THEIR PARTNERS</b> </p> <p><i>Location: Room B-1</i></p> <p><b>Co-Chair: Victor McConvey (Australia)</b> <b>Co-Chair: Lucie Lachance (Canada)</b></p> <p><b>Talk 1: How PD affects sexuality and intimacy of PwP and their care partners</b> <i>Speaker: Sheila Silver (USA)</i></p> <p><b>Talk 2: Medical and non-medical management of sexual problems in PD</b> <i>Speaker: Jim Bender (The Netherlands)</i></p> <p><b>Talk 3: How to communicate on sexual issues with my inter-professional team</b> <i>Speaker: Gila Bronner (Israel)</i></p> <p><b>Learning Objectives:</b> 1. Awareness and understanding of how Parkinson's disease may significantly affect the intimate life of PwPD and partners and consequently affect their relationship; 2. Provide PwPD and partners with adequate tools and techniques to cope with these problems; 3. Empower patients and partners to discuss their sexual health problems with their health care professionals.</p>	<p><b>WRT2 –</b> <i>Location: Rooms I, J, K</i></p> <p><b>Table 1: Sleep &amp; PD: Tips and tricks</b> Aleksandar Videnovic (USA)</p> <p><b>Table 2*: Therapeutic programs for cognitive health in PD</b> Atsushi Takeda (Japan)</p> <p><b>Table 3: Cognitive deficits in Parkinson's disease: Clinical features, diagnosis, and evolution</b> Caroline Williams-Gray (UK)</p> <p><b>Table 4: The challenges of making authentic midbrain dopamine neurons from stem cells</b> Agnete Kirkeby (Denmark)</p> <p><b>Table 5*: Clinical application of stem cell transplantation therapy</b> Asuka Morizane (Japan)</p> <p><b>Table 6*: The role of cellular thresholds in selective neuronal vulnerability in PD</b> David Sulzer (USA) <i>Interpreter: Shinya Yamashita</i></p> <p><b>Table 7: The history of levodopa and dopamine agonists, benefits and myths</b> Stanley Fahn (USA)</p> <p><b>Table 8: Living well with Parkinson's: What's the secret?</b> Kathie Hill (USA) &amp; Nancy Peate (USA)</p> <p><b>Table 9*: α-synuclein and the immune response in PD</b> Ashley Harms (USA) <i>Interpreter: Kyohei Kitamura</i></p> <p><b>Table 10: Mechanisms underlying impulsive behaviors and addictions in Parkinson's disease</b> Christelle Baunez (France)</p> <p><b>Table 11: Diagnosed with PD ... Now what?</b> Andy McDowell (New Zealand)</p> <p><b>Table 12*: Managing dyskinesias</b> Masahiko Tomiyama (Japan)</p>

\* Roundtables with Japanese translator/Japanese-language support

FINAL PROGRAM

Wednesday, June 5, 2019



DAILY > 5:15 - 6:30 PM		
WPT - POSTER TOURS		
<p><b>5:15 - 6:30 PM</b> Location: <b>Event Hall &amp; New Hall</b></p> <p>See pages 108–110 for the list of posters included in each tour. Sign-up required (New Hall).</p> <p>Poster Tour 1: <b>Protein misfolding and handling</b> Host: Glenda Halliday (Australia)</p> <p>Poster Tour 2: <b>Animal and cellular models of PD</b> Host: Laurent Roybon (Sweden)</p> <p>Poster Tour 3: <b>Alternative and complementary therapies</b> Host: Tom Montine (USA)</p> <p>Poster Tour 4: <b>Non-motor manifestations and PD</b> Host: David Breen (UK)</p> <p>Poster Tour 5: <b>Rehabilitation sciences I</b> Host: Isabelle Arnulf (France)</p> <p>Poster Tour 6: <b>Clinical trial design and patient involvement</b> Host: Simon Stott (UK)</p> <p>Poster Tour 7: <b>Caregiving, palliative care, self-management, and PD</b> Host: Colleen Canning (Australia)</p> <p>Poster Tour 8: <b>Health accessibility for all populations</b> Host: Tanya Simuni (USA)</p> <p>Poster Tour 9: <b>Etiology, functional imaging, optogenetics, and PD</b> Host: Angelo Quartarone (Italy)</p> <p>Poster Tour 10: <b>Animal and cellular models, dopamine receptors, and pharmacology</b> Host: Ashley Harms (USA)</p> <p>Poster Tour 11: <b>Protein misfolding handling, and transmisson</b> Host: Nicolas Dzamco (Australia)</p> <p>Poster Tour 20: <b>Public education and awareness programs</b> Host: Malu Tansey (USA) (Moved from Thursday, June 7)</p>		
WWU - DAILY WRAP-UP PANELS	BOOK NOOK	WPC THEATER
<p><b>5:15 - 6:30 PM</b> Location: <b>Main Hall</b></p> <p><b>Chair: Michele Tagliati (Italy)</b> Panelists: Jennifer Goldman (USA) M. Angela Cenci Nilsson (Sweden) Frank Church (USA) Paolo Calabresi (Italy) Nobutaka Hattori (Japan)</p>	<p><b>5:30 - 6:30 PM</b> Location: <b>Event Hall</b></p> <p>Meet the Author: Carol Clupny (USA)</p>	<p><b>5:30 - 6:00 PM</b> Location: <b>Event Hall</b> Presentation by <i>Not Impossible Labs (USA)</i></p> <p>How a wearable technology designed by Not Impossible could counter the symptoms of PD</p>

Session Levels

- Crosstalk – Minimal or no scientific background required
- Moderate-level scientific sessions
- High-level scientific sessions

Session Type

- Basic Science
- Clinical Science
- Comprehensive Care

Language

- Simultaneous interpretation from English to Japanese  
英語から日本語
- Japanese track  
日本語トラック



**DAY**  
**2**



FINAL PROGRAM

Thursday, June 6, 2019



HOT TOPICS > 8:00 – 9:00 AM

- Location:* **Main Hall** *Supported by American Parkinson Disease Association*   
**Chair:** **Stephane Hunot (France)**
- Talk 1: Bidirectional gut-to-brain and brain-to-gut propagation of  $\alpha$ -synuclein pathology in non-human primates**  
 P03.03 *Speaker:* Erwan Bezard (France)
- Talk 2: Patient engagement in the development of OUR DBS: A global patient registry addressing outcomes and unanswered questions for DBS**  
 P21.02 *Speaker:* James Kirk (USA)
- Talk 3: Automated immunohistochemical detection of skin depositions of pathological  $\alpha$ -synuclein in idiopathic rem sleep behavior disorder and parkinsonism**  
 P17.02 *Speaker:* Sebastian Dziadek (Switzerland)
- Talk 4: A closer look at the unmet needs, research and care priorities for women with Parkinson's**  
 P35.05 *Speaker:* Veronica Todaro (USA)

AWARD CEREMONY > 9:00 – 9:30 AM

- Location:* **Main Hall**   
*Presenter:* **Elizabeth Pollard (USA)**
- WPC Robin A. Elliott Award for Service to the Community Award**  
*Award Recipients:* Sara Lew Lai Heong (Malaysia) and Nancy Tingey, OAM, CF, MA, BA (Australia)

MORNING PLENARY > 9:30 – 11:30 AM

- TPL – PLENARY**    
*Location:* **Main Hall**
- Are we moving towards personalized medicine?**
- Co-Chair:** Etienne Hirsch (France)  
**Co-Chair:** Ryosuke Takahashi (Japan)
- Talk 1: Heterogeneity of Parkinson's disease**  
*Speaker:* Connie Marras (Canada)
- Talk 2: How are the genetics of Parkinson's disease influencing treatment development?**  
*Speaker:* Susanne Schneider (Germany)
- Talk 3: New trial approaches to treating Parkinson's disease**  
*Speaker:* Olivier Rascol (France)
- Talk 4: What's it like to live with a gene for Parkinson's disease?**  
*Speaker:* Benjamin Stecher (Canada)
- Learning Objectives:** 1. To recognize that Parkinson's disease is not a single disorder but more a collection of similar conditions that can be defined clinically and genetically; 2. To understand our new emerging data relating to some aspects of the genetic basis of Parkinson's are being used in new trials to target only certain forms of the condition; 3. To show how researchers are designing new clinical trials in Parkinson's disease using subtypes of patients and better trial designs; 4. Explain what it is like to live with a gene for a neurological condition and how knowing this can help in making informed decisions about their daily living, clinical trial involvement, and long-term plans.

### FINAL PROGRAM

Thursday, June 6, 2019



LUNCH > 11:30 AM – 1:30 PM			
CORPORATE LUNCH SESSIONS			
<p><b>12:00 – 1:00 PM</b>                      Location: <b>Room A</b>                      Open door: <b>11:30 AM</b></p> <p>Health professionals only – Talks in Japanese</p> <p>Supported by AbbVie                      (See Japanese program on page 16.)</p>		<p><b>12:00 – 1:00 PM</b>                      Location: <b>Annex 2</b>                      Open door: <b>11:30 AM</b></p> <p>Health professionals only – Talks in English</p> <p><b>Wearable technology for quantitative evaluation of Parkinson's disease</b>                      Moderator: Yoshikazu Ugawa (Japan)                      Speaker: Roongroj Bhidayasiri (Thailand)</p> <p>Supported by Takeda Pharmaceutical Company Limited,                      Japan Medical Office</p>	
BOOK NOOK	POSTER SESSION 2	CARE PARTNER LOUNGE	
<p><b>11:30 AM – 1:30 PM</b>                      Location: <b>Event Hall</b></p> <p>Meet the Authors: Nancy Tingey (Australia) &amp; Carl Voyles (USA)</p>	<p><b>11:30 AM – 1:30 PM</b>                      Location: <b>Event Hall &amp; New Hall</b></p>	<p><b>12:30 – 1:30 PM</b>                      Location: <b>Room C-1</b></p> <p>Creating connections                      An open support group                      Supported by Acadia</p>	
TSL – SPECIAL LECTURE			
<p><b>12:00 – 1:00 PM</b>                      Location: <b>Sakura Room</b></p> <p><b>Living well with Parkinson's disease: What's your secret?</b>                      Chair: <b>Raj Pahwa (USA)</b></p> <p>Panelists: Omotola Thomas (UK/Nigeria), Yoshiko Okada (Japan), Emma Lawton (UK), Elizabeth Ildal (Denmark), Benjamin Stecher (Canada)</p>		<p>Supported by Acorda Therapeutics</p> <p style="text-align: right;"> </p>	
WPC THEATER	WORLD CAFÉ	CLINICAL RESEARCH VILLAGE	
<p><b>12:00 – 1:00 PM</b>                      Location: <b>Event Hall</b></p> <p>Music and dance performances</p>	<p><b>12:00 – 1:00 PM</b>                      Location: <b>Room 101</b></p> <p>Question of the day: <b>What are your tips for navigating a young onset diagnosis?</b></p> <p>*Limited seating up to 30.                      Sign-up outside door.</p>	<p><b>12:00 – 1:00 PM</b>                      Location: <b>Event Hall</b></p> <p><b>Common Concerns and Myths about Research Participation Dispelled</b></p> <p>Learn answers to common questions about participating in research and understand the different ways people can get involved.</p> <p>Supported by The Michael J. Fox Foundation</p>	











FINAL PROGRAM

Thursday, June 6, 2019



PARALLEL SESSIONS > 1:30 - 3:00 PM

<p><b>TP1 –</b> <b>BASAL GANGLIA OSCILLATIONS AND CIRCUITRY IN PARKINSON'S DISEASE</b>  </p> <p><i>Location: Annex 2</i></p> <p><b>Co-Chair:</b> <b>Elena Moro (France)</b> <b>Co-Chair: Barbara Picconi (Italy)</b></p> <p><b>Talk 1: Abnormal neural activities in the cortico-basal ganglia networks in animal models of PD</b> <i>Speaker: Atsushi Nambu (Japan)</i></p> <p><b>Talk 2: Optogenetic modulation of basal ganglia activity in Parkinsonian models</b> <i>Speaker: Stella Papa (USA)</i></p> <p><b>Talk 3: Adaptive brain stimulation for the treatment of PD: Where are we with this?</b> <i>Speaker: Alberto Priori (Italy)</i></p> <p><b>Learning Objectives:</b> 1. Understand how the cortico-basal ganglia-thalamocortical network is organized, and how oscillations can emerge and propagate within this network in animal models of PD; 2. Appreciate the link between specific oscillatory activities and different clinical states, and understand how deep-brain stimulation can reduce pathological oscillations in PD patients; 3. Gain awareness of ongoing efforts to develop adaptive deep-brain stimulation (DBS) for use in PD.</p>	<p><b>TP2 –</b> <b>THE MAJOR DISCOVERIES IN PARKINSON'S DISEASE OVER THE LAST 10 YEARS</b>  </p> <p><i>Location: Annex 1</i></p> <p><b>Co-Chair: Tim Anderson (New Zealand)</b> <b>Co-Chair: Daniel Weintraub (USA)</b></p> <p><b>Talk 1: <math>\alpha</math>-synuclein: A story of accumulation and spread</b> <i>Speaker: Maria Grazia Spillantini (UK)</i></p> <p><b>Talk 2: Preclinical and prodromal PD: Predictive and risk factors</b> <i>Speaker: Walter Maetzler (Germany)</i></p> <p><b>Talk 3: iPS and PD</b> <i>Speaker: Jun Takahashi (Japan)</i></p> <p><b>Learning Objectives:</b> 1. Understand the concept of <math>\alpha</math>-synuclein accumulation and spread in the pathogenesis of PD; 2. Outline the new concepts and implications of preclinical and prodromal PD; 3. Discuss the development of personalized therapies and disease modelling using iPSCs.</p>	<p><b>TP3 –</b> <b>END OF LIFE PLANNING AND CARE FOR PARKINSONISM</b>  </p> <p><i>Location: Room Sakura</i></p> <p><b>Co-Chair: Julie Carter (USA)</b> <b>Co-Chair: Anne Louise Lafontaine (Canada)</b></p> <p><b>Talk 1: State of the art of palliative care in Parkinson's disease: A global perspective</b> <i>Speaker: Victor McConvey (Australia)</i></p> <p><b>Talk 2: Palliative care in your hands: Advance care planning in parkinsonian disorders</b> <i>Speaker: Roongroj Bhidayasiri (Thailand)</i></p> <p><b>Talk 3: Case studies in palliative care for parkinsonian disorders</b> <i>Speaker: Barry Snow (New Zealand)</i></p> <p><b>Learning Objectives:</b> 1. Explain the benefits and models for Advance Care Planning (ACP); 2. Identify palliative needs for patients with end-stage parkinsonism; 3. Summarize the treatments available for palliation of symptoms at end of life.</p>	<p><b>TP4 –</b> <b>WHY DO PEOPLE WITH PARKINSON'S DISEASE FALL AND CAN FALLS BE PREVENTED?</b>  </p> <p><i>Location: Room A</i></p> <p><b>Chair: Laurie King (USA)</b></p> <p><b>Talk 1: Can we predict falls?</b> <i>Speaker: Colleen Canning (Australia)</i></p> <p><b>Talk 2: Factors that contribute to falls</b> <i>Speaker: Anat Mirelman (Israel)</i></p> <p><b>Talk 3: Solutions to minimize falls</b> <i>Speaker: Lynn Rochester (UK)</i></p> <p><b>Learning Objectives:</b> 1. To describe the common elements that lead to falls in PD including changes in muscle strength, freezing of gait and how changes in cognition impact on gait; 2. To review the evidence that rating scales or other factors can predict who will fall; 3. To review strategies to prevent or minimize falls.</p>
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Session Levels

-  Crosstalk – Minimal or no scientific background required
-  Moderate-level scientific sessions
-  High-level scientific sessions

Session Type

-  Basic Science
-  Clinical Science
-  Comprehensive Care

Language

-  Simultaneous interpretation from English to Japanese  
英語から日本語
-  Japanese track  
日本語トラック

### FINAL PROGRAM

Thursday, June 6, 2019



#### WORKSHOPS > 1:30 - 3:00 PM

#### TW1 – THE ROLE OF INFLAMMATION AND THE IMMUNE SYSTEM IN PARKINSON'S DISEASE



Location: Room B-2

**Co-Chair:**  
David Standaert (USA)  
**Co-Chair:**  
Caroline Williams-Gray (UK)

**Talk 1:  $\alpha$ -synuclein and the immune response in PD**  
*Speaker:* Ashley Harms (USA)

**Talk 2: Enhancing clearance of  $\alpha$ -syn by immune related cells for neuroprotection**  
*Speaker:* Nadia Stefanova (Austria)

**Talk 3: LRRK2 in the Immune System**  
*Speaker:* Nicolas Dzamco (Australia)

**Learning Objectives:** 1. Parkinson's disease is a multisystem disease including involvement of the immune system; 2. The immune response drives some of the features of the disease; 3. How the immune system responds to  $\alpha$ -synuclein and how can we use the immune system to protect neurons and slow disease progress.

#### TW2 – PAIN AND PARKINSON'S DISEASE

Location: Room D

**Co-Chair:**  
A. Jon Stoessl (Canada)  
**Co-Chair:**  
Karen Raphael (USA)

**Talk 1: Pain syndromes occurring in Parkinson's disease: Presentations and assessment**  
*Speaker:* Santiago Perez Lloret (Argentina)

**Talk 2: Current understanding of underlying mechanisms of pain syndromes in PD**  
*Speaker:* Yih-Ru Wu (Taiwan)

**Talk 3: Treatment approaches and clinical trials for pain in PD**  
*Speaker:* Beom Jeon (South Korea)

**Learning Objectives:** 1. Describe the types of pain that can occur in PD and how to assess them; 2. Understand the mechanisms that underlie different types of pain in PD; 3. Outline the current evidence and treatment approaches to the management of pain in PD.

#### TW3 – YOPD: IT'S NOT ALL ABOUT THE SYMPTOMS – OTHER LIFE CONSIDERATIONS



Location: Room B-1

**Co-Chair:** Soania Mathur (Canada)  
**Co-Chair:** Heather Kennedy (USA)

**Talk 1: Diagnosed with YOPD – Next steps**  
*Speaker:* Andy McDowell (New Zealand)

**Talk 2: Tips and tricks for maintaining work/life balance**  
*Speaker:* Rebecca Miller (USA)

**Talk 3: PD is in the house – Impact on children/teens/young adults**  
*Speaker:* Elaine Book (Canada)

**Learning Objectives:** 1. Explore what may be involved in coming to terms with the diagnosis; 2. Examine common issues and solutions related to work/life balance; 3. Learn about how PD may impact on your children and strategies for a healthy family life.

#### ROUNDTABLES 1:30 - 3:00 PM

#### TRT1 – Location: Rooms I, J, K

**Table 1\*: Living well with young-onset Parkinson's**  
Tim Hague (Canada)  
*Interpreter:* Masataka Hirai

**Table 2: Inflammation, microbiome and PD: What is all the fuss about?**  
Viviane Labrie (USA)

**Table 3\*: Is there any evidence that nutrients modify PD?**  
Laurie Mischley (USA)  
*Interpreter:* Akemi Tsuno

**Table 4: LRRK2 as a therapeutic target**  
Brian Fiske (USA)

**Table 5: I have Parkinson's and I care about my genetics: You should too**  
Martin Taylor (UK)

**Table 6: Gut microbiota: Putting the puzzle together**  
Filip Scheperjans (Finland)

**Table 7: Experimental pharmacological treatments for Parkinson's disease**  
Jeff Conn (USA)

**Table 8: The challenge of disease classification in PD – What does it look like and what does it mean**  
Rejko Krüger (Luxembourg)

**Table 9: What is  $\alpha$ -synuclein and what goes wrong with it in PD**  
Jeffrey Kordower (USA)

**Table 10: LRRK2 and Parkinson's**  
Mark Cookson (USA)

**Table 11: How do you find a good "druggable" candidate in the lab?**  
Erwan Bezard (France)

**Table 12: Stem cell tourism – Why is it dangerous?**  
Jonathan Kimmelman (Canada)

#### COFFEE BREAK > 3:00 - 3:30 PM

\* Roundtables with Japanese translator/Japanese-language support

FINAL PROGRAM

Thursday, June 6, 2019



PARALLEL SESSIONS > 3:30 - 5:00 PM

**TP5 – THE PROTEINOPATHY OF PARKINSON'S DISEASE AND ITS ROLE IN PATHOGENESIS**

Location: Annex 2  

**Co-Chair:** Serge Przedborski (USA)  
**Co-Chair:** Ronald Melki (France)



**Talk 1: Synuclein and its role at the synapse**  
*Speaker:* Robert Edwards (USA)

**Talk 2: Mechanistic insights into GBA1-associated Parkinson's disease: Therapeutic implications**  
*Speaker:* Dimitri Krainc (USA)

**Talk 3: PINK1, Parkin and the ubiquitin system**  
*Speaker:* Noriyuki Matsuda (Japan)

**Learning Objectives:** 1. Gain an appreciation for factors that modulate cell-to-cell transmission of  $\alpha$ -synuclein pathology; 2. To outline how cellular degradation and recycling pathways influence the distribution of pathology; 3. Understand the interactions between mitochondrial function and handling of misfolded proteins inside neurons.

**TP6 – ADVANCING RESEARCH, CLINICAL TRIALS AND REAL-WORLD DATA**

Location: Annex 1  

**Co-Chair:** Simon Lewis (Australia)  
**Co-Chair:** Jasmine Sturr (USA)

**Talk 1: Where are we with clinical trials right now in PD?**  
*Speaker:* Tom Foltynie (UK)

**Talk 2: What do the guinea pigs really think?**  
*Speaker:* Richard Windle (UK)

**Talk 3: Using real-world data as an alternative to clinical trials**  
*Speaker:* Bas Bloem (The Netherlands)

**Learning Objectives:** 1. Identify what patients expect from clinical trials and the need to encourage them to participate in them; 2. Give an overview of the types of different medical and surgical trials that are ongoing; 3. The use of alternative non-trial approaches to better work out how to treat PD.

**TP7 – IMPORTANT NON-MOTOR SYMPTOMS THAT ARE OFTEN OVERLOOKED**

Location: Room Sakura  

**Co-Chair:** Lucie Lachance (Canada)  
**Co-Chair:** Hirohide Takahashi (Japan)


**Talk 1: Evaluating and managing sexual dysfunction in PD**  
*Speaker:* Sharon Hassin-Baer (Israel)

**Talk 2: Urological dysfunction in PD – What is it and what can be done about it?**  
*Speaker:* Ryuji Sakakibara (Japan)

**Talk 3: Managing orthostatic hypotension in PD**  
*Speaker:* Stuart Isaacson (USA)

**Learning Objectives:** 1. To provide an overview of the sexual dysfunction in PD and some strategies to manage them; 2. To review the most common bladder issues in PD and some treatments that can help; 3. To explain and manage orthostatic hypotension in PD.

**TP8 – STRATEGIES TO OPTIMIZE DAILY LIVING IN PWP: PHYSICAL AND SPEECH THERAPIES**

Location: Room A  

**Co-Chair:** Lee Dibble (USA)  
**Co-Chair:** Jennifer Cody (USA)

**Talk 1: Can we predict falls in PD?**  
*Speaker:* Lynn Rochester (UK)

**Talk 2: Facial masking and drooling: The impact on communication, social interaction, and swallowing**  
*Speaker:* Hanneke Kalf (The Netherlands)

**Talk 3: Early management of swallowing disorders: Can we prevent aspiration pneumonia?**  
*Speaker:* Corinne Jones (USA)

**Learning Objectives:** 1. Describe the essential features of gait dysfunction in early PD and implications for treating it early; 2. Examine the implications of facial masking and drooling on communication and social interaction; 3. Participants will be able to list specific approaches for early identification of swallowing disorders in PD; 4. Participants will be able to list specific approaches for treatment of swallowing disorders in PD.

Session Levels

-  Crosstalk – Minimal or no scientific background required
-  Moderate-level scientific sessions
-  High-level scientific sessions

Session Type

-  Basic Science
-  Clinical Science
-  Comprehensive Care

Language

-  Simultaneous interpretation from English to Japanese 英語から日本語
-  Japanese track 日本語トラック

### FINAL PROGRAM

Thursday, June 6, 2019



#### WORKSHOPS > 3:30 - 5:00 PM

#### TW4 – ADVANCING THE PHARMACOLOGY OF PARKINSON'S DISEASE

Location: Room B-2 

**Co-Chair:**  
Kalpana Merchant (USA)  
**Co-Chair:** Olivier Rascol (France)

**Talk 1: Experimental pharmacological treatments for Parkinson's disease**  
*Speaker:* Jeff Conn (USA)

**Talk 2: New insights into L-Dopa induced dyskinesias**  
*Speaker:* Barbara Picconi (Italy)

**Talk 3: Mechanisms underlying impulsive behaviors and addictions in Parkinson's disease**  
*Speaker:* Christelle Baunez (France)

**Learning Objectives:** 1. To review the current status of pharmacological targets for the motor and non-motor symptoms of Parkinson's disease; 2. The basis of L-dopa induced dyskinesias and how to treat them; 3. To review recent advances in the management of impulse control disorders and other non-motor aspects of PD.

#### TW5 – THE ROLE OF GENETICS AND GENETIC TESTING IN PD

Location: Room D 

**Co-Chair:** Susanne Schneider (Germany)  
**Co-Chair:** Martin Taylor (UK)

**Talk 1: The role of genetics in increasing our understanding of the pathophysiology of PD**  
*Speaker:* John Hardy (UK)

**Talk 2: Genetic testing in PD – What is possible and why is it important?**  
*Speaker:* Vincenzo Bonifati (The Netherlands)

**Talk 3: Ethical and legal aspects of genetic testing in PD**  
*Speaker:* Yann Joly (Canada)

**Learning Objectives:** 1. An update on the genetic basis for PD and how this helps us understand the pathophysiology of PD; 2. To better understand the need for genetic testing in PD, including current technological challenges with using gene chips and next generation sequencing; 3. To discuss the ethical dilemmas and legal issues of genetic testing for PD.

#### TW6 – MUSIC & DANCE FOR PARKINSON'S DISEASE

Location: Room B-1 

**Co-Chair:** Terry Ellis (USA)  
**Co-Chair:** David Leventhal (USA)  
*Interpreter:* Yayoi Nakai

**Talk 1: Dance as exercise for Parkinson's disease**  
*Speaker:* Meg Morris (Australia)

**Talk 2: The effects of music on the brain**  
*Speaker:* Jeanette Tamplin (Australia)

**Talk 3: Why partnered dance might optimize motor and cognitive rehabilitation in Parkinson's**  
*Speaker:* Madeleine Hackney (USA)

**Learning Objectives:** 1. Be able to discuss how dance can be therapeutic for someone with Parkinson's; 2. Explain the effect of music on the brain and how this impacts someone with Parkinson's when used as therapy; 3. Give two explanations how or why partnered dance could improve rehabilitation efforts for Parkinson's.



*Excerpt from Capturing Grace*

#### ROUNDTABLES 3:30 - 5:00 PM

#### TRT2 –

Location: Rooms I, J, K

**Table 1: Palliative care is in your hands**  
Roongroj Bhidayasiri (Thailand)

**Table 2\*: iPS cells and PD – What does this mean in 2019?**  
Jun Takahashi (Japan)

**Table 3\*: Predicting who will get Parkinson's disease**  
Isabelle Arnulf (France)  
*Interpreter:* Ryo Nakanishi

**Table 4\*: Shining a light on Parkinson's: Optogenetic modulation of basal ganglia activity**  
Stella Papa (USA)  
*Interpreter:* Sakura Ikeda

**Table 5\*: Treatment approaches and clinical trials for pain in PD**  
Beom Jeon (South Korea)  
*Interpreter:* Ryutaro Nakagawa

**Table 6\*: The heterogeneity of Parkinson's disease – What does it mean and why is it important**  
Connie Marras (Canada)  
*Interpreter:* Seigi Oshima

**Table 7\*: Maintaining balance and optimism when working and raising children with young onset PD**  
Rebecca Miller (USA)  
*Interpreter:* Kanako Okamoto

**Table 8: Parkinson's and the gut microbiome**  
Haydeh Payami (USA)

**Table 9: Measuring gut function in PD**  
Kathleen Shannon (USA)

**Table 10: Is inflammation important in PD?**  
David Standaert (USA)

**Table 11: New causative genes for PD**  
Alexis Brice (France)

**Table 12: Is there a Parkinson's diet?**  
Karin Overbeek (The Netherlands)

\* Roundtables with Japanese translator/Japanese-language support

FINAL PROGRAM

Thursday, June 6, 2019



DAILY > 5:15 - 6:30 PM				
TPT - POSTER TOURS				
<p><b>5:15 - 6:30 PM</b> Location: <b>Event Hall &amp; New Hall</b></p> <p>See pages 111-113 for the list of posters included in each tour. Sign-up required (New Hall).</p> <table border="0"> <tr> <td style="vertical-align: top;"> <p>Poster Tour 12: <b>Animal and cellular models of PD II</b> Host: Susanne Schneider (Germany)</p> <p>Poster Tour 13: <b>Fitness, wellness, and nutrition</b> Host: Karin Overbeek (The Netherlands)</p> <p>Poster Tour 14: <b>Rehabilitation sciences II</b> Host: Margaret Mak (Hong Kong)</p> <p>Poster Tour 15: <b>Rehabilitation sciences III</b> Host: Hirohide Takahashi (Japan)</p> <p>Poster Tour 16: <b>Biomarkers and PD</b> Host: Lucilla Parnetti (Italy)</p> </td> <td style="vertical-align: top;"> <p>Poster Tour 17: <b>Brain physiology, cell death, and neurophysiology</b> Host: Maria Grazia Spillantini (UK)</p> <p>Poster Tour 18: <b>Living well with PD</b> Host: Lucie Lachance (Canada)</p> <p>Poster Tour 19: <b>PD progression, cognition, and sleep</b> Host: Anne Louise Lafontaine (Canada)</p> <p>Poster Tour 21: <b>E-health and technology</b> Host: Aletta Kraneveld (The Netherlands)</p> </td> </tr> </table>			<p>Poster Tour 12: <b>Animal and cellular models of PD II</b> Host: Susanne Schneider (Germany)</p> <p>Poster Tour 13: <b>Fitness, wellness, and nutrition</b> Host: Karin Overbeek (The Netherlands)</p> <p>Poster Tour 14: <b>Rehabilitation sciences II</b> Host: Margaret Mak (Hong Kong)</p> <p>Poster Tour 15: <b>Rehabilitation sciences III</b> Host: Hirohide Takahashi (Japan)</p> <p>Poster Tour 16: <b>Biomarkers and PD</b> Host: Lucilla Parnetti (Italy)</p>	<p>Poster Tour 17: <b>Brain physiology, cell death, and neurophysiology</b> Host: Maria Grazia Spillantini (UK)</p> <p>Poster Tour 18: <b>Living well with PD</b> Host: Lucie Lachance (Canada)</p> <p>Poster Tour 19: <b>PD progression, cognition, and sleep</b> Host: Anne Louise Lafontaine (Canada)</p> <p>Poster Tour 21: <b>E-health and technology</b> Host: Aletta Kraneveld (The Netherlands)</p>
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TWU - DAILY WRAP-UP PANELS	BOOK NOOK	WPC THEATER		
<p><b>5:15 - 6:30 PM</b> Location: <b>Main Hall</b></p> <p><b>Chair: Serge Przedborski (USA)</b></p> <p>Panelists: Tim Anderson (New Zealand) Roger Barker (UK) Julie Carter (USA) Yann Joly (Canada) Carolyn Sue (Australia)</p>	<p><b>5:30 - 6:30 PM</b> Location: <b>Event Hall</b></p> <p>Meet the Author: A.C. Woolnough (USA)</p>	<p><b>5:30 - 6:30 PM</b> Location: <b>Event Hall</b> Presentation by Ben Wylie (UK)</p> <p><b>Film showcase - Kinetics</b> A film by Sue Wylie</p> <p>Based on a true story, Kinetics explores the unlikely friendship between a woman with early-onset Parkinson's and a bright but bored student into Parkour. Two people seemingly at polar opposites, but both with a desire to move.</p>		

Session Levels

- Crosstalk - Minimal or no scientific background required
- Moderate-level scientific sessions
- High-level scientific sessions

Session Type

- Basic Science
- Clinical Science
- Comprehensive Care

Language

- Simultaneous interpretation from English to Japanese  
英語から日本語
- Japanese track  
日本語トラック





**DAY**  
**3**



FINAL PROGRAM

Friday, June 7, 2019



HOT TOPICS > 8:00 – 9:00 AM

Location: **Main Hall**

Supported by American Parkinson Disease Association



Chair: **Binit Shah (USA)**

**Talk 1: Patient-derived  $\alpha$ -synuclein assemblies/strains display distinct functional characteristics in cells and in vivo**  
P03.01

Speaker: Veerle Baekelandt (Belgium)

**Talk 2: Assessing tele-health outcomes in multiyear extensions of Parkinson’s disease trials (AT-HOME PD): Initiation of a long-term observational study**  
P25.10

Speaker: Ruth Schneider (USA)

**Talk 3: Converging electrophysiological functions and pathological calcium phenotype over time results in mitochondrial stress: Describing a pathophysiological timeline and neuronal vulnerability in PD**  
P06.02

Speaker: Dayne Beccano-Kelly (UK)

**Talk 4: Multimodal balance training with rhythmical cues in Parkinson’s disease: A randomized clinical trial**  
P23.02

Speaker: Tamine Capato (Brazil)

AWARD CEREMONY > 9:00 – 9:30 AM

Location: **Main Hall**

Presenter: **A. Jon Stoessl (Canada)**



**WPC Award for Distinguished Contribution to the Parkinson Community**

Award Recipient: Soania Mathur, BSC, MD, CCFP (Canada)

MORNING PLENARY > 9:30 – 11:30 AM

**FPL – PLENARY**

Location: **Main Hall**



**The peripheral aspects of Parkinson’s disease – It is not just a brain disease!**

Co-Chair: **Hideki Mochizuki (Japan)**

Co-Chair: **Roger Barker (UK)**

**Talk 1: Your radical new life: Creative ways to overcome our challenges**

Speaker: Heather Kennedy (USA)

**Talk 2: Overview of peripheral (non-brain/CNS) abnormalities in PD**

Speaker: Jeffrey Kordower (USA)

**Talk 3: Does PD start outside the brain?**

Speaker: Per Borghammer (Denmark)

**Talk 4: Managing of the peripheral problems in PD**

Speaker: Shen Yang Lim (Malaysia)

**Learning Objectives:** 1. To present the true extent of deficits in Parkinson’s disease, including problems relating to pathology that exists outside the brain in this condition; 2. To summarize the current status of pathological changes that can be found outside the brain in Parkinson’s disease; 3. To discuss the current therapeutic options for these non-CNS aspects of Parkinson’s disease and how such treatments can work with drugs targeting the motor features of it; 4. To critically present and appraise the evidence that PD starts outside of the brain and then spreads to involve it.

### FINAL PROGRAM

Friday, June 7, 2019



LUNCH > 11:30 AM - 1:30 PM		
BOOK NOOK	CARE PARTNER LOUNGE	
<p><b>11:30 AM - 1:30 PM</b> <i>Location: Event Hall</i></p> <p>Meet the Authors: Elizabeth Rose (USA) and Anna Donnelly (USA)</p>	<p><b>12:00 - 1:30 PM</b> <i>Location: Room C-1</i></p> <p><b>Partnering with "Poise" – A Self-Care Session for Care Partners</b></p> <p>Enjoy resilience and in-the-moment relief while caregiving with some useful strategies based on Alexander technique (AT), a well-established approach for skillfully managing stressful circumstances.</p> <p><i>Supported by Acadia</i></p>	
FSL - SPECIAL LECTURE		
<p><b>12:00 - 1:00 PM</b> <i>Location: Main Hall</i></p> <p><b>Current status of iPS cells and efforts for medical application</b></p> <p><i>Introduction: Yoshikuni Mizuno (Japan)</i> <i>Speaker: Shinya Yamanaka (Japan) – 2012 Nobel laureate in Physiology or Medicine</i></p>  <p>Professor Yamanaka won the Nobel prize for the discovery that mature cells can be reprogrammed to become pluripotent. He studied for his medical degree at Kobe University and later earned his PhD from Osaka City University in 1993. After spending several years at the Gladstone Institute at the University of California, San Francisco, he returned to Osaka, but later moved to the Nara Institute of Science and Technology, where he began his Nobel Prize-awarded research. Shinya Yamanaka has been affiliated with Kyoto University since 2004.</p>		
WPC THEATER	WORLD CAFÉ	CLINICAL RESEARCH VILLAGE
<p><b>12:00 - 1:00 PM</b> <i>Location: Event Hall</i></p> <p>Music and dance performances</p>	<p><b>12:00 - 1:00 PM</b> <i>Location: Room 101</i></p> <p>Question of the day: <b>What was the most impactful experience of the conference to you?</b></p> <p>*Limited seating up to 30. Sign-up outside door.</p>	<p><b>12:00 - 1:00 PM</b> <i>Location: Event Hall</i></p> <p><i>Supported by The Michael J. Fox Foundation</i></p>
<p><b>1:05 - 1:25 PM</b> <i>Location: Event Hall</i> <i>Presentation by Sense4Care (Spain)</i></p> <p>See the results of three days tracking of people with Parkinson's at the during the WPC. What did their device reveal and what can we learn from it?</p>		

#### Session Levels



#### Session Type



#### Language



FINAL PROGRAM

Friday, June 7, 2019



PARALLEL SESSIONS > 1:30 – 3:00 PM

**FP1 – THE GI TRACT, MICROBIOME AND PARKINSON'S**



Location: Annex 2

**Co-Chair: Malu Tansey (USA)**  
**Co-Chair: Pascal Derkinderen (France)**

**Talk 1: Gut microbiota, 10<sup>13</sup> new pieces in the Parkinson's disease puzzle**

Speaker: Filip Scheperjans (Finland)

**Talk 2: Parkinson's disease and Parkinson's disease medications have distinct signatures with respect to the gut microbiome**

Speaker: Haydeh Payami (USA)

**Talk 3: Measuring GI function in Parkinson's disease**

Speaker: Per Borghammer (Denmark)

**Learning Objectives:** 1. To learn about the potential role of the gut microbiome in PD pathogenesis; 2. To learn about environmental factors that affect the gut microbiome in PD; 3. To learn about the latest technologies to measure gastrointestinal function in PD patients.

**FP2 – NEW THERAPIES AND EMERGING THERAPIES IN PD**



Location: Room A

**Co-Chair: Kalpana Merchant (USA)**  
**Co-Chair: Raj Pahwa (USA)**

**Talk 1: Immune therapies for PD**

Speaker: Seung Jae Lee (Korea)

**Talk 2: New surgery for PD**

Speaker: Binit Shah (USA)

**Talk 3: Repurposing drugs that target risk factors for PD**

Speaker: Michael Schwarzschild (USA)

**Learning Objectives:** 1. To review evidence for new emerging therapies for PD, including cell-based therapies, surgical techniques and repurposing old drugs; 2. To understand the potential benefits and side effects of these interventions; 3. To put new 'hyped' therapies in the context of 'old' therapies; 'Don't Believe the Hype'.

**FP3 – IS THERE A "BEST" EXERCISE FOR PARKINSON'S DISEASE?**



Location: Room Sakura

**Co-Chair: Joaquim Ferreira (Portugal)**  
**Co-Chair: Laurie King (USA)**

**Talk 1: Aerobic exercise for PD**

Speaker: Terry Ellis (USA)

**Talk 2: Strengthening exercise for PD**

Speaker: Lee Dibble (USA)

**Talk 3: Complex balance training for PD**

Speaker: Margaret Mak (Hong Kong)

**Learning Objectives:** 1. To describe the evidence supporting different types of exercise for people with PD; 2. To understand the contributions of varying exercise to specific and different impairments in people with PD; 3. Describe how technology can help with each type of exercise; 4. Describe how each type of exercise could be beneficial at different stages of the disease.

Session Levels



Crosstalk – Minimal or no scientific background required



Moderate-level scientific sessions



High-level scientific sessions

Session Type



Basic Science



Clinical Science



Comprehensive Care

Language



Simultaneous interpretation from English to Japanese  
 英語から日本語



Japanese track  
 日本語トラック

### FINAL PROGRAM

Friday, June 7, 2019



#### WORKSHOPS > 1:30 - 3:00 PM

#### FW1 – THE ROLE OF AGING IN PARKINSON'S DISEASE



Location: Room B-2

**Co-Chair: Glenda Halliday (Australia)**  
**Co-Chair: Maria Grazia Spillantini (UK)**

**Talk 1: Aging of the immune system and relevance to brain health and disease**  
*Speaker: V. Wee Yong (Canada)*

**Talk 2: Proteostasis, molecular chaperones and aging – Implications for PD**  
*Speaker: Heath Ecroyd (Australia)*

**Talk 3: Aging of mitochondrial function and bioenergetics – What does this mean for PD pathogenesis?**  
*Speaker: Carolyn Sue (Australia)*

**Learning Objectives:** 1. To understand how the immune system impacts on the brain with age; 2. To understand how the biological pathways maintaining healthy proteins in cells changes with age and impacts on neurodegeneration; 3. To learn more about how cellular energy is maintained by mitochondria as we age, and the potential impact of age on these processes.

#### FW2 – WHAT IS THE BEST BIOMARKER IN PARKINSON'S DISEASE



Location: Room D

**Co-Chair: Brian Fiske (USA)**  
**Co-Chair: Jean Burns (USA)**

**Talk 1: The use of neuroimaging as a biomarker in PD**  
*Speaker: Stephane Lehericy (France)*

**Talk 2: The current status of "wet" biomarkers (blood, CSF etc) as a biomarker in PD**  
*Speaker: Lucilla Parnetti (Italy)*

**Talk 3: Could biopsies from outside the brain help in the diagnosis and tracking of PD?**  
*Speaker: Kathleen Shannon (USA)*

**Learning Objectives:** 1. To review the methods and instruments used for biomarker development in PD; 2. To understand the role of clinical, imaging and CSF biomarkers in the diagnosis and tracking of PD; 3. To address the use of biomarkers for clinical trials and assessment of progression.

#### FW3 – THE VOICE AND RESPIRATION IN PD



Location: Room B-1

**Co-Chair: Hanneke Kalf (The Netherlands)**  
**Co-Chair: Jeanette Tamplin (Australia)**

**Talk 1: Overview of voice and breathing in Parkinson's disease**  
*Speaker: Corinne Jones (USA)*

**Talk 2: Approaches to voice training in PD**  
*Speaker: Darla Freeman (USA)*

**Talk 3: Maintenance of intelligibility after speech therapy in PD**  
*Speaker: Jennifer Cody (USA)*

**Learning Objectives:** 1. To describe the relationship between breathing, voice and swallowing and how this is important in PD; 2. To understand 2 technology-based approaches to improve voice and speech; 3. To discuss challenges and solutions in training therapies designed to maintain voice intelligibility in PD.

#### ROUNDTABLES 1:30 - 3:00 PM

#### FRT1 – Location: Rooms I, J, K

**Table 1: What is left to be discovered in PD?**  
*Tim Anderson (New Zealand)*

**Table 2: Where are we with clinical trials in PD in 2019?**  
*Tom Foltynie (UK)*

**Table 3: How and why you should be a guinea pig in a trial**  
*Richard Windle (UK)*

**Table 4\*: Using real world data as an alternative to clinical trials**  
*Bas Bloem (The Netherlands)*  
*Interpreter: Hisashi Kamido*

**Table 5\*: Molecular advances in stem cell and reprogramming strategies to treat PD**  
*Ernest Arenas (Sweden)*  
*Interpreter: Shinya Yamashita*

**Table 6: Pain and PD: Patient reality and what we know**  
*Karen Raphael (USA)*

**Table 7\*: The role of genetics in better understanding the pathophysiology of PD**  
*John Hardy (UK)*  
*Interpreter: Seigi Oshima*

**Table 8: Insulin resistance, diabetes and Parkinson's disease**  
*Dilan Athauda (UK)*

**Table 9: The links between mitochondrial failure and lysosomal dysfunction and  $\alpha$ -synuclein aggregation**  
*Dimitri Krainc (USA)*

**Table 10\*: PINK1, parkin and the ubiquitin system – How do they link to what goes wrong in PD**  
*Noriyuki Matsuda (Japan)*

**Table 11: Medical and non-medical management of sexual problems in PD**  
*Jim Bender (The Netherlands)*

**Table 12\*: Perspectives: Staying positive and engaged after a Parkinson's diagnosis, advice from a PwP and care partner**  
*Karyn Spilberg (Australia) and Sue Harper (Australia)*  
*Interpreter: Takaaki Yakushigawa*

#### COFFEE BREAK > 3:00 - 3:30 PM

\* Roundtables with Japanese translator/Japanese-language support



FINAL PROGRAM

Friday, June 7, 2019



PARALLEL SESSIONS > 3:30 – 5:00 PM

**FP4 – METABOLISM, STRESS, AND PARKINSON'S DISEASE**



Location: Annex 2

**Co-Chair: Tom Foltynie (UK)**  
**Co-Chair: Marie-Françoise Chesselet (USA)**

**Talk 1: PARIS: The Rosetta Stone to understanding Parkinson's disease**  
 Speaker: Ted Dawson (USA)

**Talk 2: Insulin resistance, diabetes and Parkinson's disease – How do they link together?**  
 Speaker: Dilan Athauda (UK)

**Talk 3: Glial and immune basis of chronic stress-induced neurodegeneration in Parkinson's disease**  
 Speaker: Stéphane Hunot (France)

**Learning Objectives:** 1. To understand the role of mitochondria in Parkinson's disease and related disorders; 2. To describe the pathogenic link between diabetes and Parkinson's disease and pharmacological strategies that use this information; 3. To understand the role of physiological stress in Parkinson's disease.

**FP5 – HOW DO YOU TAKE A THERAPY FROM THE LAB, TO THE CLINIC, TO THE MARKET?**



Location: Room A

**Co-Chair: Atsushi Takeda (Japan)**  
**Co-Chair: Stuart Isaacson (USA)**

**Talk 1: How do you find a good candidate in the lab?**  
 Speaker: Erwan Bezard (France)

**Talk 2: How do you take a therapy from the lab, to the clinic, to the market?**  
 Speaker: Kalpana Merchant (USA)

**Talk 3: How to move from a first in human study to a marketable drug?**  
 Speaker: Jesse Cedarbaum (USA)

**Learning Objectives:** 1. How to identify a good target for treating what; goes wrong in cells in PD; 2. How to perform preclinical studies and first in human studies with new therapeutic agents for PD; 3. How to take a therapy from a first in human study to a marketable treatment.

**FP6 – THE INS AND OUTS OF EATING AND PARKINSON'S DISEASE**



Location: Room Sakura

**Co-Chair: Hanneke Kalf (The Netherlands)**  
**Co-Chair: Laurie Mischley (USA)**

**Talk 1: How to get food & liquid in despite swallowing problems?**  
 Speaker: Sonoko Nozaki (Japan)

**Talk 2: Is there a Parkinson's diet?**  
 Speaker: Karin Overbeek (The Netherlands)

**Talk 3: Food for thought: The gut-immune-brain axis in Parkinson's disease**  
 Speaker: Aletta D. Kraneveld (The Netherlands)

**Learning Objectives:** 1. To describe at least two solutions to prevent choking or weight loss because of swallowing problems; 2. To name two food combinations that are best avoided in Parkinson's; 3. To describe two mechanisms that decrease or increase constipation.

Session Levels



Crosstalk – Minimal or no scientific background required



Moderate-level scientific sessions



High-level scientific sessions

Session Type



Basic Science



Clinical Science



Comprehensive Care

Language



Simultaneous interpretation from English to Japanese  
 英語から日本語



Japanese track  
 日本語トラック

FINAL PROGRAM

Friday, June 7, 2019



WORKSHOPS > 3:30 - 5:00 PM		ROUNDTABLES 3:30 - 5:00 PM	
<p><b>FW4 –</b>  <b>NEUROGENETICS IN PARKINSON'S DISEASE: FROM MONOGENIC FORMS OF PD TO SUSCEPTIBLE GENES FOR SPORADIC FORMS OF THE DISEASE</b> <i>Location: Room B-2</i></p> <p><b>Co-Chair: Matt Farrer (Canada)</b> <b>Co-Chair: Nobutaka Hattori (Japan)</b></p> <p><b>Talk 1: New causative genes for PD</b> <i>Speaker: Alexis Brice (France)</i></p> <p><b>Talk 2: Next generation sequencing strategies and its role in identifying in genetic risk factors for Parkinson's disease</b> <i>Speaker: Tatsushi Toda (Japan)</i></p> <p><b>Talk 3: The challenge of disease classification in PD – What does it look like and what does it mean</b> <i>Speaker: Rejko Krüger (Luxembourg)</i></p> <hr/> <p><b>Learning Objectives:</b> 1. To learn about the new genes identified as causing familial PD; 2. To understand the susceptible genes for "sporadic" PD and its potential roles in PD pathogenesis; 3. To recognize the clinical phenotypes of familial PD that link to different causative gene mutations.</p>	<p><b>FW5 –</b>  <b>STEM CELLS IN PARKINSON'S DISEASE</b> <i>Location: Room D</i></p> <p><b>Co-Chair: Roger Barker (UK)</b> <b>Co-Chair: Agnete Kirkeby (Denmark)</b></p> <p><b>Talk 1: Stem cell and reprogramming strategies to treat PD</b> <i>Speaker: Ernest Arenas (Sweden)</i></p> <p><b>Talk 2: Using stem cells to treat PD</b> <i>Speaker: Jun Takahashi (Japan)</i></p> <p><b>Talk 3: Stem cell tourism – What is it all about?</b> <i>Speaker: Jonathan Kimmelman (Canada)</i></p> <hr/> <p><b>Learning Objectives:</b> 1. Understand the potential of stem cells for learning about the pathophysiology of PD and for identifying drugs that may help to treat PD; 2. Understand the potential of stem cells for use as a direct cell repair strategy in PD; 3. How to avoid exploitation by unscrupulous companies advertising stem cell therapies.</p>	<p><b>FW6 –</b>  <b>DEPRESSION, ANXIETY, AND APATHY IN PD: HOW TO BEST MANAGE IT – PART 2</b> <i>Location: Room B-1</i></p> <p><b>Co-Chair: Shen Yang Lim (Malaysia)</b> <b>Co-Chair: Jon Stamford (UK)</b></p> <p><b>Talk 1: Apathy: Is there a treatment?</b> <i>Speaker: Kathy Dujardin (France)</i></p> <p><b>Talk 2: Anxiety: How best to manage it</b> <i>Speaker: Roseanne Dobkin (USA)</i></p> <p><b>Talk 3: Depression: How best to treat it</b> <i>Speaker: Murat Emre (Turkey)</i></p> <hr/> <p><b>Learning Objectives:</b> 1. Pharmacological therapies to manage anxiety, apathy and depression; 2. Non-pharmacological therapies to manage them; 3. Be able to provide tips to a care partner when living with an apathetic partner.</p>	<p><b>FRT2 –</b> <i>Location: Rooms I, J, K</i></p> <p><b>Table 1*: Abnormal neural activities in the cortico-basal ganglia networks in animal models of PD</b> Atsushi Nambu (Japan)</p> <p><b>Table 2: Immune therapies for PD</b> Seung Jae Lee (Korea)</p> <p><b>Table 3: Repurposing drugs that target risk factors for PD</b> Michael Schwarzschild (USA)</p> <p><b>Table 4: Why partnered dance is a valuable therapy for people with Parkinson's</b> Madeleine Hackney (USA)</p> <p><b>Table 5*: Aerobic exercise for Parkinson's disease – Useful or not?</b> Terry Ellis (USA) <i>Interpreter: Miho Sakai</i></p> <p><b>Table 6: New insights into L-dopa induced dyskinesias</b> Barbara Picconi (Italy)</p> <p><b>Table 7*: Aging of the immune system and its relevance to brain health and PD</b> V. Wee Yong (Canada) <i>Interpreter: Narumi Saito</i></p> <p><b>Table 8*: Medical and surgical advances in Parkinson's</b> Genko Oyama (Japan)</p> <p><b>Table 9*: A family affair: Well-being for everyone when a diagnosis of PD knocks on the door</b> Jasmine Sturr (USA) <i>Interpreter: Kanako Okamoto</i></p> <p><b>Table 10*: Music &amp; dance for Parkinson's disease</b> Meg Morris (Australia) <i>Interpreter: Atsushi Naito</i></p> <p><b>Table 11: Sexual intimacy and Parkinson's</b> Gila Bronner (Israel)</p> <p><b>Table 12: Where are we with DBS?</b> Elena Moro (France)</p>

\* Roundtables with Japanese translator/Japanese-language support

## FINAL PROGRAM

Friday, June 7, 2019



### DAILY > 5:15 - 6:15 PM

#### FWU - DAILY WRAP-UP PANELS

*Location:* **Annex 1**

**Chair:** **A. Jon Stoessl (Canada)**

*Panelists:* Ted Dawson (USA)  
Joaquim Ferreira (Portugal)  
Susanne Schneider (Germany)  
Annette Hand (UK)  
Ryosuke Takahashi (Japan)



### CLOSING REMARKS & RAFFLE > 6:15 - 7:15 PM

*Location:* **Annex 1**

- **Recognition Awards**
- **Passport Raffle**
- **Stanley Fahn Young Investigator Award**
- **Musical performance**
- **Final Remarks**

WPC 2019  
Video Competition!

BE INSPIRED.

WATCH THE VIDEOS FROM  
THE COMPETITION AT  
[YOUTUBE.COM/WORLDPDCCONGRESS](https://www.youtube.com/worldpdccongress)

## POSTERS – Session 1

Wednesday, June 5, 2019

DAY  
1**11:30 AM – 1:30 PM** (See floorplans on pp. 116–117 for poster locations.)

Presenters of featured posters listed below will be present over lunch to discuss their work.

**Basic Science: Etiology, genetics, epidemiology and toxicants – NEW HALL**

- P01.01 **Effect of MHCII-transactivator on aggregation, propagation, and toxicity induced by  $\alpha$ -synuclein fibrils**  
**Itzia Jimenez-Ferrer**, Michael Jewett, Antonio Boza-Serrano, Kelvin C. Luk, Maria Swanberg
- P01.03 **The risk of colorectal cancer and stomach cancer in Parkinson's disease: A systematic review and meta-analysis**  
**Wei Kee Lum**, Shaun Lee, Khuen Yen Ng
- P01.05 **Sequencing known Parkinson's disease genes in Latino PD patients with positive family history from the LARGE-PD consortium**  
Oswaldo Lorenzo-Betancor, Mario Cornejo-Olivas, Elison H Sarapura-Castro, Luis E Torres, Miguel A Inca-Martinez, Pilar Mazzetti, Carlos Cosentino, Federico Micheli, Vitor Tumas, Elena Dieguez, Victor Raggio, Vanderci Borges, Henrique B Ferraz, Carlos M. Rieder, Artur Shumacher-Schuh, Cyrus Zabetian, **Ignacio F. Mata**, Latin American Research Consortium on the Genetics of PD (LARGE-PD)
- P01.07 **Deletion of GBA2 in neuronopathic Gaucher's disease medaka could not rescue the phenotype**  
**Etsuro Nakanishi**, Norihito Uemura, Hisako Akiyama, Masato Kinoshita, Hodaka Yamakado, Shunichi Takeda, Yoshio Hirabayashi, Ryosuke Takahashi
- P01.09 **Survival of patients with Parkinson's disease is influenced by the mutations in the LRRK2 but not GBA gene**  
**Avner Thaler**, Nurit Omer, Tal Kozlovski, Tanya Gurevich, Anat Bar-Shira, Mali Gana-Weiss, Avi Orr-Urtreger, Nir Giladi, Anat Mirelman
- P01.11 **Association of  $\alpha$ -synuclein and DAT-SPECT imaging in Parkinson's disease patients of Coimbatore population, India**  
**Dhivya Venkatesan**, Balachandar Vellingiri

**Basic Science: Cell death, disease modification, and trophic factors – NEW HALL**

- P02.03 **Protective effect of anodal transcranial direct current stimulation on methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP)-induced neurotoxicity in mice via modulating mitochondrial dynamics**  
**Wooyoung Jang**
- P02.05 **How dopamine neuron survival promoting neurotrophic factors CDNF and MANF regulate the unfolded protein response**  
**Vera Kovaleva**, Ave Eesmaa, Yu Li-Ying, Mart Saarma
- P02.06 **Effect of CDNF in novel  $\alpha$ -synuclein fibril models of Parkinson's disease**  
**Aastha Singh**, Merja Voutilainen, Anne Panhelainen
- P02.07 **Effect of CDNF in N171-82Q mouse model of Huntington's disease**  
**Polina Stepanova**, Dan Lindholm, Merja H Voutilainen
- P02.08  **$\alpha$ -synuclein interacts with BAF complex in nucleus**  
**Naoto Sugeno**, Takafumi Hasegawa, Junpei Kobayashi, Shun Yoshida, Michinori Ezura, Akio Kikuchi, Atsushi Takeda, Masashi Aoki

**Basic Science: Protein misfolding, handling, and transmission – NEW HALL**

- P03.03 **Bidirectional gut-to-brain and brain-to-gut propagation of  $\alpha$ -synuclein pathology in non-human primates**  
Marie-Laure Arotcarena, Sandra Dovero, Alice Prigent, Mathieu Bourdenx, Philippe Aubert, Maddalena Tasselli, Maria-Trinidad Herrero, Miquel Vila, Jose Obeso, Pascal Derkinderen, Benjamin Dehay, **Erwan Bezard**
- P03.04 **Machine learning reveals different pathological signatures induced by distinct patient-derived – synuclein pathogenic structures in monkeys**  
Mathieu Bourdenx, Aurelien Nioche, Sandra Dovero, Marie-Laure Arotcarena, Marie-Laure Thiolat, Nicolas Rougier, Sylvain Bohic, Niels Kruse, Britt Mollenhauer, Salvatore Novello, Michele Morari, Ines Trigo, Maddalena Tasselli, Celine Perier, Ariadna Recasens, Javier Blesa, Maria-Trinidad Herrero, Pascal Derkinderen, Miquel Vila, Jose Obeso, Benjamin Dehay, **Erwan Bezard**
- P03.08 **Involvement of the CD163 receptor in the  $\alpha$ -synuclein induced neurodegeneration in Parkinson's disease**  
**Sara Ferreira**, Ida Klæstrup, Cristine Betzer, Pia Svedsen, Poul H. Jensen, Søren K. Moestrup, Marina Romero-Ramos

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- P03.09 **Extracellular  $\alpha$ -synuclein enters dopaminergic neurons by modulating flotillin-1-assisted dopamine transporter endocytosis**  
**Takafumi Hasegawa**, Junpei Kobayashi, Naoto Sugeno, Shun Yoshida, Tetsuya Akiyama, Yasuo Miki, Yasushi Kawata, Michinori Ezura, Akio Kikuchi, Atsushi Takeda, Mitsunori Fukuda, Makoto Kanzaki, Koichi Wakabayashi, Hideyuki Okano, Masashi Aoki
- P03.10 **Effects of the intracellular milieu on  $\alpha$ -synuclein fibril formation: A study by Kyoto University, Japan**  
**Tomoyuki Ishimoto**, Hodaka Yamakado, Ryosuke Takahashi
- P03.12 **Misfolded  $\alpha$ -synuclein hampers oligodendroglial maturation in multiple system atrophy**  
**Seiji Kaji**, Takakuni Maki, Takashi Ayaki, Ryosuke Takahashi
- P03.14 **Deciphering the role of posttranslational modifications on  $\alpha$ -synuclein aggregation and toxicity**  
**Tiago Outeiro**
- P03.17 **Suppression of amyloid fibril formation of  $\alpha$ -synuclein by the human molecular chaperone Hsp60**  
**Hanae Yamamoto**, Naoya Fukui, Kunihiro Hongo, Tomohiro Mizobata, Yasushi Kawata

### Basic Science: Mitochondria, oxidative stress, and pathogenesis – NEW HALL

- P04.02 **Unravelling mitochondrial dysfunction in Parkinson's disease**  
**Roberta Filograna**, Nils-Göran Larsson
- P04.03  **$\alpha$ -synuclein and LRRK2's cooperation in mitochondrial dysfunctions in Parkinson's disease**  
**Camille Gardier**, Noémie Cresto, Marie-Claude Gaillard, Noëlle Dufour, Alexis Bemelmans, Emmanuel Brouillet, Géraldine Liot
- P04.05 **The AMPK-PGC-1 axis in neuroprotection – implications for energy deficits in Parkinson's disease**  
**Kah-Leong Lim**, Liting Hang, Geraldine Goh
- P04.07 **In silico identification of novel large-scale mtDNA deletion in a patient with Kearns-Sayer syndrome**  
**Hui-Jun Yang**, Byoung-Soo Park, Ji-Yun Park, Eun-Mi Lee, Sun-Young Kim, Wook-Joo Kim, Jee-Hyun Kwon

### Basic Science: Animal and cellular models of Parkinson's disease and Parkinsonisms – NEW HALL

- P06.01 **Role of indirect pathway D2 receptors in L-DOPA-induced dyskinesia**  
**Laura Andreoli**, Irene Spera, Johan Jakobsson, M. Angela Cenci Nilsson
- P06.02 **Converging electrophysiological functions and pathological calcium phenotype over time results in mitochondrial stress: Describing a pathophysiological timeline and neuronal vulnerability in PD**  
**Dayne Beccano-Kelly**, Yassine Mousba, Marta Cherubini, Siv Vingill, Bryan Ng, Matthieu Trigano, Jane Vowles, Sally Cowley, Richard Wade-Martins
- P06.05 **Parkinson's disease-linked D620N VPS35 knockin mice manifest tau neuropathology and dopaminergic neurodegeneration**  
**Xi Chen**, Jennifer Kordich, Erin Williams, Nathan Levine, Allyson Cole-Strauss, Jiyan Ma, Jack Lipton, Darren Moore
- P06.10 **Auxilin protects against  $\alpha$ -synuclein aggregation, cell death and impairment of endocytosis**  
 Galina Limorenko, Francesco Aprile, Trisha Lahiri, Roxanne Staats, Michele Vendruscolo, **Christian Hansen**
- P06.12 **GBA-associated Parkinson's disease mice model**  
**Masashi Ikuno**, Hodaka Yamakado, Hisako Akiyama, Laxmi Kumar Parajuli, Katsutoshi Taguchi, Junko Hara, Norihito Uemura, Yusuke Hatanaka, Katsumi Higaki, Masaki Tanaka, Masato Koike, Yoshio Hirabayashi, Ryosuke Takahashi
- P06.15 **Parkinson's disease-on-a-chip: Reconstructing the nigrostriatal pathway in vitro**  
**Janko Kajtez**, Sebastian Buchman, Shashank Vasudevan, Arto Heiskanen, Jenny Emnéus
- P06.16 **Administration of exogenous  $\alpha$ -synuclein pre-formed fibrils to primary oligodendrocyte precursor cells**  
**Hisanori Kinoshita**, Takakuni Maki, Seiji Kaji, Ryosuke Takahashi
- P06.19 **An iPSC derived model of early onset sporadic Parkinson's disease shows disease relevant phenotypes that are reversed by specific phorbol esters**  
**Alexander Laperle**, Samuel Sances, Nur Yucer, Victoria Dardov, Veronica Garcia, Richie Ho, Aaron Fulton, Kristina Roxas, Pablo Avalos, Zhan Shu, Ramachandran Murali, Nigel T. Maidment, Jennifer E. Van Eyk, Michele Tagliati, Clive N. Svendsen



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- P06.20 **Age – and  $\alpha$ -synuclein dependent degeneration of dopamine and noradrenaline neurons in the annual killifish *Nothobranchius furzeri***  
**Hideaki Matsui**, Naoya Kenmochi, Kazuhiko Namikawa
- P06.23 **Rapid dopaminergic neuron loss accompanied by Lewy body-like pathology in fibril-inoculated A53T mutant  $\alpha$ -synuclein BAC transgenic mice**  
**Shinya Okuda**, Norihito Uemura, Ryosuke Takahashi
- P06.25  **$\alpha$ -synuclein propagation via olfactory pathway in non-human primate model**  
**Masanori Sawamura**, Hiroataka Onoe, Hideo Tsukada, Kaoru Isa, Tadashi Isa, Ryosuke Takahashi
- P06.26 **Reprogramming of adult human fibroblasts to dopaminergic neurons**  
Fredrik Nilsson, Janelle Drouin-Ouellet, Marcella Birtele, Roger Barker, Malin Parmar, **Shelby Shrigley**
- P06.27 **The rat  $\alpha$ -synuclein preformed fibril model: Focus on longitudinal PET imaging and behavioral characterization**  
**Caryl Sortwell**, Sheila Fleming, Joseph Patterson, Christopher Kemp, Kathryn Miller, Anna Stoll, Megan Duffy, Kelvin Luk, Vesna Sossi
- P06.28 **A53T mutant human  $\alpha$ -synuclein BAC transgenic mice as a prodromal model for Parkinson's disease**  
**Tomoyuki Taguchi**, Masashi Ikuno, Maiko Uemura, Mari Hondo, Yusuke Hatanaka, Norihito Uemura, Hodaka Yamakado, Masashi Yanagisawa, Ryosuke Takahashi
- P06.30 **Age-dependent intracellular neuromelanin accumulation sets the threshold for Parkinson's disease pathology**  
Iria Carballo-Carbajal, **Ariadna Laguna**, Jordi Romero-Gimenez, Thais Cuadros, Jordi Bove, Marta Martinez-Vicente, Annabelle Parent, Marta Gonzalez-Sepulveda, Nuria Peñuelas, Albert Torra, Beatriz Rodriguez-Galvan, Andrea Ballabio, Takafumi Hasegawa, Analia Bortolozzi, Ellen Gelpi, Miquel Vila
- P06.31 **A novel target for neuroprotection: The small GTPase Rin inhibits LRRK2 to promote autophagy and reduce  $\alpha$ -synuclein pathology**  
**Mattia Volta**, Julia Obergasteiger, Anne-Marie Castonguay, Giulia Frapporti, Christa Ueberbacher, Peter Pramstaller, Andrew Hicks, Corrado Corti, Martin Lévesque

## Basic Science: Brain physiology, neuroplasticity, and circuitry – NEW HALL

- P07.03 **Early synaptic loss and synaptic instability in a mouse model of prodromal Parkinson's disease**  
**Yusuke Hatanaka**, Ryosuke Takahashi
- P07.04 **Reduced Sonic hedgehog signaling originating from dopamine neurons is necessary and sufficient for levo-dopamine induced dyskinesia formation and expression and causes aberrant learning**  
Lauren Malave, Dustin Zuelke, Andres Stucky, Lev Starikov, Eitan Friedman, Chuan Qin, Quin Li, Celine Vega-Roiatti, Erwan Bezard, Heike Rebholz, **Andreas Kottmann**
- P07.05 **Simulation based investigation of electrode placement and pulse amplitude for the brain hippocampus**  
**Venkateshwari Rama Raju**, Borgohain Rupam, Rukmini Mridula Kandadai, Manas Kumar Panigrahi, Clayton S. Bingham
- P08.01 **Retromer-mediated trafficking of the dopamine transporter in PD**  
**Jordan Follett**, Jesse D. Fox, Emil K. Gustavsson, Matthew J. Farrer

## Basic Science: Neuropharmacology – NEW HALL

- P09.03 **Leucine-Rich Repeat Kinase 2 regulates Parkinson's disease levodopa-induced dyskinesia**  
**Roberta Marongiu**, Leandra Velazquez, Jillian Joyce, Michael Kaplitt
- P09.04 **Managing psychosis risk with pharmacotherapy: Help for patients, caregivers through nursing science & practice**  
**Kathleen McCoy**
- P09.05 **A novel nanocarrier delivery system for curcumin and deferoxamine as a potential neuroprotective strategy for Parkinson's disease**  
**Leah Mursaleen**, Satyanarayana Somavarapu, Mohammed Gulrez Zariwala
- P09.07 **The neuroprotective effect of epicatechin on hemiparkinsonism induced by MPP+ in a rat murine model**  
**José Iván Patraca Fierro**, Gilberto Chavez, Agustino Martínez, Israel Ramírez, Sergio Guevara, Hilda Martínez, Moisés Rubio

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## Basic Science: Neurophysiology, functional imaging, human studies – NEW HALL

- P11.01 **Dopamine transporter image of Gerstmann-Sträussler-Scheinker disease**  
Sang-Myung Cheon, **Jae Woo Kim**
- P11.02 **Transcranial direct current stimulation for limb-kinetic apraxia in Parkinson's disease – a randomized, double-blinded, sham-controlled trial**  
**Jung E Park**, Hyeong-Ryul Jang, Lee-Uhn Kim, Geun-jin Park, Seo-Kyung Kim, Jeong-Eun Bae, Ji-yi Hong, Mark Hallett
- P11.03 **Olfactory bulb atrophy in the earliest clinical stage of Parkinson's disease**  
Rachel Stanford, Lauren Spreen, Thyagarajan Subramanian, Qing Yang, **Jianli Wang**
- P11.04 **Vital paradigm shift for people living with Parkinson's**  
**Andrew Wong**, Meng Chuo Wong, **Annette Gartland**
- P11.05 **Premovement betaband event-related desynchronization related to simple lower limb movement and simulated gait initiation in Parkinson's disease patients: MEG study**  
**Ji Young Yun**, Beomseok Jeon

## Clinical Science: Symptoms, signs, features &amp; non-motor manifestations – NEW HALL

- P12.01 **Visuomotor training to music with learning choreography changes sensorimotor networks and weekly dance slows down disease progression as assessed by UPDRS and MMSE over 4-years**  
**Karolina Bearss**, Rachel Bar, Rebecca Barnstaple, Joseph FX DeSouza
- P12.02 **Randomized multicenter single-blind parallel-group trial to compare the efficacy of a Holter for Parkinson symptoms against other clinical follow-up methods**  
Alejandro Rodriguez-Molinero, Jorge Hernández-Vara, David Pérez, **Andreu Català**, Angels Bayès, Juan Carlos Martínez
- P12.03 **Exploring the experience of wearing off in Parkinson's disease: A qualitative research approach**  
Lana Chahine, Connie Marras, Daisy Daeschler, Steven Kahl, Robyn Rapoport, Arina Goyle, Chelle Precht, **Sohini Chowdhury**, Catherine Kopil
- P12.08 **Chief complaints of de novo patients with Parkinson's disease**  
**Kenichi Kashiwara**, Michio Kitayama
- P12.10 **What emotional prosodies tell us about early-onset Parkinson's disease**  
**Lut Lim Mak**, Lorinda Kwan-Chen, Li-chih Wang
- P12.11 **Communication of OFF periods in Parkinson's disease: A survey of physicians, PwP and care partners**  
**Connie Marras**, Tara Rastin, Melissa Armstrong, Anna Gagliardi
- P12.12 **Experience and impact of OFF periods in Parkinson's disease: A survey of physicians, PwP and care partners**  
**Connie Marras**, Tara Rastin, Melissa Armstrong, Anna Gagliardi
- P12.16 **A wireless brain-spine interface alleviating gait deficits in a non-human primate model of Parkinson's disease**  
Flavio Raschella, Tomislav Milekovic, Matthew Perich, Shiqi Sun, Giuseppe Schiavone, Christopher Hitz, Yang Jianzhong, Wai Kin Ko, Qin Li, Qin Chuan, Stephanie Lacour, Jocelyne Bloch, Silvestro Micera, **Erwan Beazard**, Gregoire Courtine
- P12.19 **Clinical characteristics of Parkinson's disease in Sanglah General Hospital Denpasar Bali 2015-2018**  
**Sri Yenni Trisnawati**, Dewa Putu Gede Purwa Samatra
- P12.21 **Concentration, easily overlooked orthostatic intolerance, its influence on early Parkinson's disease patients**  
**Sang-Won Yoo**, Joong-Seok Kim, Kwang-Soo Lee

## Clinical Science: Progression &amp; prognosis – NEW HALL

- P13.02 **Has the change in treatment for thirteen years changed the subjective symptoms of Parkinson's disease?**  
Hisao Hiramane, **Chieko Fujii**

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- P13.06 **Tracking freezing of gait in Parkinson's disease: A model identification objective method for predicting and preventing FoG episodes in PD**  
**Venkateshwarla Rama Raju**, Rukmini Mridula Kandadai
- P13.07 **Role of microelectrode recording (MER) in accurate targeting subthalamic-nuclei (STN) deep brain stimulation (DBS) in Parkinson's disease**  
**Venkateshwarla Rama Raju**, Rupam Borgohain, Mridula Kandadai Rukmini
- P13.08 **A cross-sectional natural history of Parkinson's disease as reported by >10,000 patients**  
**Ira Shoulson**, Lakshmi Arbatti, Connie Marras, David Stabdaert, Caroline Tanner, Luba Smolensky, Catherine Kopil, Jamie Hamilton, Emily Flagg, Carol A Christopher, Andrew Nguyen
- P13.09 **Motor subtype change in Parkinson's disease: A retrospective study**  
**Carlos A. Soto-Rincón, Sergio A. Castillo-Torres**, Christopher Cerda-Contreras, Diana Díaz-Pérez, Ingrid Estrada-Bellmann, Beatriz Chávez-Luévanos

## Clinical Science: Behavioral disorders – NEW HALL

- P14.01 **Parkinsonism in association with dihydropteridine reductase deficiency**  
**Yasuhiro Manabe**, Yoshiaki Takahashi, Shunya Fujiwara, Yoshio Omote, Mahoko Furujo, Hisashi Narai
- P14.02 **Lewy body dementia prevalence and acetylcholinesterase inhibitor use in Florida**  
**Bhavana Patel**, Melissa Armstrong, Cynthia Garvan

## Clinical Science: Cognition/ Mood/ Memory – NEW HALL

- P15.02 **Psychiatric morbidity in Parkinson's disease in northeast region of Romania**  
**Dan Iulian Cuciureanu**, Tudor Cuciureanu, Liviu Bolohan, Adina Cuciureanu
- P15.03 **Measuring salivary cortisol levels in persons with Parkinson's disease**  
**Amie Hiller**, Brenna Lobb, Jeffrey Proulx, Joseph Quinn
- P15.04 **Age-related cognitive effects of SIRT6 overexpression: Emerging role of astrocytes**  
**Nirit Lev**, Meir Kestenbaum
- P15.05 **Cognitive associations with comprehensive gait and balance measures in Parkinson's disease**  
**Rosie Morris**, Douglas Martini, Katrijn Smulders, Valerie Kelly, Cyrus Zabetian, Kathleen Poston, Karen Edwards, Brenna Cholerton, Thomas Grabowski, Thomas Montine, Joseph Quinn, Fay Horak
- P15.09 **Investigating cognition in clinical routine in people with Parkinson's disease**  
**Volker Tomantschger**, Auguste Tautscher-Basnett, Christina Hohenwarter, Manfred Freimueller

## Clinical Science: Sleep disorders/ Fatigue – NEW HALL

- P16.01 **Circadian rhythm and sleep disorders in  $\alpha$ -synuclein-propagation model mouse**  
**Naohiro Egawa**, Shinya Okuda, Junko Hara, Norihito Uemura, Hodaka Yamakado, Ryosuke Takahashi
- P16.04 **Tele-monitored tDCS (Tele-tDCS) for Parkinson's disease related fatigue**  
Kush Sharma, Shashank Agarwal, Daniella Mania, Alberto Cucca, Willa Molho, Ji Yoon Jung, Raphaela Sills, Andrew Feigin, Steven Frucht, **Milton Biagioni**
- P16.05 **The potential value and insight mobile lifestyle tracking apps can give into the effects of fatigue in Parkinson's disease**  
**Jordan Webb**, Helen Matthews, Bruce Hellman

## Clinical Science: Diagnosis (differential, accuracy) – NEW HALL

- P17.01 **Longitudinal study of subjects with prodromal signs of Parkinson's disease**  
**Paul de Roos**, Joakim Bergström, Elisabeth Jobs, Käthe Ström, Malin Degerman Gunnarsson, Ylva Cedervall, RoseMarie Brundin, Johan Wikström, Mark Lubberink, Charles Widström, My Jonasson, Lena Kilander, Lars Lannfelt, Anna Cristina Åberg, Torsten Danfors, Vincenzo Donadio, Dag Nyholm, Martin Ingelsson

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- P17.02 **Automated immunohistochemical detection of skin depositions of pathological  $\alpha$ -synuclein in idiopathic REM sleep behavior disorder and parkinsonism**  
Tsu-Shuen Tsao, Ahmed Al-Qassabi, Adriana Racolta, Kirsten I. Taylor, Wagner Zago, Koji Kimura, Ronald B. Postuma, **Sebastian Dziadek**
- P17.03 **Clinical significance and usefulness of superficial reflex for diagnosis of Parkinson-related disorders: Oldies but goodies**  
**Syuichi Nagamatsu**, Syo Ohtu, Yuka Miyamoto, Tomomi Furushim, Yukari Morita, Yasumasa Osaki, Naokazu Sasagasako, Hirokazu Furuya

## Clinical Science: Co-morbidities – NEW HALL

- P18.01 **Impaired cerebral blood-flow self-regulation in patients with Parkinson's disease: Association with leukoaraiosis. A pilot study from northeast Mexico**  
Diego A. Cantú-García, **Sergio A. Castillo-Torres**, Carlos A. Soto-Rincón, Alejandra G. Mendoza-García, Helda E. Sánchez-Terán, Diana Díaz-Pérez, Denisse G. Martínez-Roque, Beatriz E. Chávez-Luévanos, Ingrid Estrada-Bellmann, Fernando Góngora-Rivera
- P18.02 **Women with Parkinson's disease: Vision and reading**  
**Carol Clupny**
- P18.03 **Utilization of the emergency department (ED) in Florida among patients with Parkinson's disease (PD)**  
**Bhavana Patel**, Robert Eisinger, Sopiko Jimsheleishvili, Matthew Lewin, Michael Okun, Adolfo Ramirez-Zamora
- P18.04 **Profile of the patient attending for the neurological center specialist in Parkinson's disease: CENPAR, Santiago Chile**  
**Paola Alicia Riveros Cortés**, Cristian Mateo, Paulina Salinas, Claudia González, Hector Valenzuela
- P18.05 **Clinical correlates of carotid intima media thickness in Parkinson's disease: A pilot study from northeast Mexico**  
Sergio A. Castillo-Torres, **Carlos A. Soto-Rincón**, Alejandra G. Mendoza-García, Diego A. Cantú-García, Beatriz E. Chávez-Luévanos, Ingrid E. Estrada-Bellmann, Fernando Góngora-Rivera

## Clinical Science: Biomarkers – NEW HALL

- P19.02 **Polymorphisms of ACMSD-TMEM163, MCCC1 and BCKDK-STX1b are not associated with Parkinson's disease in Taiwan**  
**Kuo-Hsuan Chang**, Yih-Ru Wu
- P19.06 **Prospective investigation of metabolomics and Parkinson's disease**  
**Samantha Molsberry**, Kjetil Bjornevik, Katherine C. Hughes, Zhongli Joel Zhang, Sarah Jeanfavre, Clary Clish, Marjorie L. McCullough, Brian Healy, Michael Schwarzschild, Alberto Ascherio
- P19.08 **Network models of Parkinson's disease during Subthalamic-Nuclei Deep Brain Stimulation (STN-DBS): An investigation of neural activity in PD**  
**Venkateshwarla Rama Raju**, Clare M Davidson, Rupam Borgohain, Rukmini Kandadai Mridula
- P19.09 **Effectiveness of lead point using microelectrode recording for finding the subthalamic-nuclei deep brain stimulation in Parkinson's disease (geometry of electrode implantation)**  
**Venkateshwarla Rama Raju**, Rupam Borgohain, Rukmini Kandadai Mridula
- P19.10 **Characterizing STN-DBS local field potential oscillations in Parkinson's disease intraoperatively using microelectrode recording**  
**Venkateshwarla Rama Raju**
- P19.12 **Biospecimen and clinical resources within the NINDS Parkinson's Disease Biomarkers Program (PDBP)**  
**Christine Swanson-Fischer**, Debra Babcock, Karen David, Andrea Lutz, Codrin Lungu, Beth-Anne Sieber, Ronnie Tan, Jon Meckley, Margaret Sutherland

## Clinical Science: Pharmacological therapy – NEW HALL

- P20.01 **The complement receptor C5aR1 is a co-factor for  $\alpha$ -synuclein mediated NLRP3 inflammasome activation in microglia**  
**Eduardo A. Albornoz**, Richard Gordon, Anumantha Kanthasamy, Trent Woodruff
- P20.02 **Validating levodopa equivalent dose conversion table in advanced Parkinson's patients on polytherapy**  
Muneer Abu Snineh, Amal Hajyahya, Eduard Linetsky, Renana Eitan, Hagai Bergman, Zvi Israel, **David Arkadir**

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- P20.05 **Efficacy and safety of apomorphine sublingual film for the treatment of "OFF" episodes in patients with Parkinson's disease: A phase 3, double-blind, placebo-controlled trial**  
Stewart A. Factor, **Stuart Isaacson**, Robert A. Hauser, Rajesh Pahwa, Ken Sciarappa, Parul Bhargava, Gazal Vakili, David Blum, Bradford Navia, C. Warren Olanow
- P20.08 **Comparative adherence rates of antipsychotic therapies in patients with Parkinson's disease psychosis within the United States**  
**Andrew Shim**, Monica Frazer, Ben Skoog, Tim Bancroft, Cao Feng, Rachel Halpern
- P20.09 **THOR 201: A proof-of-concept study assessing safety, tolerability, pharmacokinetics and pharmacodynamics of L-dopa delivered by impel's Precision Olfactory Delivery (PODTM) to Parkinson's disease patients in a morning OFF episode (in the presence of dopa decarboxylase inhibitor)**  
**Stephen Shrewsbury**, Jacki Campbell, Meghan Swardstrom, Alex Lehn, Kelsey Satterly, John Hoekman
- P20.10 **Dopamine agonists in advanced Parkinson's disease: Data from a large cohort of Romanian patients**  
**József Attila Szász**, Viorelia Adelina Constantin, Károly Orbán-Kis, Attila Rác, Ligia Ariana Bancu, Dan Georgescu, János Szederjesi, István Mihály, Szabolcs Szatmári

## Clinical Science: Surgical therapy, including cell and gene therapy – NEW HALL

- P21.01 **Outcomes of a prospective, multicenter, international registry of deep brain stimulation for Parkinson's disease**  
**Guenther Deuschl**, Roshini Jain, Alex Wang, Heleen Scholtes, VERCISE Registry – Parkinson's Disease Study Group, Jan Vesper
- P21.02 **Patient engagement in the development of OUR DBS: A global patient registry addressing outcomes and unanswered questions for DBS**  
**James Kirk**, Joohi Jimenez-Shahed, Pierre-Francois d'Haase, Michele York, Arthur Berg, Ludy Shih, Jason Schwalb, James McInerney
- P21.03 **The effect of long-term L-DOPA administration on hESC-derived dopaminergic grafts**  
Osama Elabi, Agnete Kirkeby, Malin Parmar, Tilo Kunath, **Emma Lane**
- P21.04 **Bilateral deep brain stimulation in Parkinson's disease by frameless stereotaxic surgery: Long-term follow-up study results**  
**Hsiao-Huei Peng**, Chun-Hwei Tai, Sheng-Hong Tseng
- P21.05 **A novel oral and maxillo-facial technique and device for continuous and controlled delivery of small and large molecules across the blood brain barrier in Parkinson's – a proof of concept in-vivo and ex-vivo study**  
**Anoop U.R.**, Kavita Verma

## Clinical Science: Rehabilitation sciences (PT, OT, SLP) – NEW HALL

- P22.01 **A randomized clinical trial on the evaluation of the effect of vestibular exercises on dizziness and postural control in Parkinson patients**  
Mohammadreza Hadian, **Somayeh Abbasi**, Parvin Raji, Reza Hoseinabadi
- P22.02 **Psychometric properties of the external Housing-related Control Beliefs Questionnaire (HCQ) among people with Parkinson's disease**  
**Nilla Andersson**, Maria H Nilsson, Björn Slaug, Susanne Iwarsson
- P22.03 **Pushing a client with Parkinson's disease to achieve greater functional mobility: A case report**  
Kash Mahdi, Julie Stitt, **Haseel Bhatt**, Kathleen Norman
- P22.08 **Satisfaction and usefulness of a bootcamp educational and practical program for individuals with Parkinson's disease**  
**John Dean**, Josefa Domingos, Katarzyna Śmitowska
- P22.09 **Boxing as an alternate treatment for sleep disorders in individuals with Parkinson's disease: A feasibility study**  
**Linda Denney**, Cynthia Ivy, Holly Johnson, Michelle McKay, John Manning, Marcus Webster, Patricia Pohl
- P22.10 **Acceptability of a novel trampoline intervention in rehabilitation for Parkinson's disease. Perceived barriers and facilitators**  
**Josefa Domingos**, Catarina Godinho, John Dean, Katarzyna Śmitowska, Filipe Melo
- P22.14 **Implementation of a cognitive and motor exercise hydrotherapy community-based program for individuals with Parkinson's disease**  
**Catarina Godinho**, Josefa Domingos, John Dean, Filipe Melo



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- P22.16 **Respiratory responses reflecting the emotional contribution to freezing of gait in Parkinson's disease**  
**Mitsuaki Ishii**
- P22.18 **Group-based voice and physical therapy for persons with Parkinson's disease – an action research study**  
**Liv Helene Jensen**, Marthe Lyngås Eklund, Henriette Kirkeby Husebø, Hege Nickelsen, Anne-Guro Zahl
- P22.20 **Case study: The effects of non-motor symptoms of Parkinson's disease patients on instrumental activities of daily living**  
**Naoto Kiguchi**, Yuka Takasaki
- P22.21 **Training Responses in Postural Rehabilitation (TRIP) using perturbations while walking**  
**Laurie King**, Rosie Morris, Fay Horak, Grace McBarron, Joe Hidler
- P22.22 **Cognitively challenging exercise improved executive function in Parkinson's disease**  
**Laurie King**, Se Hee Jung, Martina Mancini, Patty Carlson-Kuhta, Nancy Barlow, Rosie Morris, Jay Nutt, Fay Horak
- P22.25 **Changes in fear of falling: A 3-year prospective study**  
**Magnus Lindh-Rengifo**, Stina B Jonasson, Niklas Mattsson, Susann Ullén, Maria H Nilsson
- P22.26 **The ParkinSong Program: Above and beyond singing**  
**Caterina Marigliani**, Jeanette Tamplin, Fiona Sham, Sheryl Mailing, Louise Britzman, Kate Madden, Victor McConvey
- P22.27 **Power of the rhythm: A physiotherapeutic app to deliver rhythmical auditory cueing**  
**Tara Martin**, Elliot Ayery, King Marcus
- P22.28 **Inpatient multidisciplinary rehabilitation effects on the quality of life for Parkinson's disease: A quasi-randomized controlled trial**  
**Kohei Marumoto**, Kazumasa Yokoyama, Eiji Mizuta, Tomomi Inoue, Hiroshi Yamamoto, Yuki Kawami, Ayumi Nakatani, Yoshihiro Fukazawa, Yayoi Hosoe, Aki Yamasaki, Kazuhisa Domen
- P22.30 **Association of subjective postural vertical with lateral trunk flexion in patients with Parkinson's disease**  
**Kyohei Mikam**, Makoto Shiraishi, Ryoma Aoki, Rumiko Ishiguro, Tsutomu Kamo
- P22.31 **Exercise and physical activity for people with progressive supranuclear palsy: A rare form of atypical Parkinsonism**  
Susan Slade, David Finkelstein, Jenny McGinley, **Meg Morris**
- P22.33 **A survey on the regional support system on dysphagia of Parkinson's disease patients**  
**Keigo Nakayama**, Junya Ogawa
- P22.36 **Effect of virtual reality gaming and conventional rehabilitation on physical function and quality of life in patients with Parkinson's disease**  
**Abiola Ogundele**, Matthew Olatokunbo Olaogun, Morenikeji Adeyoyin Komolafe
- P22.37 **The effectiveness of facial exercises on the facial expression and the mood in persons with Parkinson's disease**  
**Rumiko Okamoto**, Kazutaka Adachi, Katsuyoshi Mizukami
- P22.42 **Parkinson's Foundation Physical Therapy Faculty Program evaluation**  
**Miriam Rafferty**, Lisa Hoffman, Laurie King, Fay Horak, Terry Ellis
- P22.43 **Physical therapy practice patterns, barriers, and facilitators at Parkinson's disease expert centers in the United States: A mixed methods study**  
**Miriam Rafferty**, Kiersten McCartney, Megan McHugh, Bridget Fowler, Alan Sadural, Justin D. Smith, Tanya Simuni, Fay Horak, Allen Heinemann
- P22.44 **Global implementation of efficacious voice treatment for Parkinson's disease: LSVT LOUD Germany, France and Japan**  
**Lorraine Ramig**, Thomas Brauer, Masako Fujiu-Kurachi, Catherine Airiau, Cynthia Fox, Heike Penner, Petra Benecke
- P22.48 **The effect of nordic walking in Parkinson's disease – Successive three-dimensional gait analysis of a patient for three years**  
Tsuyoshi Kimura, **Kentaro Sasaki**
- P22.49 **Effect of nordic pole walking with Visual Analog Scale for time course in Parkinson's disease**  
**Takeshi Sato**, Yuumi Kitanaka, Mizuki Nakajima, Yaho Hara

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- P22.51 **Speech intelligibility of individuals with Parkinson's disease in noise following voice or articulation treatment**  
**Geralyn Schultz**, Angela Halpern, Jennifer Spielman, Lorraine Ramig, Ira Panzer, Alan Sharpley, Heather Hodges
- P22.54 **Relationship between speech, voice and swallowing disorders with non-motor symptoms in Parkinson's disease: A study conducted in a group of people with Parkinson in Venezuela**  
**Martha Cecilia Suarez**, Beatriz Valles González, Alejandro Cano Villagrasa
- P22.56 **A home-based app aimed at home-based movement rehabilitation in Parkinson's disease**  
**Jordan Webb**, Judith Bek, Paul Holmes, Ellen Poliakoff, Matthew Sullivan

### Clinical Science: Clinical trials: Design, outcomes, recruiting, PwP involvement, communications – NEW HALL

- P23.04 **Expedited access to therapies: How measuring and incorporating patient preferences can make clinical trials more efficient and more effective**  
**Anne Donnelly, Stephanie Christopher**, Shomesh Chaudhuri, Brett Hauber, Brennan Mange, Heather Benz, Brittany Caldwell, Anindita Saha, Martin Ho, Margaret Sheehan, Lauren McLaughlin, Murray Sheldon, Andrew Lo
- P23.06 **Safety, tolerability and pharmacokinetics of oral venglustat in Parkinson's disease patients with a GBA mutation**  
**Stuart Isaacson**, M. Judith Peterschmitt, Thomas Gasser, Jaime Kulisevsky, Pablo Mir, Tanya Simuni, Anne-Marie Wills, Leonor Correia Guedes, Per Svenningsson, Cheryl Waters, Allena Ji Ji, Jian Li, Pascal Minini, Blandine Nembo, S. Pablo Sardi, Stéphane Saubadu, Jyoti Sharma, Tanya Fischer
- P23.07 **Infus|On, a Phase 3, open-label study of the safety and efficacy of continuous apomorphine infusion in patients with Parkinson's disease: Design and baseline characteristics**  
**Stuart Isaacson**, Alberto Espay, Rajesh Pahwa, Dillip Chary, Munish Mehra, Peter LeWitt
- P23.08 **INTREPID: A 2-year follow-up of a prospective, double blinded, multi-center randomized controlled trial evaluating deep brain stimulation with a new multiple source, constant-current rechargeable system for treatment of Parkinson's disease**  
**Vitek Jerrold**, Lily Chen, INTREPID Study Group, Roshini Jain, Philip Starr
- P23.11 **A Promotores model to increase Parkinson's disease (PD) research awareness and participation in the Hispanic community in Phoenix, Arizona**  
**Claudia Martinez**, Holly Shill, Aida Olivo, Gloria Chavez, Lourdes Cordova, Maria Grijalva, Ruby Rendon
- P23.13 **Long-term efficacy of zonisamide on parkinsonism in dementia with Lewy bodies: A post-hoc analysis of phase III trial**  
**Takuya Nishimaki**, Toshinari Odawara, Kazuko Hasegawa, Kenji Kochi, Shunji Toya, Miho Murata, Kenji Kosaka, Kentaro Takai
- P23.14 **Use of pimavanserin in combination with selective serotonin reuptake inhibitors (SSRIs)**  
**James Norton**, Doral Fredericks, Kathy Chi-Burris, Randy Owen
- P23.20 **NILO-PD: A phase 2A study of nilotinib in patients with advanced Parkinson's disease: Recruitment initiatives**  
**Tanya Simuni**, Melissa Kostrzebski, Brian Fiske, Kalpana Merchant, Christopher S. Coffey, Helen Matthews, Richard K. Wyse, Patrik Brundin, David K. Simon, Michael A. Schwarzschild, David Weiner, Jamie Adams, Charles Venuto, Laura Trusso, Liana Baker, Tina Ward, Gary Rafaloff, Shonna Jenkins, Vanessa Hinson, Liana Rosenthal, Bernadette Siddiqi
- P23.21 **A Phase 3 study of isradipine as a disease modifying agent in participants with early Parkinson's disease (STEADY-PD III): Final study results**  
**Tanya Simuni**
- P23.22 **Long-term efficacy for parkinsonism and safety of zonisamide in patients with dementia with Lewy bodies: A phase III trial**  
**Shunji Toya**, Toshinari Odawara, Kazuko Hasegawa, Ritsuko Kajiwara, Hisao Takeuchi, Kentaro Takai, Miho Murata, Kenji Kosaka
- P23.23 **The protocol for a combined upper limb exercise and Do-It-Yourself community program for people with Parkinson's disease**  
Ruby Cheung, **Irene SK Wong-Yu**, Margaret KY Mak
- P23.24 **Levodopa carbidopa prodrug (ABBV-951) 24 hour continuous subcutaneous infusion shows similar pharmacokinetics in Caucasian and Japanese healthy volunteers**  
**Masayoshi Yanagawa, Naotaka Uchiyama**, Maurizio Facheris, Janet Benesh, Wei Liu, Matthew Rosebraugh

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## Clinical Science: E-health and technology – NEW HALL

- P25.01 **Telehealth – Current trends and future potential**  
**Joanne August**
- P25.03 **Technology serving elderly couples living with Parkinson's: Key steps and components of a web-based intervention**  
Line Beaudet, José Côté, **Nicole Charpentier**, Sylvain Chouinard, Renée Descôteaux, Michel Panisset, Patricia Auger, Dora Rodriguez, Geneviève Rouleau, **Romain Rigal**
- P25.08 **Parkinson's Kinetigraph (PKG) in clinical management of Parkinson's disease**  
**Shalini Rao**, Louise Ebenezer, Sandip Raha
- P25.09 **A Swedish self-tracking app for improving neurology visits for Parkinson's disease**  
**Therese Scott Duncan**, Eleonor Högström, Inger Lundgren, Sara Riggare
- P25.10 **Assessing tele-health outcomes in multiyear extensions of Parkinson's disease trials (AT-HOME PD): Initiation of a long-term observational study**  
Taylor Myers, Ruth Schneider, Shalini Anthwal, Elise Kayson, Larsson Omberg, Christopher Tarolli, Eric Macklin, Margaret Daeschler, Ray Dorsey, Lara Mangravite, Michael Schwarzschild, **Tanya Simuni**

## Clinical Science: Neuroimaging – NEW HALL

- P26.02 **Impact of white matter lesions on cognition and gait in Parkinson's disease**  
**Celeste Chen**, Eric Fang, Mário João Fartaria, Chu Ning Ann, Bénédicte Maréchal, Tobias Kober, Jie Xin Lim, Soo Lee Lim, Eng King Tan, Ling Ling Chan
- P26.03 **Selective parafoveal inner retina thinning predicts visual outcomes in Lewy body diseases**  
Ane Murueta-Goyena, Rocio del Pino, Marta Galdos, Begoña Arana, Olaia Lucas-Jiménez, Marian Acera, Beatriz Tijero, Naroa Ibarretxe-Bilbao, Natalia Ojeda, Juan Carlos Gómez-Esteban, **Inigo Gabilondo**
- P26.04 **Asymmetric dopaminergic depletion is related with cardiovascular non-motor symptom in drug-naïve patients with Parkinson's disease**  
**Minkyong Kim**, Jong Kyu Park, Seunghwan Moon, Jong Hyeon Ahn, Ji Sun Kim, Jin Whan Cho, Jinyoung Youn

## Clinical Science: Prodromal – NEW HALL

- P27.01 **Clinical characteristics of patients with idiopathic REM sleep behavior disorder (RBD): Comparing groups with short-term, intermediate-term, and long-term disease duration**  
**Sooyeoun You**, Soo Myeong Jeon, So Young Do, Yong Won Cho

## Comprehensive Care: Caregiving, relationships, respite care, families – NEW HALL

- P28.01 **Debriefing the caregiver role: A workshop for those who have lost someone with PD**  
**Elaine Book**, Myriame Lepine-Lyons
- P28.05 **Utilizing community partnerships to provide a respite care program for people with Parkinson's disease**  
**Lynne Gotham**, **David LeVan**
- P28.07 **A view from the corner: The experience of caregiving during the Rock Steady Boxing program**  
**Donna Hood**, Tara Haskins
- P28.08 **Engaging the family: Adult children of people with PD private Facebook group**  
**Sarah Jones**, Kelly Roberson, Andrea Merriam
- P28.10 **The psychological impact of Parkinson's disease patients' delusions on spouses: A qualitative analysis**  
**Caroline Nolan**, Noelle Robertson, Janis Miyasaki
- P28.12 **To develop a training program with accompanying workbook for care partners**  
**Elizabeth Rose**

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- P28.13 **Assessment of the long term impact of a care partners' course: Plan of action**  
Debbie Shapiro, Ariel Simantov

### Comprehensive Care: Fitness, wellness, nutrition – NEW HALL

- P29.01 **A wearable ankle exoskeleton improves walking economy and balance in an individual with Parkinson's disease: A feasibility case study**  
Valerie Carter, Tarang Jain, Zachary Learner
- P29.04 **Kick Out PD: Mobility, quality of life, and feasibility outcomes in a pilot study of a PD-specific karate intervention**  
Brianna Sennott, Claire Niemet, Monica Lee, Courtney Whitelock, Yuanqing Liu, Deborah Hall, Cynthia Comella, **Jori Fleisher**
- P29.05 **Kick-out PD: Qualitative analysis of expectations and outcomes in a pilot study of a Parkinson's disease karate intervention**  
**Jori Fleisher**, Claire Niemet, Brianna Sennott, Monica Lee, Courtney Whitelock, Deborah Hall, Cynthia Comella
- P29.07 **Growing a Parkinson community-university collaboration through Rock Steady Boxing**  
**Tara Haskins**
- P29.08 **On the reasons for participation of exercise continuation program – PD Cafe – for Parkinson's disease**  
**Junya Ogawa**
- P29.09 **Nutritional status in patients with Parkinson's disease in a tertiary teaching Hospital in Northeastern México**  
**Cynthia K. López-Botello**, Ingrid Estrada-Bellmann, Beatriz E. Chávez-Luevanos, Sergio A. Castillo-Torres, Patricia R. Ancer-Rodríguez
- P29.16 **Motor performance and quality of life in a community exercise program for Parkinson's disease**  
**Benjamin Rossi**, Elizabeth Stiles, Karen Jaffe, David Riley
- P29.17 **Introduction of exercise class "PD Gym in KMC" for patients with Parkinson's disease**  
**Kotomi Sato**, Fumito Nishizaki, Kohei Yamashita, Katsuhiko Terashita, Nami Tsukahara, Kenichi Sakajiri
- P29.18 **A novel motor and cognitive program to retrain coordination and functional movement in Parkinson's disease: A study by Cleveland Clinic Lou Ruvo Center, Las Vegas and University of Nevada Las Vegas**  
**Darbe Schlosser**, Merrill Landers, Zoltan Mari

### Comprehensive Care: Alternative & complementary therapies/ Creativity – EVENT HALL

- P30.01 **Dance for Parkinson's: Outcomes of a knowledge dissemination initiative**  
**Rachel Bar**, Jennifer L. Lapum, Michelle M. Dionne
- P30.02 **Dance for Parkinson's: Exploring a remote delivery model**  
**Rachel Bar**, Grace Ferrari, David Leventhal, Sarah Robichaud
- P30.04 **Creativity and Parkinson's: Connections made pursuing creative endeavours**  
**Madonna Brady**
- P30.07 **Counselling program: Providing emotional support to those affected by Parkinson's across British Columbia**  
Myriame Lyons, Jean Blake, **Stacey Dawes**
- P30.08 **A black box model for Parkinson's disease (PD): Ayurvedic complementary methods and data science**  
**Daryl Eigen**
- P30.13 **Dance workshop for Parkinson's disease patients**  
**Yosuke Kokunai**, Bunpei Kunimoto, Julie Salgues, Philippe Chehere, Fumihisa Soga
- P30.15 **A study on the effects of a group dance and creative movement program using Indian dance techniques on symptoms of Parkinson's disease**  
**Tejali Kunte**, Maria Barretto, Nicole D'souza

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- P30.16 **From body, mind, to the integration: A mixed-method, randomized controlled trial of mindfulness yoga on physio-psycho-spiritual well-being of people living with Parkinson's disease**  
Jojo Yan Yan Kwok, Jackie C. Y. Kwan, M. Auyeung, Vincent C. T. Mok, K. C. Chow, Helen Y. L. Chan
- P30.17 **Theoretical concept of impact of Tai Chi on falls in clients with Parkinson's disease**  
Robert Ślusarz, Brandon Parkyn, **Klaudia Lewis-Cwiekala**
- P30.20 **Combating Parkinson's through the arts: The practice of origami**  
**Paul Rohrllich**
- P30.21 **Taiko drumming for individuals with Parkinson's disease: Performing artists partner with OT to promote community wellness**  
**Sydney Shiroyama**
- P30.23 **An approach to Parkinson's disease patient combined with yoga and pilates: PD Cafe – for Parkinson's disease**  
**Erika Tomioka**

### Comprehensive Care: Disability and quality of life outcome measures – EVENT HALL

- P32.02 **Life satisfaction in men and women with Parkinson's disease**  
**Stina B Jonasson**, Susanne Iwarsson, Maria H Nilsson
- P32.04 **Differentiation of fatigue and tiredness vocabularies in US and UK patient samples**  
**Jon Stamford**, Leah Mursaleen
- P32.05 **The impact of Parkinson's disease on quality of life: The JAQPAD (Japanese QOL survey of Parkinson's disease) study**  
**Yoshio Tsuboi**, Ryoko Nakagawa, Miwako Ishido, Yoko Yoshinaga, Takafumi Hashimoto, Takayasu Mishima, Shinsuke Fujioka

### Comprehensive Care: Palliative care/ End of life care/ Long-term care – EVENT HALL

- P34.01 **A comparative analysis of long-term custodial care utilization in patients with Parkinson's disease psychosis versus without psychosis within the United States**  
James Wetmore, Heng Yan, Muna Irfan, Yi Peng, David Gilbertson, Suying Li, **Andrew Shim**
- P34.02 **Team-based outpatient palliative care improves patient and care partner-centered outcomes in Parkinson's disease**  
Benzi Kluger, Maya Katz, **Nicholas Galifianakis**, Kirk Hall, Steven Pantilat, Ryan Khan, Cari Friedman, Wendy Cernik, Judy Long, Yuika Goto, Jean Kuttner, Stefan Sillau, Janis Miyazaki
- P34.03 **The experience of care home placements for people with Parkinson's disease: A qualitative study in the North East of England**  
Lloyd Oates, **Annette Hand**, Irelle Dismore, William Gray, Richard Walker
- P34.04 **Bridging the gaps in Parkinson's education for nurses in long term care facilities**  
**Annie Li Wong**, Nijee

### Comprehensive Care: Health accessibility/ Underserved populations – EVENT HALL

- P35.03 **Neuro Life Online: Live- stream community building therapeutic intervention (exercise, socialization, wellness and more) available worldwide, used in US, Australia, UK, Canada and Israel**  
**Sarah Jones**
- P35.04 **Rural & regional Australia: The case for specialist Parkinson's nurse services**  
**Rachel Rossiter**, Vincent Carroll, Annabel Matheson, Marguerite Bramble
- P35.05 **A closer look at the unmet needs, research and care priorities for women with Parkinson's**  
Megan Feeney, **Veronica Todaro**, Danielle Agpalo, Sharon Krischer, Allison Willis, Karlin Schroeder, Christiana Evers



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- P37.01 **Mindfulness based stress reduction in Parkinson's disease**  
**Allison Allen**, Katie Durham, Jeff Brantley, Patrick Hickey, Burton Scott, Ronald Vereen
- P37.03 **Impact of a self-efficacy enhancing program for recently diagnosed persons with Parkinson's disease and their care partners**  
Diane Cook, Cynthia McRae, **Kathleen Crist**
- P37.04 **Online support groups: Building a sense of community across British Columbia**  
Myriame Lyons, Jean Blake, **Stacey Dawes**
- P37.05 **Impact of nurse navigation on Parkinson's disease community wellness**  
**Stephanie De Santiago**, Diane Nunez
- P37.08 **'Mind the gap' – A scoping review of long term, physical, self-management in Parkinson's**  
**Sophia Hulbert**, Vicki Goodwin
- P37.09 **In Sync! Comprehensive support group network: Support group in a box**  
**Sarah Jones**, Judy Talley
- P37.11 **Living with Parkinson's. Support Groups. Don't feel so lonely. A look at the team of people required to live well with Parkinson's**  
**Ian McFarlane**
- P37.13 **Parkinson's care (coping, advocating, relating and engaging): A small group self-management educational and support group pilot program**  
**Anissa Mitchell**
- P37.16 **A treatment protocol for Parkinson's related fatigue using cognitive behavioral therapy approach**  
**Ling Wan-Albert**, Alison Bell
- P37.17 **Do education programs affect the quality of life of people with Parkinson's disease? A systematic review and meta analysis**  
**Georgina Whish-Wilson**, Prue Morgan

**Comprehensive Care: Pharmacy and/or social work – EVENT HALL**

- P38.01 **Direct client care for individuals diagnosed with Parkinson's disease and their support systems**  
**Celeste Harris**, Kathleen Crist
- P38.02 **Priority setting in a Parkinson patient association – A mixed method approach**  
**Romain Rigal**, Nicole Charpentier, Line Beaudet

**Living with Parkinson's: Public education or awareness programs – EVENT HALL**

- P39.02 **An intraprofessional mock code: Nurse anesthesia and baccalaureate nursing students – Parkinson's disease patient missed/omitted/delayed medication simulation case study**  
**Diane Ellis**, Shelley Hickey, Melissa O'Connor, Carlene McLaughlin, Meghan Galvin, Adeline Doyle
- P39.03 **Living solo with Parkinson's disease**  
**Sandra Elms**
- P39.04 **"Let us go singing as far as we go: The road will be less tedious" Virgil**  
**Sandra Ems**
- P39.05 **Sidekicks™: An intergenerational program uniting people with Parkinson's and youth**  
**Sara Garvey**, Polly Dawkins, Lundbeck
- P39.06 **#UNITED for Parkinson's campaign**  
**Omotola Thomas**, Claire Jones

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P39.10 **Providing authentic learning experiences about Parkinson's disease: Bringing humanity into the classroom**  
**Margaret McCormick**, Ingrid Pretzer-Aboff, Gwyn Vernon

P39.12 **The Edmond J. Safra Visiting Nurse Faculty Program at the Parkinson's Foundation**  
**Gwyn Vernon**

## Living with Parkinson's: Living well with PD – EVENT HALL

P41.01 **The effects of tango on well-being and functional mobility in Parkinson's disease**  
**Kyoko Abeta**

P41.02 **Parkinsons, a bugger of a way to make new friends**  
**Michael Atkinson**

P41.03 **Shaking through the tulips**  
**Michael Atkinson**

P41.04 **Calling All Artists: A program for artists with Parkinson's disease**  
**Rachael Dawson**, Lissa Kapust, David Simon

P41.09 **If you can dream it, you can do it: A selfstudy in living well in Denmark**  
**Elisabeth Ildal**

P41.10 **The benefits dance activities bring to the daily lives of people with Parkinson's disease**  
**Yayoi Koga**

P41.11 **What are the most important factors for living well with Parkinson's disease? An informal survey from a women's Parkinson's Facebook group**  
**Sharon Krischer**

P41.12 **Inspirational reading to enrich your journey with Parkinson's disease**  
**Deanna Krywy**

P41.13 **Living with Parkinson's. Dealing with other Parkinson's symptoms. A look at the life of someone with Parkinson's and how to deal with day to day issues.**  
**Ian McFarlane**

P41.14 **A walk in the park: The lived experience of Parkinson's disease and the role of Lifestyle Redesign® occupational therapy in addressing unmet needs**  
**S. Hanlon Newhall**, Jim Elyea

P41.15 **An opportunity for healthcare professionals to guide and untangle discussions about delusions and hallucinations**  
**James Norton**, Daniel Kaiser, Stephen Bell

P41.20 **Happier now: How positive psychology changed how I live with Parkinson's disease, a caregiver's journey**  
**Suzette Shahmoon**

P41.21 **Tikvah for Parkinson, a community model for a non-pharmaceutical intervention program**  
**Debbie Shapiro**, Ariel Simantov, Tanya Gurewitz

P41.23 **PD Link Northwest: A peer-to-peer support network for people with Parkinson's disease and care partners**  
**Melissa Tribelhorn**, Terry Harrigan, Maria Cole, Sarah Winter

P41.27 **Creating a virtuous cycle of PwP support**  
**Alison Williams**, Bill Wright, Judith Shepherd

## Living with Parkinson's: Advancing research: Fundraising, trials, campaigns – EVENT HALL

P42.01 **The Fox Insight Study: An empowering opportunity to fuel Parkinson's research and help advance scientific breakthroughs from the comfort of home**  
**Roseanne Dobkin**, Catherine Kopil, Ninad Amondikar, Lana Chahine, Christine Cowles, Connie Marras, Lindsey Riley, David Standaert, Daisy Daeschler, Ethan Brown, Marissa Dean, Ken Marek, Caroline Tanner

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## Living with Parkinson's: Other – EVENT HALL

- P43.05 **Implementing the nurse navigator model within an interdisciplinary team at the McGill University Health Center: A patient and caregiver reported outcome survey**  
Jennifer Doran, **Lucie Lachance**, Sebastien Beliveau, Anne-Louise Lafontaine
- P43.08 **Parkinson's – No longer the shaking palsy**  
**Gunvant Patel**
- P43.09 **Little bits of big data for Parkinson's disease and co-morbidities: A computer programmer takes on his Parkinson's disease**  
**William Patterson**
- P43.10 **People like me: Voice-activated actionable insights for PD patients from AI analysis of structured and unstructured data such as voice, image, movement and biometrics**  
**Koen Van den Brande**
- P43.11 **Development of a new seating system for postural deformities caused by Parkinson's disease**  
**Jiro Yonezaki**, Maki Ikeda

## Late-Breaking – EVENT HALL

- LBP.02 **Association between SNPs of SLC41A1 and Parkinson's disease risk in the central Europe population**  
**Mária Brod anová**, Michal Cibulka, Martin Kolísek, Ivana Pilchová, Zuzana Tatarková, Milan Grófik, Egon Kurča, Oto Osina, Peter Račay, Dušan
- LBP.03 **Analysis of SLC41A1 promoter sequence in Slovak cohort of Parkinson's disease patients**  
**Michal Cibulka**, Mária Brodňanová, Martin Kolísek, Zuzana Tatarková, Ivana Pilchová, Milan Grófik, Andrea Štanclová, Zora Lasabová, Egon Kurca, Peter Račay, Dušan Dobrota
- LBP.05 **Genetic basis of inherited Parkinson's disease in Finland**  
**Risto Pohjolan-Pirhonen**, Eino Palin, Johanna Eerola-Rautio, Anna Maija Saukkonen, Virginia Brillhante, Pentti Tienari, Anu Suomalainen
- LBP.06 **Potential blood based biomarkers for Parkinson's disease by genetic and epigenetic analysis**  
**Garry Wong**, Changliang Wang, Linjing Shen, Liang Chen
- LBP.07 **Analysis of Parkinson's disease at a single neuron level**  
**Mindaugas Jonikas**, Dayne Beccano-Kelly, Michael Ward, Anne Carpenter, Shantanu Singh, Richard Wade-Martins
- LBP.08 **The Cryo-EM structure of amyloid fibril formed by full-length  $\alpha$ -synuclein**  
**Dan Li**, Xueming Li
- LBP.09 **Interplay between  $\alpha$ -synuclein and lipids in Parkinson's Disease**  
**Cong Liu**, Chunyu Zhao, Chuchu Wang, Zhengjiang Zhu, Dan Li
- LBP.10 **Protein aggregation and exosomal release induced by  $\alpha$ -synuclein: new insights into protective mechanisms of Drp1 inhibition**  
Rebecca Fan, Min Guo, Shouqing Luo, Mei Cui, **Kim Tieu**
- LBP.11 **Dissecting the effect of Parkinson's disease-related Miro1 mutations in mitochondria-associated membranes and mitophagy**  
**Clara Berenguer-Escuder**, Paul Antony, François Massart, Philip Seibler, Christine Klein, Anne Grünewald, Dajana Großmann, Rejko Krüger
- LBP.12 **Role of metformin in diabetic aging female rat brain: A future therapy for neurodegenerative diseases**  
**Pardeep Kumar**, Najma Baquer
- LBP.13 **Maintenance of lysosomal homeostasis by LRRK2 and Rab GTPases: implications for the pathomechanism of Parkinson's disease**  
**Tomoki Kuwahara**, Tomoya Eguchi, Maria Sakurai, Tadayuki Komori, Kai Funakawa, Takeshi Iwatsubo

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- LBP.14 **Functional studies of mitochondrial protein p13 in the experimental parkinsonism model**  
**Shintani Norihito**, Naoki Inoue, Sae Ogura, Yohei Moroto, Hiroki Ueno, Kousuke Baba, Hideki Mochizuki, Harutoshi Fujimura, Hitoshi Hashimoto
- LBP.15 **Mitochondrial fitness: novel diagnostic tool for patients with Parkinson disease**  
**Ivana Pilchova**, Zuzana Tatarikova, Michal Cibulka, Milan Grofik, Maria Brodnanova, Egon Kurca, Peter Racay, Martin Kolisek
- LBP.16 **Robust generation of oligodendrocytes from pluripotent stem cells: a platform for studying disease mechanisms**  
**Carla Azevedo**, Margarita Chumarina, Yuriy Pomeschchik, Laurent Roybon
- LBP.17 **CLR01 protects dopaminergic neurons in vitro and in vivo in mouse and human models**  
**Nora Bengoa-Vergniory**, Emilie Faggiani, Paula Ramos, Natalie Connor-Robson, Milena Cioroch, Fabio Cavaliere, Benjamin Dehay, Gal Bitan, Carlos Matute-Almau, Erwan Bezar, Richard Wade-Martins
- LBP.18 **iPSC-derived dopaminergic neurons reveal LRRK2 mutations impair clathrin mediated endocytosis and help identify novel LRRK2 substrates**  
**Natalie Connor-Robson**, Heather Booth, Jeff Martin, Gao Benbo, Kejie Li, Norm Allaire, Chris Roberts, Peter Juhasz, Jane Vowles, Sally Cowley, Warren Hirst, Richard Wade-Martins
- LBP.19 **Assessment of potential neuroprotective effects of nicotine in a human dopaminergic in vitro model of Parkinson's disease**  
**Mohamed Bilal Fares**, Carole Mathis, Athanasios Kondylis, Omar Alijevic, Nicolas Sierro, Julia Hoeng, Manuel Peitsch
- LBP.21 **Suppression of autophagic activity by Rubicon is a signature of aging**  
**Shuhei Nakamura**, Masaki Oba, Mari Suzuki, Atsushi Takahashi, Tadashi Yamamuro, Mari Fujiwara, Kensuke Ikenaka, Satoshi Minami, Yoshihisa Watanabe, Namine Tabata, Koji Fukui, Kazunori Sango, Yoshitsugu Takabatake, Tomoya Kitajima, Kenichi Yamamoto, Yukinori Okada, Yoshitaka Isaka, Hideki Mochizuki, Adam Antebi, Tamotsu Yoshimori
- LBP.22 **Differential neuroprotective properties of nilvadipine enantiomers in experimental models of Parkinson's disease**  
**Selwin Gabriel Samuel**, Caryse S. Fong, Katerina Hanton, Jacinta Conroy, Vinod Kumar, Trent M. Woodruff, John O'Sullivan, Richard Gordon
- LBP.23 **Neuroprotective potential of curcumin along with piperine against MPTP induced Parkinsonism in rats: Behavioral and neurotransmitter analysis**  
**Shamser Singh**, Puneet Kumar
- LBP.24 **PET imaging reveals early and persistent dopaminergic deficits after intra-striatal injection of preformed  $\alpha$ -synuclein fibrils**  
**Majken Thomsen**, Anna C. Schacht, Jan Jacobsen, Mette Simonsen, Cristine Betzer, Poul Henning Jensen, David Brooks, Anne M. Landau, Marina Romero-Ramos
- LBP.25 **Synaptojanin 1 (SYNJ1) haploinsufficiency causes impaired autophagy and age-dependent decreased dopamine release in the dorsal striatal slices**  
 Lianteng Zhi, Ninghan Wang, Wangchen Tsering Tsering, Laura Beth McIntire, Guomei **Tang, Hui Zhang**
- LBP.26 **GABA potently inhibits platelet activation: ex vivo and in vivo studies**  
**Wan-Jung Lu**, Kuan-Hung Lin, Ray-Jade Chen
- LBP.27 **Dopaminergic denervation in PD is higher in the striatal region corresponding to the upper limb**  
**Michele Matarazzo**, Ivan Klyuzhin, José Ángel, Pineda-Pardo, Zoe Anderson, Jessamyn McKenzie, Nicole Neilson, José Ángel Obeso, Vesna Sossi, A. Jon Stoessl
- LBP.30 **Discovery of small molecule inhibitors against  $\alpha$ -synuclein aggregation via Mass Spectrometry-based screening**  
**Mingming Xu**, Wendy Loa-Kum-Cheung, Haiyan Zhang, Ronald Quinn, George Mellick
- LBP.32 **Effective connectivity changes during processing of predictive information in Parkinson's disease**  
**Noa Fogelson**, Pablo Diaz Brage
- LBP.33 **Transcranial direct current stimulation and yoga for functional movement disorders**  
**Jung E Park**, Ji-Yi Hong, Su-Young Lee
- LBP.34 **The prediction of dystonia patients' state based on machine learning and deep learning**  
**Zhang Zhao**

## POSTERS – Session 1

Wednesday, June 5, 2019

DAY  
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- LBP.35 **Quantifying the influence of DBS on the bradykinesia in patients with Parkinson's disease during the peri-operative period by using wearable sensors**  
**Wang Jingying**, Gong Dawei, Zhang Wenbin, Wang Shouyan
- LBP.36 **Shuffling gait may be pitfall in neurologic examination in Parkinson's disease**  
**Hee-Tae Kim**
- LBP.37 **A novel tool to assess stereopsis in Parkinson's disease and its clinical implications**  
**Tina Sang**, Jaleh Fatehi, Emanuel Mostofi, Bin Zheng, Fang Ba
- LBP.38 **Prevalence of advanced Parkinson's disease in Thai patients with Parkinson's disease using the Consensus on the Definition of advanced Parkinson's disease (CEPA Study): A single-center study**  
**Jindapa Srikajon**, Prachaya Srivanitchapoom, Yuvadee Pitakpatapee, Apichart Pisarnpong, Tanita Sangpeamsook, Arpakorn Suengtaworn
- LBP.39 **Ping Pong Parkinson: Testimonial, the diagnosis and activity that prolonged my life**  
**Nenad Bach**, Art Dr. Dubow
- LBP.40 **The management of Parkinson's Disease: benefits of a three-legged stool**  
**Peter Conrad**
- LBP.41 **Survival and development of dementia in the Parkinson's Incidence Cohorts Collaboration (PICC): An individual-patient-date meta-analysis of six incidence cohorts with 931 patients**  
**Angus Macleod**, Guido Alves, Marta Camacho, Lars Forsgren, Rachael Lawson, Ole-Bjorn Tysnes, Caroline Williams-Gray, Carl Counsell
- LBP.42 **Structural connectivity and impulsivity after subthalamic deep brain stimulation for Parkinson's disease**  
**Philip Mosley**, Terry Coyne, Peter Silburn, Alistair Perry, Michael Breakspear
- LBP.43 **Cognition and gait in Parkinson's disease**  
Syed Sammar Abbas Zaidi, **Arooj Fatima**
- LBP.44 **Clinical practice of brain SPECT for early detection of subjective memory impairment in Parkinson's disease**  
**Ju-Hee Oh, Hyeyoung Jung**, In-Uk Song, Yong-An Chung
- LBP.69 **Exercise behavior among patients with Parkinson's disease**  
**Humberto Leal Bailey**, Subhashie Wijemanne Sarathkumara, Reagan Knighstep

WPC HAIKU COMPETITION  
WINNERS

A stick from found wood  
Will snap without sighs, and yet  
Bundled, builds a bridge

Nancy Picard (USA)



## POSTERS – Session 2

Thursday, June 6, 2019



**11:30 AM – 1:30 PM** (See floorplans on pp. 116–117 for poster locations.)

Presenters of featured posters listed below will be present over lunch to discuss their work.

### Basic Science: Etiology, genetics, epidemiology and toxicants – NEW HALL

- P01.02 **The risk of Parkinson's disease in chronic hepatitis C virus-infected patients with and without antiviral therapy**  
**Wey-Yil Lin**, Ming-Shyan Lin, Yi-Hsin Weng, Tu-Hsueh Yeh, Yu-Sheng Lin, Po-Yu Fong, Yih-Ru Wu, Ying-Zu Huang, Chin-Song Lu, Rou-Shayn Chen
- P01.04 **The clinical profile of GBA-associated Parkinson's disease: A seven year study of motor disease burden**  
**Jodi Maple-Grødem**, Ingvild Dalen, Ole-Bjørn Tysnes, Angus Macleod, Carl Counsell, Lars Forsgren, Guido Alves
- P01.06 **Impact of offering genetic testing and counseling to people with Parkinson's disease in a clinical setting**  
**Anna Naito**, James Beck, Anne Hall, Karen Marder, Martha Nance, Michael Schwarzschild, Tanya Simuni, Roy Alcalay
- P01.08 **Lifestyle-gene interaction in Parkinson's disease**  
**Shin Hui Ng**, Celeste Yen Teng Chen, Yi Lin Ong, Hui Hua Li, Ebonne Yulin Ng, Prakash M Kumar, Wing Lok Au, Louis Tan, Eng King Tan
- P01.10 **Ratio of neutrophil to white blood cell, ratio of neutrophil to lymphocyte and weight loss in de novo Parkinson's disease**  
**Tadashi Umehara**, Shiraiishi Tomotaka, Nakada Ryoji, Sato Takeo, Nakahara Atsuo, Matsuno Hiromasa, Komatsu Teppei, Sakai Kenichiro, Omoto Shusaku, Murakami Hidetomo, Mitsumura Hidetaka, Oka Hisayoshi, Iguchi Yasuyuki
- P01.12 **Large multi-center study reveals robust and replicable evidence for dysbiosis of gut microbiome in PD**  
**Zachary Wallen**, Mary Appah, Marissa Dean, Stewart Factor, Eric Molho, Cheryl Sesler, David Standaert, Cyrus Zabetian, Haydeh Payami

### Basic Science: Cell death, disease modification, and trophic factors – NEW HALL

- P02.01 **Intracerebral delivery of VEGF-B improves motor function in PINK1-knockout rats: A follow-up study investigating the effects on dopaminergic neurons**  
**Mitchell Bartlett**, Saskia I. Smidt, Sofia Cristiani, Drew C. Farrell, Mandi J. Corenblum, Kristian P. Doyle, Lalitha Madhavan, Michael L. Heien, Scott J. Sherman, Torsten Falk
- P02.02 **Honokiol, a natural compound to alleviate  $\alpha$ -synucleinopathies?**  
**Marion Delenclos**, Jeremy D Burgess, Priyanka Periselta, Sara Fagen, Natasha DeMeo, Pamela J McLean
- P02.04 **Constitutive activation of pro-survival pathway ameliorates aggregation of  $\alpha$ -synuclein in dopaminergic neurons**  
**Julia Konovalova**, Piotr Chmielarz, Safak Er, Andrii Domanskyi
- P02.09 **Identification of novel DJ-1 protein targeting small molecule for the potential treatment of Parkinson's disease**  
**Gergely Tóth**, Balázs Herberth, Balázs Fórizs, Eva Moravcsik, Fanni Tolnai, Jean-Christophe Rochet, Gennady Smagin, Thomas Neumann

### Basic Science: Protein misfolding, handling, and transmission – NEW HALL

- P03.01 **Patient-derived  $\alpha$ -synuclein assemblies/strains display distinct functional characteristics in cells and in vivo**  
 Anke Van der Perren, Géraldine Gelders, Alexis Fenyi, Luc Bousset, Filipa de Brito, Wouter Peelaerts, Steve Gentleman, Ronald Melki, **Veerle Baekelandt**
- P03.02 **Neuroprotective role of Andrographolide in in vitro model of Parkinson's disease: Possible role in  $\alpha$ -synuclein aggregation**  
**Sussy Bastías-Candia**, Milka Martínez, Nivaldo Inestrosa
- P03.05 **The autophagic secretion of  $\alpha$ -synuclein is dependent on galectin 3**  
**Edward Campbell**, Kevin Burbidge
- P03.06 **Inhibition of  $\alpha$ -synuclein aggregation and prion-like propagation as intervention strategies to slow the progression of Parkinson's disease**  
**Sayan Dutta**, Daniel Ysselstein, Priya Prakash, Krupal Jethava, Ranjan Sengupta, Chao Feng, Gaurav Chopra, Carol Post, Stahelin Robert, Jean-Christophe Rochet

## POSTERS – Session 2

Thursday, June 6, 2019



- P03.07 **Identification of a factor reducing PFF-induced Lewy body pathology in dopaminergic neurons**  
**Safak Er**, Piotr Chmielarz, Laura Bandres, Katrina Albert, Julia Konovalova, Mikko Airavaara, Andrii Domanskyi
- P03.11 **The effect of reduced retromer function on the clearance and transfer of intra- and extra- cellular  $\alpha$ -synuclein and beta-amyloid in neurons**  
**Nazira J. Albargothy**, Anna Ansell-Schultz, Juan F. Reyes, Martin Hallbeck
- P03.13 **Comprehensive screening of the cell surface receptor for  $\alpha$ -synuclein fibrils using a MPL/BLOTCHP -MS technology**  
**Junpei Kobayashi**, Takafumi Hasegawa, Naoto Sugeno, Shun Yoshida, Akio Kikuchi, Michinori Ezura, Toru Baba, Atsushi Takeda, Masashi Aoki
- P03.15 **The role of RNA in synapse physiology and neurodegeneration in Parkinson's disease**  
**Tiago Outeiro**, Maria Xylaki
- P03.16 **On the mechanism of inhibition of  $\alpha$ -synuclein aggregation by the DJ-1 protein**  
**Gergely Tóth**, András Czajlik, Anasztázi Hetényi, Balázs Fórizs, Katalin Solti, Tamás Martinek, Daniel Ysselstein, Jean-Christophe Rochet

**Basic Science: Mitochondria, oxidative stress, and pathogenesis – NEW HALL**

- P04.01 **Cytosolic PINK1 promotes ubiquitin phosphorylation and Parkin-mediated mitophagy independently of mitochondrial-localized PINK1**  
Grace G.Y. Lim, **Hui-Ying Chan**, Adeline H. Basil, Ying Chen, Doreen S.K. Chua, Han-Ming Shen, Siu-Kwan Sze, Jongkyeong Chung, Kah-Leong Lim
- P04.04 **Identification and validation of new therapeutic targets against Parkinson's disease by CRISPR-CAS9 screening at the genome level**  
Axelle Dovonou, Yves De Koninck, Emmanouil Metzakopian, **Martin Lévesque**
- P04.06 **Neuroprotective effect of stomatin-like protein 2 overexpression in A53T-  $\alpha$ -synuclein Parkinson's disease mice model**  
**Marina Lorente-Picón**, Hélène Doucet-Beaupré, Alessandra Zanon, Sara Meschini, Martin Parent, Irene Pichler, Martin Lévesque

**Basic Science: Pathology – NEW HALL**

- P05.01 **Validating targets in Parkinson's disease using the Parkinson's UK Brain Bank resource**  
**Djordje Gveric**, Javier Alegre-Abarrategui, Richard Reynolds, Steve Gentleman
- P05.02 **Cerebral amyloid angiopathy in two autopsy-proven patients with dementia with Lewy bodies**  
**Takayuki Kosaka**, Yanosuke Kouzaki, Tomoko Amano, Shinsuke Nishi, Takaaki Ito, Akiyoshi Kakita

**Basic Science: Animal and cellular models of Parkinson's disease and Parkinsonisms – NEW HALL**

- P06.03 **Functional analysis and single cell characterization of human fetal ventral midbrain in 2D and 3D cultures**  
**Marcella Birtele**, Alessandro Fiorenzano, Jenny Nelander, Daniella Ottosson Rylander, Yogita Sharma, Malin Parmar
- P06.04 **C-terminal domain of LRRK2 with the G2019S mutation can enhance  $\alpha$ -synuclein toxicity in dopaminergic neurons in vivo**  
**Emmanuel Brouillet**, Noémie Cresto, Francesco Gubinelli, Pauline Roost, Camille Gardier, Marie-Claude Gaillard, Charlène Josephine, Mylène Gaudin, Pauline Cipchtein, Philippe Hantraye, Alexis Pierre Bemelmans, Géraldine Liot, Nadja Van Camp
- P06.06 **Targeting iron for the development of treatments for multiple system atrophy**  
Jay Shukla, Erin McAllum, Gawain McColl, **David Finkelstein**
- P06.07 **DNAJC13 in Parkinson's disease; characterization of the p.N855S knock-in mouse model**  
**Jesse Fox**, Jordan Follet, Emil Gustavsson, Matthew Farrer
- P06.08 **Of mice and men, investigating the role of RAB39B in Parkinson's disease**  
**Yujing Gao**, Gabrielle Wilson, Sarah Stephenson, Paul Thomas, Verónica Martínez-Cerdeño, Kiyomet Bozaoglu, Catriona McLean, David Finkelstein, Paul Lockhart

## POSTERS – Session 2

Thursday, June 6, 2019



- P06.09 **Optimization of evans blue quantification as a blood–brain barrier integrity tracer during Parkinson’s disease and l-dopa induced dyskinesia**  
**Fernanda Grecco Grano**, Elaine Del-Bel
- P06.11 **Therapeutic benefits on motor functions and neuroprotective effect of repetitive transcranial magnetic stimulation on parkinsonian rats**  
**Tsung-Hsun Hsieh**, Jia-Jin Chen, Chih-Wei Peng, Ying-Zu Huang
- P06.13 **Characterization of Rab phosphorylation by LRRK kinases**  
**Genta Ito**, Kyohei Ito, Miho Araki, Taisuke Tomita
- P06.14 **1-methylxanthine circling behavior without apomorphine in rats**  
**Luis Clemente Jimenez-Botello**, Rigoberto Oros-Pantoja
- P06.17 **Production of transplantable CORIN-positive midbrain dopaminergic precursors from human pluripotent stem cells is highly sensitive to small changes in WNT signalling**  
**Tilo Kunath**, Nicola Drummond, Maurice Canham, Yixi Chen, Craig Leighton, Sabrina Das, Sergiy Sylantyev, Ngoc-Nga Vinh, David Harrison, Mariah Lelos
- P06.18 **Novel rat model of Parkinson’s: CRISPR-mediated introduction of a G51D mutation into the endogenous rat SNCA gene displaces  $\alpha$ -synuclein from the synapse**  
**Tilo Kunath**, Stephen West, Karamjit Singh Dolt, Owen Harrison, Yayoi Kunihiro, Tomoji Mashimo
- P06.21 **Development of in vitro PARK 9 Parkinson’s disease model using carbonate apatite nanoparticles**  
**Khuen Yen Ng**, Yiing Jye Yap, Ezharul Hoque Chowdhury, Rhun Yian Koh, Soi Moi Chye, Iekhsan Othman
- P06.22 **Mutant  $\alpha$ -synuclein alters GATA1-dependent transcriptional regulation of the lysosomal ATPase ATP6V0A1 with downstream impact on autophagy**  
**Julia Obergasteiger**, Christa Ueberbacher, Vito D’Agostino, Francesca Pischredda, Giovanni Piccoli, Peter P Pramstaller, Andrew A Hicks, Mattia Volta, Corrado Corti
- P06.24 **Temporal genetic profiling of early synucleinopathy in nigrostriatal dopamine neurons**  
**Joseph Patterson**, Christopher Kemp, Megan Duffy, Anna Stoll, Kathryn Miller, John Beck, Scott Counts, Kelvin Luk, Caryl Sortwell
- P06.29 **In vivo generation of SNCA conditional knock-up allele as a new and unique mouse model of Parkinson’s disease**  
**Giorgio Turconi**, Jaan-Olle Andressoo
- P06.32 **The biological compatibility of the circadian system for therapeutic intervention in Parkinson’s disease: A study by The Bronowski Institute, Australia**  
**Gregory Willis**
- P06.33 **Does transgenic overexpression of A53T human  $\alpha$ -synuclein recapitulate the site-specific iron accumulation of the human Parkinson’s disease brain?**  
**Tracy Zhang**, Dominic J. Hare, Jessica Billings

## Basic Science: Brain physiology, neuroplasticity, and circuitry – NEW HALL

- P07.01 **Quantitative EEG and migraine in patients with Parkinson’s disease**  
 Hee-Tae Kim, **Jin-Young Ahn**
- P07.02 **Spatiotemporal patterns of direct and indirect pathway striatal projection neurons in a mouse model of Parkinson’s disease and dyskinesia**  
**Cristina Alcacer**, Marcelo Mendonça, Andreas Klaus, Vítor Paixao, M. Angela Cenci Nilsson, Rui Costa
- P07.06 **Genetic barcoding to track cell fate specification from dopamine-patterned human ES cells**  
**Yu Zhang**, Fredrik Neilsen, Alessandro Fiorenzano, Yogita Sharma, Jenny Johansson, Tomas Björklund, Malin Parmar

## POSTERS – Session 2

Thursday, June 6, 2019

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## Basic Science: Neuropharmacology – NEW HALL

- P09.01 **Long-term suppression of levodopa-induced dyskinesia by sub-anesthetic ketamine is mediated by BDNF and changes in striatal dendritic spine morphology**  
**Mitchell Bartlett**, Andrew J. Flores, Hannah K. Dollish, Jennifer Stancati, Kristian P. Doyle, Michael L. Heien, Kathy Steece-Collier, Scott J. Sherman, Torsten Falk
- P09.02 **7,8-Dihydroxyflavone (TrkB agonist) prevented the neuroinflammation and neurodegeneration via acting on sulfiredoxin peroxiredoxin axis in Parkinson's disease evaluated in-vitro and in-vivo**  
**Mohit Kwatra**, Sahabuddin Ahmed, Vegi Ganga Modi Naidu
- P09.06 **Can Coenzyme Q10 and creatine slow the progress of Parkinson's disease?**  
**Ahmed Negida**

## Basic Science: Electrophysiology &amp; functional imaging, optogenetics – NEW HALL

- P10.01 **Hitting the brakes: Freezing of gait in Parkinson's disease derives from pathological activity in the subthalamic nucleus**  
**Matthew J Georgiades**, James M Shine, Moran Gilat, Jacqueline McMaster, Brian Owler, Neil Mahant, Simon JG Lewis
- P10.02 **The role of LRRK2 at cortico-and thalamo-striatal synapses in the G2019S knock-in mouse model**  
**Naila Kuhlmann**, Chelsie Kadgien, Matthew Farrer, Austen Milnerwood
- P10.03 **Cortical response to open and closed-loop tactile cueing during walking and turning in Parkinson's**  
**Samuel Stuart**, Martina Mancini

## Clinical Science: Symptoms, signs, features &amp; non-motor manifestations – NEW HALL

- P12.04 **Complementary and Alternative Medicine (CAM) and over-the-counter therapies in Parkinson's: A simple algorithm and relatively inexpensive plan**  
**Frank Church**
- P12.05 **Observed racial differences in Parkinson's disease in the Fox Insight cohort, an international internet-based study**  
**Marissa Dean**, Janel Barnes, Luba Smolensky, Ninad Amondikar, Chelsea Caspell-Garcia, Traci Schweiger, Lindsey Riley, Caroline Tanner, David Standaert
- P12.06 **Impact and perceptions of non-motor symptoms in Parkinson's disease as reported by people with Parkinson's (PwP) and their care partners: A pilot survey of the PMDAAlliance**  
**Sarah Jones**, Robert Hauser, Neal Hermanowicz
- P12.07 **A fitbit for Parkinson's?**  
**Lars Jorgensen**
- P12.09 **Eye problems experienced by people with Parkinson's disease – Influence of double vision on activities of daily living**  
**Yoshiki Kuwahara**, Reina Miyamoto, Syun Tanaka, Mitsushi Sekimoto, Shinichi Takabatake
- P12.13 **Attitude of older patients with Parkinson's disease towards deprescribing: A pilot study**  
**Khuen Yen Ng**, Shaun Wen Huey Lee
- P12.14 **Motor and non-motor symptoms more disturbing for people living with Parkinson's disease in Brazil: AMPARO's study**  
Cynthia Porfirio Dionizio Dias, Andressa Lopes, Adelia Anai Ramos Sartori, Camila Cardoso, **Maria Elisa Pimentel Piemonte**, Andre Helene
- P12.15 **Risk factors for the development of cognitive impairment in Parkinson's disease**  
**Adolfo Ramirez-Zamora**, Samuel Wu, Fernando Cubillos, Miriam Rose Rafferty, Kelly Lyons, Eugene Nelson, Thomas Davis
- P12.17 **Characterizing stepping responses using an instrumented pull test in people with mild Parkinson's disease**  
**Joy Tan**, Thushara Perera, Wesley Thevathasan, Jennifer McGinley
- P12.18 **Characteristics of swallowing dysfunction by video-fluoroscopic swallowing study in Parkinson's disease**  
**Satoshi Tomita**, Tomoko Oeda, Kwiyoung Park, Atsushi Umemura, Masayuki Kohsaka, Kenji Yamamoto, Hideyuki Sawada

## POSTERS – Session 2

Thursday, June 6, 2019



- P12.20 **Survey to understand the impact of Parkinson's on the individual with the condition and their spouse/partner/loved ones – Compiled and developed by Team Spark for Rallying to the Challenge 2018, Grand Rapids Michigan**  
**Jordan Webb**, Daniel deWitt, Ginny deWitt, Shaun Hindley, Lois Bourma, Ron Rutowski, Jill Peirce, Ken Peirce, Bruce Mabee, Gloria Groner, Alison Sheltroun, Kim Cousineau

## Clinical Science: Progression &amp; prognosis – NEW HALL

- P13.01 **Ambulatory inertial sensors in Parkinson's disease: Exploring the objective characterization of motor disability with Timed Up and Go test**  
**Milton Biagioni**, Kush Sharma, Alberto Cucca, Raphaela Sills, Jiyoon Jung, Shashank Agarwal, Daniella Mania, Andrew Feigin
- P13.03 **What factors predict hospital admissions in community-dwelling people with Parkinson's?**  
 Roshan Sebastian, William Gray, Aishling Foley, Lydia Trendall, **Annette Hand**, Dori Oh, Steve Dodds, Elliot McLenaghan, Vasco Dossantos, Lloyd Oates, Claire McDonald, Richard Walker
- P13.04 **Intestinal microbial diversity and Parkinson's disease severity**  
 Samantha Evans, Josh Farahnik, **Laurie Mischley**
- P13.05 **Role of complex Parkinson's clinic in movement disorder clinic**  
**Sandip Raha**, Shalini Rao, Louise Ebenezer

## Clinical Science: Cognition/ Mood/ Memory – NEW HALL

- P15.01 **Action observation affects hand movement amplitude more than simple cues in Parkinson's**  
**Judith Bek**, Emma Gowen, Stefan Vogt, Trevor Crawford, Ellen Poliakoff
- P15.06 **How does Parkinson's affect gesture and communication about spatial information?**  
 Stacey Humphries, Judith Holler, Trevor Crawford, **Ellen Poliakoff**
- P15.07 **Analysis of sub-threshold errors reveals no deficit in response inhibition in mild to moderate Parkinson's**  
 Jade Pickering, Jennifer McBride, Iracema Leroi, **Ellen Poliakoff**
- P15.08 **Lessons from the cognitive rehabilitation program of the Parkinson Foundation of Colombia**  
**David Quebradas**
- P15.10 **Mild cognitive impairment (MCI) subtypes after deep brain stimulation (DBS): Role of pre-operative diagnosis**  
**Alexander Tröster**, Angela Abbott, Krista Hanson
- P15.11 **Facial emotion recognition in Parkinson's disease: Impact of presentation time and levodopa**  
**Josefine Waldthaler**, Charlotte Krüger-Zechlin, Lena Stock, Lars Timmermann

## Clinical Science: Sleep disorders/ Fatigue – NEW HALL

- P16.02 **The effect of DUODOPA treatment in advanced Parkinson's disease on sleep quality and sleep disorders**  
**Hakan Ekmekci**, Azer Mammadli, Cihat Ozuguncu, Şerefür Öztürk
- P16.03 **Inverse association between objective sleep quality and early morning akinesia in patients with Parkinson's disease: Cross-sectional analysis of the PHASE study**  
**Hiroshi Kataoka**, Keigo Saeki, Yuki Yamagami, Kazuma Sugie, Kenji Obayashi
- P16.06 **Bright light therapy does not alter the sleep/wake cycle when treating circadian based sleep disorders in Parkinson's disease: A study by The Bronowski Institute, Australia**  
**Gregory Willis**

## Clinical Science: Biomarkers – NEW HALL

- P19.01 **Dopamine buffering capacity measured by pHMRI as a novel biomarker of disease progression in PD**  
**Kevin Black**, Jonathan Koller



## POSTERS – Session 2

Thursday, June 6, 2019

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- P19.03 **The diagnostic and therapeutic potential of miR-153 and miR-223 in Parkinson's disease**  
**Marisa Cressatti**, Wei Song, Julia Galindez, Olivia Cannie, Ana M. Velly, Mervyn Gornitsky, Hyman M. Schipper
- P19.04 **Lipid analysis of CSF from Parkinson's disease patients with and without a LRRK2 mutation**  
**Jasmin Galper**, Russell Pickford, Simon Lewis, Glenda Halliday, Woojin Kim, Nicolas Dzamko
- P19.05 **Evaluation of fungal markers in Parkinson's disease**  
Joshua Farahnik, **Laurie Mischley**
- P19.07 **Parkinson's patients possess abnormal blood monocytes and changes in soluble biomarkers**  
**Sara Konstantin Nissen**, Kalpana Shrivastava, Daniel Otzen, Holger Jon Møller, Claudia Schulte, Walter Maetzier, Marina Romero-Ramos
- P19.11 **The Accelerating Medicine Partnership in Parkinson's disease (AMP PD) – a data biosphere to support discovery research and broad data sharing**  
**Margaret Sutherland**

## Clinical Science: Pharmacological therapy – NEW HALL

- P20.03 **Istradefylline, an adenosine A2A receptor antagonist, as adjunct to levodopa in Parkinson's disease (PD): A safety analysis of eight randomized controlled trials and four open-label long-term studies**  
**Nobutaka Hattori**, Fabrizio Stocchi, Kapil Sethi, Marc Cantillon, Eri Ohta, Phyllis M. Salzman, Akihisa Mori, Keizo Toyama, Rajesh Pahwa
- P20.04 **A pooled analysis for 8 randomized controlled trials of istradefylline, an adenosine A2A receptor antagonist: Efficacy as adjunct to levodopa in Parkinson's disease (PD)**  
**Stuart H. Isaacson**, Nobutaka Hattori, Marco Onofrij, Akihisa Mori, Keizo Toyama, Phyllis M. Salzman, Marc Cantillon, Eri Ohta, Peter LeWitt
- P20.06 **Mavoglurant (AFQ056) for the treatment of levodopa-induced dyskinesia in patients with Parkinson's disease: A meta-analysis of 485 patients' data**  
**Ahmed Negida**
- P20.07 **Natural Product, DP, confers neuroprotective effects in cell and worm assays via the HIF1 $\alpha$  pathway**  
**Minna Schmidt**, Julie K. Andersen, Shankar Chinta, Manish Chamoli, Gordon Lithgow
- P20.11 **Construction and operation of LCIG treatment system with cooperation of medical specialists**  
**Takahiro Tsutsumi**, Motoo Kawai, Yuka Fujiwara, Takae Takizawa, Toru Takayama, Satomi Kodera, Jun Misawa, Kenichi Kashiwara

## Clinical Science: Rehabilitation sciences (PT, OT, SLP) – NEW HALL

- P22.04 **Comparing Forward (FW) and Backward Walking (BW) speeds with age and disease severity in persons with Parkinson's disease (PWP)**  
Becky Farley, Delanee Schwartz, **Valerie Carter**, Tarang Jain
- P22.05 **Innovative delivery of a home-based gamified rehabilitation for early Parkinson's disease – A protocol for a usability evaluation of a digitalized healthcare approach**  
Shermyn Xiu Min Neo, **Chloe Lauha Chung**
- P22.06 **Outcome of SPEAK OUT!<sup>®</sup> for adults with Parkinson's disease**  
Alison Behrman, **Jennifer Cody**, Christen Madsen II
- P22.07 **World's largest Parkinson's chorus**  
**Jennifer Cody**, Samantha Elandary
- P22.11 **The effect of predominately home-based physiotherapy on mobility, balance and quality of life in people with Parkinson's disease: a systematic review**  
**Allyson Flynn**, Elisabeth Preston, Natalie Allen, Sarah Dennis, Colleen Canning
- P22.12 **Implementation success and challenges of post therapy LOUD for LIFE<sup>®</sup> and BIG for LIFE<sup>®</sup> exercise classes for people with Parkinson's**  
Angela Halpern, Laura Guse, **Cynthia Fox**

## POSTERS – Session 2

Thursday, June 6, 2019



- P22.13 **Global implementation of an evidence-based physical and occupational therapy (LSVT BIG®) for Parkinson's disease: Germany, France and Japan**  
Cynthia Fox, Laura Guse
- P22.15 **Music therapy on gait disturbance and gait analysis for Parkinson's disease using a portable gait rhythmogram**  
Emiri Gondo
- P22.17 **The efficacy of levodopa-carbidopa intestinal gel in patients with Parkinson's disease – a 2 year follow-up study**  
Jelka Jansa, Dejan Georgiev, Maruša Mencinger, Tomaž Rus, Maja Trošt
- P22.19 **Design of the PERSPECTIVE study: PERSONalized SPEeCh Therapy for active conversation**  
Janna Maas, Nienke de Vries, Bas Bloem, Hanneke Kalf
- P22.23 **Balance exercise increases serum brain-derived neurotrophic factor level in people with Parkinson's disease. A pilot study**  
Jadwiga Szymura, Jadwiga Kubica, Magdalena Wiecek, Joanna Gradek, Elzbieta Mirek, Zbigniew Szygula
- P22.24 **A mobile application specifically designed to facilitate exercise in Parkinson's disease: Safety, feasibility, and signal of efficacy**  
Merrill Landers, Terry D. Ellis
- P22.29 **Physical activity and exercise choices in people with Parkinson's disease: Preferences and barriers**  
Jennifer McGinley, Mary Danoudis, Belinda Bilney, Meg Morris, Rosemary Higgins
- P22.32 **The immediate effect of rehabilitation using motor image intervention in Parkinson's disease patient: A case study**  
Hajime Nakanishi, Hiroko Hashimoto, Megumi Nakamura, Haruka Nakanishi, Chinami Ishizuki, Hideki Miyaguchi
- P22.34 **Fall-related activity avoidance: A 3-year follow-up in people with Parkinson's disease**  
Maria H Nilsson, Magnus Lindh-Rengifo, Stina B Jonasson
- P22.35 **Clinical characteristics for long-term therapeutic effects of LSVT LOUD® in Japanese patients with Parkinson's disease**  
Tomoo Ogino, Satoshi Tomita, Masayuki Tahara, Tomoko Oeda
- P22.38 **Voice quality and prosody changes of persons with Parkinson's disease undergoing "SPEAK-OUT!®" therapy during conversational and reading speech**  
Eunsun Park, Frank Boutsen, Justin Dvorak
- P22.39 **The severity of motor symptoms is the best predictor for level of functionality according to FIM in people with Parkinson's disease**  
Elisa Libardi, Pâmela Barbosa, Tiemi Yoshioka, Maria Elisa Piemonte
- P22.40 **Depression instead of the motor or cognitive alterations is the crucial factor in determining the performance perception and performance satisfaction in people with Parkinson's disease**  
Tiemi Yoshioka, Elisa Libardi, Pâmela Barbosa, Maria Elisa Piemonte
- P22.41 **Construct validity of more affected hand performance on the 9-Hole Peg Test in people with Parkinson's disease**  
Elizabeth Proud, Meg E. Morris, Belinda Bilney, Kimberly J. Miller, Marten Munneke, Maarten Nijkrake, Jennifer McGinley
- P22.45 **Classifying Parkinson's disease by movement subtypes: Findings from a multimodal exercise program**  
Monica Rivera
- P22.46 **Elderly with Parkinson's disease evaluated in the neurological center: CENPAR, Chile**  
Paola Alicia Riveros Cortés, Paulina Salinas, Cristian Mateo
- P22.47 **Health in Chile and Parkinson's disease, case study: CENPAR, Chile**  
Paola Alicia Riveros Cortés, Cristian Mateo, Paulina Salinas, Diana Garrido, Hector Valenzuela, Marisol Said, Claudia Gonzalez
- P22.50 **The consideration of personality in patients with Parkinson's disease and freezing of gait**  
Makoto Sawada, Kenji Wada-Isoe, Satoko Nakashita, Tetsuya Maeda, Ritsuko Hanajima, Kenji Nakashima
- P22.52 **Measurement and correction of stooped posture during gait using wearable sensors in patients with Parkinsonism**  
Han Gil Seo, Seo Jung Yun, Quoc Khanh Dang, Youngjoon Chee, Sun Gun Chung, Byung-Mo Oh
- P22.53 **Staying UpRight in Parkinson's disease: A novel postural intervention**  
Samuel Stuart, Alan Godfrey, Lynn Rochester, Fay Horak, Martina Mancini

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- P22.55 **Hand tapping for screening dysfunctional rhythmic coordination in patients with Parkinson's disease**  
**Shizuka Uetsuki**, Hiroshi Kinoshita, Ryuichi Takahashi, Kazumasa Yokoyama, Hiroo Yoshikawa
- P22.57 **Efficacy of a mobile technology-based brisk walking program in improving dynamic balance and motor performance in people with Parkinson's disease – a randomized controlled trial**  
**Irene Wong-Yu**, Elon Choi, Tsz Ki Lai, Chung Ling Lam, Ka Hei Sin, Cheuk Kei Wong, Margaret Mak

### Clinical Science: Clinical trials: Design, outcomes, recruiting, PwP involvement, communications – NEW HALL

- P23.01 **Intrinsic auricular muscle zone stimulation improves walking parameters faster than the medications in motion capture analysis of Parkinson's disease patients**  
**Yusuf Ozgur Cakmak**, Burak Ozsoy, Sibel Ertan, Ozgur Oztup Cakmak, Gunes Kiziltan, Hale Yapici Eser, Ecem Ozyaprak, Yasemin Gursoy
- P23.02 **Multimodal balance training with rhythmical cues in Parkinson's disease: A randomized clinical trial**  
**Tamine Capato**, Nienke de Vries, Egberto Barbosa, Jorik Nonnekes, Bastiaan Bloem
- P23.03 **Targeted digital marketing campaigns successfully recruit diverse cohorts of people with Parkinson's disease and healthy controls to the Fox Insight Longitudinal Study**  
**Roseanne Dobkin**, Ninad Amondikar, Chelsea Caspell-Garcia, Janel Barnes, Lauren Bataille, Lana Chahine, Andrea Katz, Catherine Kopil, Connie Marras, Amanda Melnick, Tracy Schwiager, Bernadette Siddiqi, Luba Smolensky, David Standaert, Caroline Tanner
- P23.05 **Use of digital techniques to recruit Parkinson's clinical trials**  
**Tara Fox**, Beth Hirschhorn, Marianne Bach, Sara James, Ludy Shih, George Nomikos, Jesse Cedarbaum
- P23.09 **The effectiveness of boxing exercise in elderly people including people with Parkinson's disease**  
**Noriko Kawashima**, Masayo Isogai, Michiko Matsushashi, Mikiko Komachi, Hiroko Ikebe, Aya Kumon, Kumiko Miyashita, Atsuko Sato, Kazuko Hasegawa
- P23.10 **Inhaled levodopa (CVT-301) for treatment of off periods in Parkinson's disease: efficacy as assessed by 39-item Parkinson's disease quality of life (QoL) questionnaire**  
**Peter LeWitt**, Robert A. Hauser, Charles Oh, Jenny Qian, Christopher Kenney, Iresha Abeynayake
- P23.12 **Meta-analysis of mortality following subthalamic and pallidal deep brain stimulation for patients with Parkinson's disease**  
**Ahmed Negida**
- P23.15 **Can non-invasive brain stimulation enhance dual-task performance in Parkinson's disease?**  
**Jing Qi**, Graham Kerr, Karen Sullivan, Simon Smith, Marcus Meinzer
- P23.16 **Understanding trial specific recruitment challenges – A dynamic approach to identifying and overcoming obstacles: PD patient's perspective**  
**Gary Rafaloff**, Helen Matthews, Melissa Kostrzebski, Brian Fiske, Kalpana Merchant, Christopher S. Coffey, Richard K. Wyse, Patrik Brundin, David K. Simon, Michael A. Schwarzschild, David Weiner, Jamie Adams, Charles Venuto, Laura Trusso, Liana Baker, Tanya Simuni, Ward Tina
- P23.17 **A model of patient engagement in research: Takeda and Parkinson's Foundation co-creating clinical trials**  
**Karlin Schroeder**, Megan Feeney, Christiana Evers, Casey Gallagher, Jessica Scott, Chi Onyebuchi, Joel A. Posener
- P23.18 **Improving clinical trials through the science of patient engagement**  
**Karlin Schroeder**, Megan Feeney, Christiana Evers, Casey Gallagher, Veronica Todaro
- P23.19 **Examining Parkinson's disease psychosis treatment and outcomes in the real world: Interim year 1 findings from the INSYTE observational study**  
Jennifer Goldman, Susan Fox, Stuart Isaacson, Doral Fredericks, Jeff Trotter, Kaitlin Healy, Amy Ryan, **Andrew Shim**

### Clinical Science: Rating scales – NEW HALL

- P24.01 **Validating a new dependency measure for Parkinson's disease**  
Neil Ramsay, **Angus Macleod**, Carl Counsell

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- P24.02 **The new Parkinson's Disease Composite Scale: A proven instrument for the quick and holistic assessment of Parkinson's patients**  
Pablo Martinez Martin, Giada Radicati, Carmen Rodriguez-Blazquez, John Wetmore, Norbert Kovacs, Ray Chaudhuri, Fabrizio Stocchi, Dominic Graham, **Russell Patten**
- P24.03 **Rasch analysis of the clinimetric properties of the Korean dizziness handicap inventory in patients with Parkinson's disease**  
**Hui-Jun Yang**, Da-Young Lee, Ji-Yun Park

## Clinical Science: E-health and technology – NEW HALL

- P25.02 **The facilitators and barriers of telemedicine: How it can affect patients with Parkinson's disease**  
Taylor Fitzgerald, **Valerie Carter**, Joseph Carter
- P25.05 **A wearable sensor device with internet connectivity for accurate movement assessment in Parkinson's patients**  
**J. Sebastian Marquez**, Corneliu Luca, Masudur R. Siddiquee, Robin Mayrand, Roozbeh Atri, Ou Bai
- P25.06 **Feasibility analysis of hand rotation test for quantifying Parkinson's disease motor states: Smartphone vs wristband motion sensor**  
Somayeh Aghanavasi, **Mevludin Memedi**, Hasan Fleyeh
- P25.07 **An Internet of Things system for patient empowerment: a case study on measuring patients' understanding of causal relationships between symptoms and behaviour**  
Liran Karni, **Mevludin Memedi**, Ella Kolkowska, Isabella Scandurra, Paul de Roos, Dag Nyholm, Gunnar O. Klein
- P25.11 **Collaborative framework for delivering on ways that digital technologies can help to optimize new Parkinson's treatment trials**  
**Diane Stephenson**, Jesse Cedarbaum, Klaus Romero, Polly Dawkins, Sara Garvey, Mark Frasier, Alysa Reimer, Lauren Bataille, James Beck, Karlin Schroeder, Beth Vernaleo, David Dexter, Jill Gallagher, Joy Duffen, Helen Matthews, Steve Ford

## Clinical Science: Neuroimaging – NEW HALL

- P26.01 **MIBG scintigraphy in the differential diagnosis of Parkinsonism**  
**Sophie Bourgeois**
- P26.05 **Abnormal verticality perception in Parkinson's disease patients with lateral trunk flexion is associated with hypoperfusion in the right temporoparietal junction**  
**Masayuki Kohsaka**, Tomoko Oeda, Shigetoshi Takaya, Atsushi Umemura, Satoshi Tomita, Kwiyoung Park, Kenji Yamamoto, Hideyuki Sawada
- P26.06 **Iodine-123-metaiodobenzylguanidine scintigraphy (MIBG) in routine clinical practice – a local experience in movement disorder clinic**  
**Sandip Raha**, Shalini Rao

## Comprehensive Care: Caregiving, relationships, respite care, families – NEW HALL

- P28.02 **Neuropsychiatric symptoms and caregiver burdens in Parkinson's disease and Alzheimer's disease – differences between spouse and offspring**  
**Sang-Myung Cheon**, Min-Jung Park, Jae Woo Kim
- P28.03 **Parkinson's disease care partner psychological health and well-being: A proposed assessment and treatment paradigm**  
Nadeeka Dissanayka, **Roseanne Dobkin**
- P28.04 **Share the care: Supporting Parkinson's disease caregivers through peer mentoring**  
Jeanette Lee, Ellen Klostermann Wallace, Claire Niemet, Serena Hess, Joshua Chodosh, Deborah Hall, Jayne Wilkinson, Bichun Ouyang, **Jori Fleisher**
- P28.06 **Alexander technique group classes are a feasible and promising intervention for care partners of people living with Parkinson's disease**  
**Monika Gross**, Ramyaa Ravichandra, Belinda Mello, Rajal Cohen
- P28.09 **The relationship between depression and emotional support by patients' attending physicians among primary caregivers of patients with Parkinson's disease: Focusing on cognitive evaluation of family function**  
**Tatsuya Nakai**, Yoshihito Takemoto

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- P28.11 **Caregivers burden in Parkinson's disease in Singapore**  
Ee-Chien Lim, Mark MJ Tan, Nivedita Nadkarni, Eng-King Tan, **Kumar M Prakash**
- P28.14 **Availability for home-based care program concerning Parkinson's disease patients and their families**  
**Tomiyasu Mari**, Teruyo Kurebayashi, Estuko Tsukamoto
- P28.15 **What I learnt from taking care of my mother who has Parkinson's disease**  
**Lam Swee Yeoh**

## Comprehensive Care: Fitness, wellness, nutrition – NEW HALL

- P29.02 **The success of disease specific exercise approach in persons with Parkinson's disease: An observational study**  
Chloe Newell, Lexi Okurily, Tarang Jain, **Valerie Carter**
- P29.03 **Impact of Rock Steady Boxing in patients with Parkinson's disease**  
**Rachael Dawson**, Jamasb Sayadi, Lissa Kapust, Lauren Anderson, Stacey Lee, Al Latulippe, David Simon
- P29.06 **The effect of the dance DVD created for the rehabilitation of Parkinson's disease patients**  
**Hiroko Hashimoto**, Hajime Nakanishi, Megumi Nakamura
- P29.10 **Big for Life® exercise group for people with Parkinson's: The Australian experience**  
**Amie Malcolm**, Michelle Skinner
- P29.11 **Living with Parkinson's – My running story. Returning to running after diagnosis and a pathway to running faster than before diagnosis.**  
**Ian McFarlane**
- P29.12 **Living with Parkinson's. Exercise and Parkinson's. A look at how through the power of exercise I can run up hills again**  
**Ian McFarlane**
- P29.13 **Developing silver food which easy to swallow in patients with Parkinson's disease**  
**Eungseok Oh**, Bok Sookyong, Ahn Soyoung, Jee Sungjoo
- P29.14 **Body fat loss is associated with autonomic dysfunction in Parkinson's disease**  
Tomoko Oeda, Atsushi Umemura, Masayuki Kohsaka, Satoshi Tomita, Hideyuki Sawada, **Kwiyoung Park**
- P29.15 **Impact of boxing-based training in Parkinson's disease: A new lifestyle for PD patients in Chile!**  
**Miguel Pino**, Lorena Bernales, Pablo Roa

Comprehensive Care: Alternative & complementary therapies/ Creativity –  
EVENT HALL

- P30.03 **Dance and action representation: Experiences of a co-developed dance programme for Parkinson's**  
**Judith Bek**, Aline Arakaki, Matthew Sullivan, Ellen Poliakoff
- P30.05 **Occurrence of spleen qi deficiency as defined by Chinese medicine in Parkinson's disease**  
**Ka Kit Chua**, Min Li
- P30.06 **Art therapy may improve signs and symptoms of Parkinson's disease: Preliminary findings from the "ExplorArtPD Study"**  
Kush Sharma, Ikuko Acosta, Marygrace Berberian, Daniella Mania, Jung Jiyeon, J.R. Rizzo, Andrew S. Feigin, Milton C Biagioni, **Alberto Cucca**
- P30.09 **Development of a music therapy protocol to enhance breathing, swallowing, and vocal/speech functions for individuals with Parkinson's disease: A pilot study**  
**Eri Haneishi**, Osamu Shiromoto, Hirohide Takahashi, Hideki Kawahara, Kaori Hagiwara, Yuka Miura
- P30.10 **Group singing improves quality of life in people with Parkinson's: An international Sing to Beat Parkinson's project**  
**Yoon Irons**, **Grenville Hancox**, Trish Vella-Burrows, Eun-Young Han, H. Ju Chong, David Sheffield, Don Stewart
- P30.11 **Effects of dance on cognitive functions, psychological symptoms and health-related quality of life in Parkinson's disease**  
**Nadeesha Kalyani**, Karen Sullivan, Gene Moyle, Sandy Brauer, Graham Kerr



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- P30.12 **Egaoshi® ("Smiling") yoga: Invented by Kyoko Kimura, the first Egaoshi® in Japan, an all-in-one exercise introducing a combination of smiling, food, breathing, music, movement and beauty that tremendously improves the symptoms of Parkinson's disease**  
**Kyoko Kimura**
- P30.14 **Group music therapy enhances positive affect in people with Parkinson's disease**  
**Satomi Kondo**
- P30.18 **Multidisciplinary care models for Parkinson's disease: The Parkinson's Foundation Centers of Excellence experience**  
**Clarissa Martinez Rubio**, Samuel S. Wu, Hanzhi Gao, Veronica L. Todaro, Fernando Cubillos, Nadia Romero, Jennifer G. Goldman
- P30.19 **The effects of non-invasive transcranial brain current stimulation (tDCS) on posture over stable and unstable surfaces in people with Parkinson's: A randomised double-blind sham-controlled crossover study**  
**Jing Qi**, Graham Kerr, Karen Sullivan, Simon Smith, Marcus Meinzer
- P30.24 **Building international communities – Dance with Parkinson's**  
Sara Houston, Monica Gillette, Yuko Kuroda, Mariko Konno, Kurumi Nakamura, Kumi Shimokura, Roberto Casarotto, **Daniele Volpe**
- P30.25 **The effects of concomitant use of hydrogen water and photobiomodulation (PBM) to Parkinson's disease**  
**Dean Wu**, Chaur-jong Hu, Chien-Tai Hong, Hung-Yu Lin

### Comprehensive Care: Lay/professional health literacy & public thought – EVENT HALL

- P31.01 **Subjective observations on the effects of antibiotics on the PD symptoms of PWP William Curnow since previous PWC4 poster including data taken before and after FMT procedure plus three usages of antibiotics**  
**William Curnow**, Thomas Borody, Sandra Clewett
- P31.02 **Development of a Massive Open Online Course (MOOC) to educate healthcare professionals about Parkinson's disease**  
**Mary DiBartolo**, Robin Hoffman
- P31.03 **Exploring OFF experiences and communication with clinicians**  
**Sara Garvey**
- P31.04 **In support of a fungal and related mycotoxin model contributory to Parkinson's**  
**Glen Pettibone**, David Spry
- P31.05 **Service-learning as an introduction to Parkinson's disease for pre-clinical medical students**  
Stephanie Bissonnette, Okeanis Vaou, **Marie Saint-Hilaire**

### Comprehensive Care: Disability and quality of life outcome measures – EVENT HALL

- P32.01 **Quality of life in Parkinson's disease patients may not improve with physical, social, or emotional interventions**  
**Erika Adelman**, Albert Ortega, Jonathan Muller, Kimberly Muller, Alejandro Aragon, Josiah Winters, Nora Davis, Lisa Warner, Miran Salgado
- P32.03 **The association between non-motor symptoms and quality of life in Parkinson's disease**  
Melanie Cusso, **Allka Sewram**, Dean Pountney, Kenneth Donald, Tien K Khoo
- P32.06 **"Where's the 'feeling better' box?" Beyond PDQ39**  
**Alison Williams**

### Comprehensive Care: Shared decision-making: PwP – caregiver – doctor – EVENT HALL

- P33.01 **Preparing future practitioners for interdisciplinary teams: An update on the collaborative study research at Concordia College, Moorhead, Minnesota, USA**  
**Jennifer DeJong**, Jack Rydell, Betty Larson
- P33.02 **emPowered! Tool: Enhancing communication systemwide – Building skills and expanding confidence for PwP and care partners in self-advocacy and care team planning**  
**Sarah Jones**

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- P33.03 **A national comprehensive survey study of Parkinson's disease psychosis patients and caregivers regarding time to Parkinson's disease psychosis diagnosis and treatment initiation**  
Peter Schmidt, Adolfo Diaz, Fernando Cubillos, Paula Wiener, Sharon Metz, Nadia Romero, Candace Andersson, Sherry Andes, Doral Fredericks, **Andrew Shim**

## Comprehensive Care: Health accessibility/ Underserved populations – EVENT HALL

- P35.01 **"No one has ever mentioned such word": Knowing, or not knowing about Parkinson's disease in Kenya, sub-Saharan Africa**  
**Natasha Fothergill Misbah**, Suzanne Moffatt, Kate Hampshire, Juzar Hooker, Judith Kwasa, Richard Walker
- P35.02 **Implementing a change of approach: From mono-to interdisciplinary follow-up of patients with PD**  
**Michaela D. Gjerstad**, Kristin Borch, Thyra Kirknes, Magne Wang Fredriksen, Thomas Rannstad Haugen, Mark Tiemessen, Espen Dietrichs, Guido Alves, Norwegian ParkinsonNet implementation group
- P35.06 **Educational and outreach interventions to address neuropsychiatric issues in Parkinson's disease**  
**Glenn Stebbins**
- P35.07 **Use of a hybrid telehealth visiting nurse clinic to support the use of device assisted therapies for Parkinson's disease in a large rural and remote North Queensland area. A feasibility and a patient perception observational study**  
**Rachael White**, Richard White

## Comprehensive Care: Daily life activities including working &amp; driving – EVENT HALL

- P36.01 **A day in the life of...**  
**Clare Lindley**
- P36.02 **Action imagery and observation in neurorehabilitation for Parkinson's disease (ACTION-PD): A pilot RCT of a home-based intervention to improve functional actions**  
**Ellen Poliakoff**, Judith Bek, Chesney Craig, Zoe Franklin, Matthew Sullivan, Emma Gowen, Stefan Vogt, Trevor Crawford, Paul Holmes
- P36.03 **Falls during neurorehabilitation and beyond in people with Parkinson's disease**  
Christina Hohenwarter, **Auguste Tautscher-Basnett**, Volker Tomantschger, Manfred Freimueller

## Comprehensive Care: Self-management, empowerment, coping strategies – EVENT HALL

- P37.02 **Life does not end where a diagnosis starts: Entraidons-nous (let us help each other)**  
**Linda Bérard**, Chantal Pelletier, Nadia Tagliabracchi, François Guérin
- P37.06 **Poised for Parkinson's: Group classes in Alexander technique for managing symptoms of Parkinson's disease**  
**Monika Gross**, Ramyaa Ravichandra, Glenna Batson, Rajal Cohen, Monica Norcia, Lisa First
- P37.07 **Improving self-management and management of daily life for people with Parkinson's disease through an educational intervention - the Swedish National Parkinson School (NPS)**  
**Carina Hellqvist**, Nil Dizdar, Carina Berterö, Märta Sund Levander, Peter Hagell
- P37.10 **Patient-centered care for people with Parkinson's disease in the context of a navigator program**  
Kim Yie Lin, **JuHee Lee**
- P37.12 **Parkinson's smell levels, symptom management and empowerment: When Joy met Alison**  
Alison Williams, **Joy Milne**
- P37.14 **Providing education and support for newly diagnosed patients and families in the community**  
**Cathi Thomas**, Tamara DeAngelis, Marie Saint-Hilaire, Terry Ellis
- P37.15 **Applying the extreme sport Art Du Deplacement (ADD)/ Parkour into rehabilitation training to increase physical and mental well-being in people with Parkinson's disease (PDP)**  
Mareike Schwed, **Kasturi Torchia**, Gogoly Yao, Tobias Getrost

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- P37.18 **The self-identified experiences and needs of people with Parkinson's disease relating to patient education: A qualitative study**  
**Georgina Whish-Wilson**, Prue Morgan

### Living with Parkinson's: Public education or awareness programs – EVENT HALL

- P39.01 **Introducing the clinical trial companion, a research engagement tool**  
 Catherine M. Kopil, Todd Sherer, Deborah W. Brooks, Holly Teichholtz, Rachel Dolhun, Kristin Demafeliz, Sarah Berk, Siddiqi, Emily Moyer, Amanda Melnick, Andrea Katz, Maggie McGuire, Kristen Teesdale, Brittany Greco, Tanya Simuni, Michael Schwarzschild, Claire Henchcliffe, **Sohini Chowdhury**
- P39.07 **Art as a vehicle for participation in the Spanish-speaking Parkinson community**  
**Claudia Martinez**, Gregory A. Pearce
- P39.09 **Spanish-language educational programming: Serving diverse communities**  
 Christiana Evers, **Clarissa Martinez-Rubio**, Adolfo Diaz, Donna Sperlakis, Sarah Osborne
- P39.11 **Community engagement as stakeholder in improving student nurse awareness of Parkinson's disease support groups**  
**Lewis McCoy**, Kathleen McCoy

### Living with Parkinson's: Government advocacy/ Campaigns/ Public policy – EVENT HALL

- P40.01 **Actual status of support for Parkinson's disease patients in our hospital**  
**Kentaro Ohta**, Nakajima Takashi, Utsumi

### Living with Parkinson's: Living well with PD – EVENT HALL

- P41.05 **Live not just survive with Parkinson's disease: A Edmond J. Safra visiting nurse faculty program presentation**  
**B. Suzy Diggle**
- P41.06 **Innovative model of care for persons with Parkinson's disease in rural India**  
**Sharmila Donde**, Maria Barretto
- P41.07 **Parkinson's disease. A patient's perspective**  
**Rob Hagen**
- P41.08 **Multidisciplinary musical approach for the treatment of Parkinson**  
**Rachel Heffez Ayzefeld**, Orit Lif Kimhi, Ahmed Daka, Nirit Lev, Irit Alon, Omri Lapidot
- P41.16 **Graphical approach to predict response of Parkinson medicine using the coefficient named the Walk-Disability-Level (WDL) which can be easily felt by patient by himself without using any special equipment**  
**Mitsushige Oda**, Yuya Oda
- P41.17 **The profile of long-term Parkinson's disease survivors with more than 30 years of disease duration in Japan**  
**Yoshiko Okada**
- P41.18 **Parkinson's roadmap for education and support services™: Press-A how-to for developing early coping skills**  
**Rosa Peña**, Robin Kornhaber
- P41.19 **Women and Parkinson's – Through a new lens**  
 Kim Nitz, Lou Eisenbrandt, Megan Feeney, **Karlin Schroeder**
- P41.24 **Sábados en movimiento (moving Saturdays): Empowering patients with Parkinson's disease**  
 Beatriz Muñoz, **Jaime Valderrama**, Yor Castaño, Lady Lucio, Andres Navarro, Jorge Orozco
- P41.25 **Using physical exercise to improve quality of life, postural balance and physical function in general. A study by University of Kent, England**  
**Arthur Waters**, Steve Meadows, Anna Ferrusola-Pastrana, Glen Davidson, Chris Fullerton
- P41.26 **Parkinson's Fitness – Paying it forward**  
**Brett Warthen**

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- P41.28 **Perak Parkinson's Association's efforts in creating awareness and helping PWP 6 years after establishment**  
**Lam Swee Yeoh**

### Living with Parkinson's: Other – EVENT HALL

- P43.01 **William James, psychologist: the latest James Parkinson doppelgänger**  
**Sergio A. Castillo-Torres**, Carlos A. Soto-Rincón, Ingrid Estrada-Bellmann, Andrew J. Lees
- P43.02 **PRISM: An ongoing pan-European exploratory, cross-sectional, web-based survey of people living with PD and their care partners**  
Jordan Webb, Andrew Lees, Tom Foltynie, Angelo Antonini, Georg Ebersbach, Joaquim Ferreira, Olivier Rascol, Eduardo Tolosa,  
**Rachel Gibson**
- P43.03 **Investigation of effect of LRRK2 kinase activity on the GLUT4 membrane translocation in adipocytes**  
**Motoki Imai**, Kawakami Fumitaka, Isaka Yuki, Kawashima Rei, Maekawa Tatsunori, Kanzaki Makoto, Ichikawa Takafumi
- P43.04 **Characterization of the role of LRRK2 in the regulation of glucose metabolism**  
**Fumitaka Kawakami**, Yuki Isaka, Rei Kawashima, Tatsunori Maekawa, Makoto Kanzaki, Takafumi Ichikawa
- P43.06 **One man's journey: Living with Parkinson's**  
**Rex Moore**
- P43.07 **Being the patient at the centre of a multi-disciplinary team approach to Parkinson's care: A personal perspective**  
**Janet Niven**

### Late-Breaking – EVENT HALL

- LBP.46 **Identification of cerebrospinal fluid proteins associated with impaired sleep quality in Parkinson's disease**  
**Eiko Minakawa**, Hiroko Yagihara, Yuji Saitoh, Ayumi Tsuru, Minoru Suzuki, Yuichi Kamei, Koji Ueda, Keiji Wada, Yoshitaka Nagai
- LBP.47 **Hip fractures in patients with Parkinson's disease**  
Eun-Suk Kim, **Chang-hwan Kim**
- LBP.48 **Features of autonomic failure in elderly patients with Parkinson's disease and Dementia with Lewy bodies on emergency hospitalization**  
**Teruaki Kawasaki**, Yuko Watanabe, Yoshitomo Shirakashi, Hideo Yagi, Ichiro Akiguchi
- LBP.49 **Metabolomics-based identification of metabolic alterations in PARK2**  
**Taku Hatano**, Ayami Okuzumi, Shin-ichi Ueno, Takashi Ogawa, Shinji Saiki, Nobutaka Hattori
- LBP.50 **Canine aromatic detection of Parkinson's Disease: Can dogs identify PD early?**  
**Laurie Mischley**, Stuart Isaacson
- LBP.51 **Pharmacokinetics of ND0612 administered at different infusion sites and with different cannula lengths: An open-label, randomized, cross-over study in healthy volunteers**  
Tal Birnberg, Tami Yardeni, **Sheila Oren**, Olivia Rosenfeld, Liat Adar
- LBP.52 **A third way to fund research**  
**David Jones**, Edwards Gaynor
- LBP.53 **Zonisamide ameliorates motor symptoms and sleep problems in patients with Parkinson's disease: a 3-month open-label study**  
**Keisuke Suzuki**, Hiroaki Fujita, Takeo Matsubara, Taro Kadowaki, Kei Funakoshi, Yuji Watanabe, Tomohiko Shiina, Hirotaka Sakuramoto, Mai Hamaguchi, Koichi Hirata
- LBP.54 **The effect of speech rate on lip kinematics in Parkinson's disease**  
**Shin Ying Chu**, Steven M. Barlow, Jaehoon Lee, Jingyan Wang
- LBP.55 **Effects of computerized cognitive training, with and without concurrent exercise, on executive functions in Parkinson's disease**  
**Miguel Fernandez del Olmo**, Jose Andrés Sanchez-Molina, Helena Fernandez-Lago, Luis Morenilla-Burlo, Joaquín Gomez-Varela

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- LBP.56 **'PDSAFE' – a multi-dimensional model of falls rehabilitation for people with Parkinson's. A mixed methods analysis of therapists' delivery and experience.**  
**Sophia Hulbert**, Kim Chivers-Seymour, Ann Ashburn
- LBP.57 **Cochrane Systematic Review on singing for people with Parkinson's**  
**Yoon Irons**, Esther Coren, Megan K. Young, Donald E. Stewart, Manfred Gschwandtner, George Mellick
- LBP.58 **Translational research platform for intelligent deep brain stimulation**  
**Yingnan Nie**, Huichun Luo, Shouyan Wang
- LBP.59 **Measures of vocal effort in Parkinson's disease: self-perception, and feedback on performance**  
**Merrill Tanner**, Lili Liu
- LBP.60 **Effects of combined auditory cues and treadmill training on cortical excitability and gait performance in Parkinson's disease**  
**Wei Zeng**, Pei-Jung Kao, Ya-Yun Lee, Ruey-Meei Wu, Jer-Junn Luh, Shi-Yun Lin
- LBP.61 **The Australian Parkinson's Mission: Integrating genomics, biomarkers and patient cell phenotyping into disease modifying clinical trials**  
**Antony Cooper**, Simon Lewis
- LBP.62 **Neuropsychiatric complications as key components of Parkinson's disease: A critical framework for enhancing engagement in PD mental health research**  
 Michael Dennin, Molly St. Dennis, Kailyn Rodriguez, Alejandro Interian, **Roseanne Dobkin**
- LBP.63 **BouNDless: An active-controlled randomized, double-blind double-dummy study of continuous ND0612 infusion in patients with fluctuating Parkinson's disease**  
 Werner Poewe, Karl Kiebertz, Fabrizio Stocchi, **Sheila Oren**, Tami Yardeni, Liat Adar, Olivia Rosenfeld, C. Warren Olanow
- LBP.64 **Directional versus omnidirectional Deep Brain Stimulation for Parkinson's disease: 12-month results of a multi-center, prospective, blinded, crossover study**  
 Alfons Schnitzler, Pablo Mir, **Matthew Brodsky**, Leonard Verhagen, Sergiu Groppa, **Binith Cheeran**, Edward Karst, Florence Defresne, Jan Vesper
- LBP.65 **Communicating clinical trials to scientists, health professionals, study participants and the public: Hype, hope or despair?**  
**Alan Whone**, Claire Bale, Helen Matthews
- LBP.66 **Usefulness of cardiac MIBG scintigraphy and midbrain/pontine ratio to differentiate Parkinson's disease from multiple system atrophy and progressive supranuclear palsy**  
**Hiroaki Fujita**, Keisuke Suzuki, Taro Kadowaki, Mai Hamaguchi, Koichi Hirata
- LBP.67 **Distinctive MRI patterns of brain iron accumulation in atypical parkinsonian syndromes**  
**Jae-Hyeok Lee**
- LBP.68 **Caregiving 101: A solution-oriented guidebook for those providing care to persons living with Parkinson's disease**  
**Marjorie Getz**
- LBP.70 **Effects of yoga on oxidative stress, motor function, and non-motor symptoms in Parkinson's disease: A pilot randomized controlled trial**  
**Corjena Cheung**, Rozina Bhimani, Jean Wyman, Jürgen Konczak, Usha Mishra, Marcia Terluk, Reena Kartha, Paul Tuite
- LBP.71 **'Digital Dancing' – Can you see what you feel?: An exploration of the physical 'experience' of dance for Parkinson's through 3-D motion analysis**  
**Sophia Hulbert**, James Fullam, Chris Hunt, Victoria Goodwin
- LBP.72 **How does the contribution of movement as an artistic and expressive medium improve the quality of life of both the person with Parkinson's and their caregiver?**  
**Natalie Muschamp**
- LBP.73 **Effects of vibrotactile stimulation on resting tremor in Parkinson's disease**  
**David Putrino**, Adam Fry, Taylor Patterson, Daniel Belquer



## POSTERS – Session 2

Thursday, June 6, 2019



- LBP.74 **Association between health literacy and health-related quality of life in patients with Parkinson's disease who participate in an ongoing group exercise program**  
**Ken Irisawa**, Tamami Aida, Junya Ogawa
- LBP.75 **A cross-sectional assessment of function and disability in patients with Parkinson's disease and Parkinson's disease dementia using WHO Disability Assessment Schedule 2.0**  
**Jiahung Chen**, Chientai Hung
- LBP.76 **Assessment of psychosis in patients with Parkinson's disease**  
Syed Sammar Abbas Zaidi, **Arooj Fatima**
- LBP.77 **Cost-effectiveness of a Parkinson's nurse specialist position in rural and regional Australia: A pilot retrospective analysis**  
**Vincent Carroll**, Marguerite Bramble, Alfred Wong, Deborah Schwebel, Rachel Rossiter
- LBP.78 **Health services for Parkinson patients in five hospitals in South Sumatera, Indonesia**  
**Selly Marisdina**, Oktavianus Tambun, Rizki Amelia, **Marissa Sylvia Regina**, Dewi Susan, Wilasari Novatina
- LBP.79 **Inside the mind of a working mum with Parkinson's Disease!**  
**Genna Douglas**
- LBP.80 **Characteristics and difficulties patients with Parkinson's disease have with going out**  
**Yumi Iwasa**
- LBP.81 **Development of a structured psychosocial intervention programme for patients with Parkinson's disease and their families**  
**Priya Thomas**, Ravi Yadav
- LBP.82 **Apple: the first website about Parkinson's disease for the patients in Japan**  
**Toshiko Atoda**
- LBP.83 **YOPD: A rare opportunity (to rebrand for the better)**  
**Gaynor Edwards**
- LBP.84 **The economic burden of Parkinson's disease (PD) in the United States**  
**Brian Fiske**, Carlie Tanner, Roger Albin, Nabila Dahodwala, Earl Dorsey, Wenya Yang, Laura Schmiel, Inna Cintina, Catherine Kopil, James Beck, Jamie Hamilton
- LBP.85 **Wearable device use increases the Quality of Life in people with Parkinson's disease**  
**Nuala Burke**, Lise Pape
- LBP.86 **Parky Life**  
**Matt Eagles**
- LBP.87 **How to maintain a good voice for people with PD: A fun vocal exercise**  
**Merrill Tanner**
- LBP.88 **Living with Parkinson's disease in Peru**  
**Christine Jeyachandran**
- LBP.89 **Impairment of static balance in patients with Parkinson's disease using wearable device**  
**Ho-Won Lee**, Pan-Woo Ko, Kyunghun Kang, Yong-Hyun Lim
- LBP.90 **Alpha-synuclein-induced synaptic changes in Parkinson's disease**  
Emma Persson, Leire Almandoz-Gil, Fadi Rofo, Mirjam Gooedkoop, Sara Ekmark-Lewén, Martin Ingelsson, **Joakim Bergström**
- LBP.91 **Development of gut and brain synucleinopathy in a mouse model of inflammatory bowel disease**  
Stefan Grathwohl, **Emmanuel Quansah**, Nazia Maroof, Liz Spycher, Jennifer A. Steiner, Annika Herrmann, Fethallah Benmansour, Gonzalo Christian Duran Pacheco, Julianne Siebourg-Polster, Krisztina Oroszlan-Szovik, Helga Remy, Monique Farny, Maria Cristina De Vera Mudry, Thomas Emrich, Zachary Madaj, Martha L. Escobar Galvis, Christoph Mueller, Patrik Brundin, Markus Britschgi
- LBP.92 **Characterization of arm swing asymmetry in Parkinson's disease patients using portable accelerometers**  
Domiciano Rincón, **Jaime Valderrama**, Yor Castaño, Linda Montilla, Beatriz Muñoz, Andrés Navarro, Jorge Orozco

## POSTER TOURS

Wednesday, June 5, 2019

**5:15 PM – 6:30 PM**

Presenters of featured posters will be present during poster tours to explain their work.  
Tour sign up is required (see sheets in back of New Hall, near the poster board row P01.01-P02.06).

**Poster Tour 1: Protein misfolding and handling**

Host: Glenda Halliday (Australia)

- P03.01 **Patient-derived  $\alpha$ -synuclein assemblies/strains display distinct functional characteristics in cells and in vivo**
- P03.03 **Bidirectional gut-to-brain and brain-to-gut propagation of  $\alpha$ -synuclein pathology in non-human primates**
- P03.04 **Machine learning reveals different pathological signatures induced by distinct patient-derived – synuclein pathogenic structures in monkeys**
- P03.05 **The autophagic secretion of  $\alpha$ -synuclein is dependent on galectin 3**
- P03.09 **Extracellular  $\alpha$ -synuclein enters dopaminergic neurons by modulating flotillin-1-assisted dopamine transporter endocytosis**
- P03.10 **Effects of the intracellular milieu on alpha synuclein fibril formation: A study by Kyoto University, Japan**
- P03.17 **Suppression of amyloid fibril formation of  $\alpha$ -synuclein by the human molecular chaperone Hsp60**

**Poster Tour 2: Animal and cellular models of PD**

Host: Laurent Roybon (Sweden)

- P06.01 **Role of indirect pathway D2 receptors in L-DOPA-induced dyskinesia**
- P06.02 **Converging electrophysiological functions and pathological calcium phenotype over time results in mitochondrial stress: Describing a pathophysiological timeline and neuronal vulnerability in PD**
- P06.05 **Parkinson's disease-linked D620N VPS35 knockin mice manifest tau neuropathology and dopaminergic neurodegeneration**
- P06.07 **DNAJC13 in Parkinson's disease; characterization of the p.N855S knock-in mouse model**
- P06.19 **An iPSC derived model of early onset sporadic Parkinson's disease shows disease relevant phenotypes that are reversed by specific phorbol esters**
- P06.31 **A novel target for neuroprotection: The small GTPase Rin inhibits LRRK2 to promote autophagy and reduce  $\alpha$ -synuclein pathology**
- LBP.17 **CLR01 protects dopaminergic neurons in vitro and in vivo in mouse and human models**

**Poster Tour 3: Alternative and complementary therapies**

Host: Tom Montine (USA)

- P30.06 **Art therapy may improve signs and symptoms of Parkinson's disease: Preliminary findings from the "ExplorArtPD Study"**
- P30.10 **Group singing improves quality of life in people with Parkinson's: An international Sing to Beat Parkinson's project**
- P30.11 **Effects of dance on cognitive functions, psychological symptoms and health-related quality of life in Parkinson's disease**
- P30.12 **Egaoshi® ("Smiling") yoga: Invented by Kyoko Kimura, the first Egaoshi® in Japan, an all-in-one exercise introducing a combination of smiling, food, breathing, music, movement and beauty that tremendously improves the symptoms of Parkinson's disease**
- P30.15 **A study on the effects of a group dance and creative movement program using Indian dance techniques on symptoms of Parkinson's disease**
- P30.21 **Taiko drumming for individuals with Parkinson's disease: Performing artists partner with OT to promote community wellness**
- LBP.70 **Effects of yoga on oxidative stress, motor function, and non-motor symptoms in Parkinson's disease: A pilot randomized controlled trial**

**Poster Tour 4: Non-motor manifestations and PD**

Host: David Breen (UK)

- P12.01 **Visuomotor training to music with learning choreography changes sensorimotor networks and weekly dance slows down disease progression as assessed by UPDRS and MMSE over 4-years P13.03 Feasibility of peer coaching to increase physical activity in people with Parkinson disease**
- P12.11 **Communication about of OFF periods in Parkinson's disease: A survey of physicians, PwP and care partners**
- P12.12 **Experience and impact of OFF periods in Parkinson's disease: A survey of physicians, PwP and care partners**
- P12.15 **Risk factors for the development of cognitive impairment in Parkinson's disease**
- P12.16 **A wireless brain-spine interface alleviating gait deficits in a non-human primate model of Parkinson's disease**
- P17.02 **Automated immunohistochemical detection of skin depositions of pathological  $\alpha$ -synuclein in idiopathic rem sleep behavior disorder and parkinsonism**
- P20.04 **A pooled analysis for 8 randomized controlled trials of istradefylline, an adenosine A2A receptor antagonist: Efficacy as adjunct to levodopa in Parkinson's disease (PD)**
- P20.05 **Efficacy and safety of apomorphine sublingual film for the treatment of "OFF" episodes in patients with Parkinson's disease: A phase 3, double-blind, placebo-controlled trial**

## POSTER TOURS

Wednesday, June 5, 2019

DAY  
1**Poster Tour 5: Rehabilitation sciences***Host: Isabelle Arnulf (France)*

- P13.06 **Tracking freezing of gait in Parkinson's disease: A model identification objective method for predicting and preventing FoG episodes in PD**
- P13.08 **A cross-sectional natural history of Parkinson's disease as reported by >10,000 patients**
- P22.01 **A randomized clinical trial on the evaluation of the effect of vestibular exercises on dizziness and postural control in Parkinson patients**
- P22.08 **Satisfaction and usefulness of a bootcamp educational and practical program for individuals with Parkinson's disease**
- P22.42 **Parkinson's Foundation Physical Therapy Faculty Program evaluation**
- P22.44 **Global implementation of efficacious voice treatment for Parkinson's disease: LSVT LOUD Germany, France and Japan**
- LBP.54 **The effect of speech rate on lip kinematics in Parkinson's disease**
- LBP.55 **Effects of computerized cognitive training, with and without concurrent exercise, on executive functions in Parkinson's disease**

**Poster Tour 6: Clinical trial design and patient involvement***Host: Simon Stott (UK)*

- P23.01 **Intrinsic auricular muscle zone stimulation improves walking parameters faster than the medications in motion capture analysis of Parkinson's disease patients**
- P23.02 **Multimodal balance training with rhythmical cues in Parkinson's disease: A randomized clinical trial**
- P23.14 **Use of pimavanserin in combination with selective serotonin reuptake inhibitors (SSRIs)**
- P23.24 **Levodopa carbidopa prodrug (ABBV-951) 24 hour continuous subcutaneous infusion shows similar pharmacokinetics in Caucasian and Japanese healthy volunteers**
- LBP.61 **The Australian Parkinson's Mission: Integrating genomics, biomarkers and patient cell phenotyping into disease modifying clinical trials**
- LBP.63 **BouNDless: An active-controlled randomized, double-blind double-dummy study of continuous ND0612 infusion in patients with fluctuating Parkinson's disease**
- LBP.64 **Directional versus omnidirectional Deep Brain Stimulation for Parkinson's disease: 12-month results of a multi-center, prospective, blinded, crossover study**

**Poster Tour 7: Caregiving, palliative care, self-management, and PD***Host: Colleen Canning (Australia)*

- P28.03 **Parkinson's disease care partner psychological health and well-being: A proposed assessment and treatment paradigm**
- P28.06 **Alexander technique group classes are a feasible and promising intervention for care partners of people living with Parkinson's disease**
- P34.02 **Team-based outpatient palliative care improves patient and care partner-centered outcomes in Parkinson's disease**
- P37.03 **Impact of a self-efficacy enhancing program for recently diagnosed persons with Parkinson's disease and their care partners**
- P38.01 **Direct client care for individuals diagnosed with Parkinson's disease and their support systems**
- P41.25 **Using physical exercise to improve quality of life, postural balance and physical function in general. A study by University of Kent, England**
- LBP.76 **Assessment of psychosis in patients with Parkinson's disease**

**Poster Tour 8: Health accessibility for all populations***Host: Tanya Simuni (USA)*

- P35.01 **"No one has ever mentioned such word": Knowing, or not knowing about Parkinson's disease in Kenya, sub-Saharan Africa**
- P35.02 **Implementing a change of approach: From mono-to interdisciplinary follow-up of patients with PD**
- P35.04 **Rural & regional Australia: The case for specialist Parkinson's nurse services**
- P35.05 **A closer look at the unmet needs, research and care priorities for women with Parkinson's**
- P35.07 **Use of a hybrid telehealth visiting nurse clinic to support the use of device assisted therapies for Parkinson's disease in a large rural and remote North Queensland area. A feasibility and a patient perception observational study**
- LBP.77 **Cost-effectiveness of a Parkinson's nurse specialist position in rural and regional Australia: A pilot retrospective analysis**

## POSTER TOURS

Wednesday, June 5, 2019



### Poster Tour 9: Etiology, functional imaging, optogenetics, and PD

Host: Angelo Quartarone (Italy)

- P01.12 **Large multi-center study reveals robust and replicable evidence for dysbiosis of gut microbiome in PD**
- P10.01 **Hitting the brakes: Freezing of gait in Parkinson's disease derives from pathological activity in the subthalamic nucleus**
- P10.02 **The role of LRRK2 at cortico-and thalamo-striatal synapses in the G2019S knock-in mouse model**
- P10.03 **Cortical response to open and closed-loop tactile cueing during walking and turning in Parkinson's**
- P11.03 **Olfactory bulb atrophy in the earliest clinical stage of Parkinson's disease**

### Poster Tour 10: Animal and cellular models, dopamine receptors, and pharmacology

Host: Ashley Harms (USA)

- P06.04 **C-terminal domain of LRRK2 with the G2019S mutation can enhance  $\alpha$ -synuclein toxicity in dopaminergic neurons in vivo**
- P06.06 **Targeting iron for the development of treatments for multiple system atrophy**
- P06.30 **Age-dependent intracellular neuromelanin accumulation sets the threshold for Parkinson's disease pathology**
- P06.32 **The biological compatibility of the circadian system for therapeutic intervention in Parkinson's disease: A study by The Bronowski Institute, Australia**
- P08.01 **Retromer-mediated trafficking of the dopamine transporter in PD**
- P09.01 **Long-term suppression of levodopa-induced dyskinesia by sub-anesthetic ketamine is mediated by BDNF and changes in striatal dendritic spine morphology**
- P09.03 **Leucine-Rich Repeat Kinase 2 regulates Parkinson's disease levodopa-induced dyskinesia**
- LBP.27 **Dopaminergic denervation in PD is higher in the striatal region corresponding to the upper limb**

### Poster Tour 11: Protein misfolding, handling, and transmisson

Host: Nicolas Dzamco (Australia)

- P03.06 **Inhibition of  $\alpha$ -synuclein aggregation and prion-like propagation as intervention strategies to slow the progression of Parkinson's disease**
- P03.08 **Involvement of the CD163 receptor in the  $\alpha$ -synuclein induced neurodegeneration in Parkinson's disease**
- P03.12 **Misfolded  $\alpha$ -synuclein hampers oligodendroglial maturation in multiple system atrophy**
- P03.14 **Deciphering the role of posttranslational modifications on  $\alpha$ -synuclein aggregation and toxicity**
- P03.15 **The role of RNA in synapse physiology and neurodegeneration in PD**
- P03.16 **On the mechanism of inhibition of  $\alpha$ -synuclein aggregation by the DJ-1 protein**
- LBP.08 **The Cryo-EM structure of amyloid fibril formed by full-length  $\alpha$ -synuclein**
- LBP.09 **Interplay between  $\alpha$ -synuclein and lipids in Parkinson's Disease**

### Poster Tour 20: Public education and awareness programs

Host: Malu Tansey (USA) – (Moved from Thursday, June 7)

- P39.01 **Introducing the clinical trial companion, a research engagement tool**
- P39.10 **Providing authentic learning experiences about Parkinson's disease: Bringing humanity into the classroom**
- P39.12 **The Edmond J. Safra Visiting Nurse Faculty Program at the Parkinson's Foundation**
- P41.06 **Innovative model of care for persons with Parkinson's disease in rural India**
- P41.15 **An opportunity for healthcare professionals to guide and untangle discussions about delusions and hallucinations**
- P42.01 **The Fox Insight Study: An empowering opportunity to fuel Parkinson's research and help advance scientific breakthroughs from the comfort of home**
- P43.05 **Implementing the nurse navigator model within an interdisciplinary team at the McGill University Health Center: A patient and caregiver reported outcome survey**

## POSTER TOURS

Thursday, June 6, 2019

DAY  
2**5:15 PM – 6:30 PM**

Presenters of featured posters will be present during poster tours to explain their work.  
Tour sign up is required (see sheets in back of New Hall, near the poster board row P01.01-P02.06).

**Poster Tour 12: Animal and cellular models of PD II**

Host: Susanne Schneider (Germany)

- P06.08 **Of mice and men, investigating the role of RAB39B in Parkinson's disease**
- P06.10 **Auxilin protects against  $\alpha$ -synuclein aggregation, cell death and impairment of endocytosis**
- P06.15 **Parkinson's disease-on-a-chip: Reconstructing the nigrostriatal pathway in vitro**
- P06.24 **Temporal genetic profiling of early synucleinopathy in nigrostriatal dopamine neurons**
- P06.25  **$\alpha$ -synuclein propagation via olfactory pathway in non-human primate model**
- P06.27 **The rat  $\alpha$ -synuclein preformed fibril model: Focus on longitudinal PET imaging and behavioral characterization**
- LBP.25 **Synaptojanin 1 (SYNJ1) haploinsufficiency causes impaired autophagy and age-dependent decreased dopamine release in the dorsal striatal slices**

**Poster Tour 13: Fitness, wellness, and nutrition**

Host: Karin Overbeek (The Netherlands)

- P21.02 **Patient engagement in the development of OUR DBS: A global patient registry addressing outcomes and unanswered questions for DBS**
- P29.02 **The success of disease specific exercise approach in persons with Parkinson's disease: An observational study**
- P29.03 **Impact of Rock Steady Boxing in patients with Parkinson's disease**
- P29.08 **On the reasons for participation of exercise continuation program – PD Cafe – for Parkinson's disease**
- P29.09 **Nutritional status in patients with Parkinson's disease in a tertiary teaching Hospital in Northeastern México**
- P29.16 **Motor performance and quality of life in a community exercise program for Parkinson's disease**

**Poster Tour 14: Rehabilitation sciences II**

Host: Margaret Mak (Hong Kong)

- P22.11 **The effect of predominately home-based physiotherapy on mobility, balance and quality of life in people with Parkinson's disease: a systematic review**
- P22.19 **Design of the PERSPECTIVE study: PERSONalized SPEeCh Therapy for active conversation**
- P22.25 **Changes in fear of falling: A 3-year prospective study**
- P22.31 **Exercise and physical activity for people with progressive supranuclear palsy: A rare form of atypical Parkinsonism**
- P22.36 **Effect of virtual reality gaming and conventional rehabilitation on physical function and quality of life in patients with Parkinson's disease**
- P22.43 **Physical therapy practice patterns, barriers, and facilitators at Parkinson's disease expert centers in the United States: A mixed methods study**
- P22.54 **Relationship between speech, voice and swallowing disorders with non-motor symptoms in Parkinson's disease: A study conducted in a group of people with Parkinson in Venezuela**



## POSTER TOURS

Thursday, June 6, 2019



### Poster Tour 15: Rehabilitation sciences III

Host: Hirohide Takahashi (Japan)

- P22.09 **Boxing as an alternate treatment for sleep disorders in individuals with Parkinson's disease: A feasibility study**
- P22.28 **Inpatient multidisciplinary rehabilitation effects on the quality of life for Parkinson's disease: A quasi-randomized controlled trial**
- P22.29 **Physical activity and exercise choices in people with Parkinson's disease: Preferences and barriers**
- LBP.56 **'PDSAFE' - a multi-dimensional model of falls rehabilitation for people with Parkinson's. A mixed methods analysis of therapists' delivery and experience.**
- LBP.58 **Translational research platform for intelligent deep brain stimulation**
- LBP.60 **Effects of combined auditory cues and treadmill training on cortical excitability and gait performance in Parkinson's disease**

### Poster Tour 16: Biomarkers and PD

Host: Lucilla Parnetti (Italy)

- P19.01 **Dopamine buffering capacity measured by pHMRI as a novel biomarker of disease progression in PD**
- P19.04 **Lipid analysis of CSF from Parkinson's disease patients with and without a LRRK2 mutation**
- P19.05 **Evaluation of fungal markers in Parkinson's disease**
- P19.06 **Prospective investigation of metabolomics and Parkinson's disease**
- P19.07 **Parkinson's patients possess abnormal blood monocytes and changes in soluble biomarkers**
- P19.08 **Network models of Parkinson's disease during Subthalamic-Nuclei Deep Brain Stimulation (STN-DBS): An investigation of neural activity in PD**
- P19.09 **Effectiveness of lead point using microelectrode recording for finding the subthalamic-nuclei deep brain stimulation in Parkinson's disease (geometry of electrode implantation)**
- LBP.50 **Canine aromatic detection of Parkinson's Disease: Can dogs identify PD early?**

### Poster Tour 17: Brain physiology, cell death, and neurophysiology

Host: Maria Grazia Spillantini (UK)

- P02.09 **Identification of novel DJ-1 protein targeting small molecule for the potential treatment of Parkinson's disease**
- P07.04 **Reduced Sonic hedgehog signaling originating from dopamine neurons is necessary and sufficient for levo-dopamine induced dyskinesia formation and expression and causes aberrant learning**
- P07.06 **Genetic barcoding to track cell fate specification from dopamine-patterned human ES cells**
- LBP.07 **Analysis of Parkinson's disease at a single neuron level**
- LBP.11 **Dissecting the effect of Parkinson's disease-related Miro1 mutations in mitochondria-associated membranes and mitophagy**
- LBP.32 **Effective connectivity changes during processing of predictive information in Parkinson's disease**

### Poster Tour 18: Living well with PD

Host: Lucie Lachance (Canada)

- P41.04 **Calling All Artists: A program for artists with Parkinson's disease**
- P41.23 **PD Link Northwest: A peer-to-peer support network for people with Parkinson's disease and care partners**
- P41.27 **Creating a virtuous cycle of PwP support**
- P43.02 **PRISM: An ongoing pan-European exploratory, cross-sectional, web-based survey of people living with PD and their care partners**
- LBP.87 **How to maintain a good voice for people with PD: A fun vocal exercise**

## POSTER TOURS

Thursday, June 6, 2019

DAY  
2**Poster Tour 19: PD progression, cognition, and sleep***Host: Anne Louise Lafontaine (Canada)*

- P15.01 **Action observation affects hand movement amplitude more than simple cues in Parkinson's**
- P15.05 **Cognitive associations with comprehensive gait and balance measures in Parkinson's disease**
- P16.01 **Circadian rhythm and sleep disorders in  $\alpha$ -synuclein-propagation model mouse**
- P16.04 **Tele-monitored tDCS (Tele-tDCS) for Parkinson's disease related fatigue**
- LBP.41 **Survival and development of dementia in the Parkinson's Incidence Cohorts Collaboration (PICC): An individual-patient-date meta-analysis of six incidence cohorts with 931 patients**
- LBP.42 **Structural connectivity and impulsivity after subthalamic deep brain stimulation for Parkinson's disease**
- LBP.46 **Identification of cerebrospinal fluid proteins associated with impaired sleep quality in Parkinson's disease**

**Poster Tour 21: E-health and technology***Host: Aletta Kraneveld (The Netherlands)*

- P25.03 **Technology serving elderly couples living with Parkinson's: Key steps and components of a web-based intervention**
- P25.09 **A Swedish self-tracking app for improving neurology visits for Parkinson's disease**
- P25.10 **Assessing tele-health outcomes in multiyear extensions of Parkinson's disease trials (AT-HOME PD): Initiation of a long-term observational study**
- P26.03 **Selective parafoveal inner retina thinning predicts visual outcomes in Lewy body diseases**
- P26.04 **Asymmetric dopaminergic depletion is related with cardiovascular non-motor symptom in drug-naïve patients with Parkinson's disease**
- LBP.85 **Wearable device use increases the Quality of Life in people with Parkinson's disease**

WPC HAIKU COMPETITION  
WINNERS

Present in all things  
Together we are mighty  
Love unshaken love

Madonna Brady (Australia)

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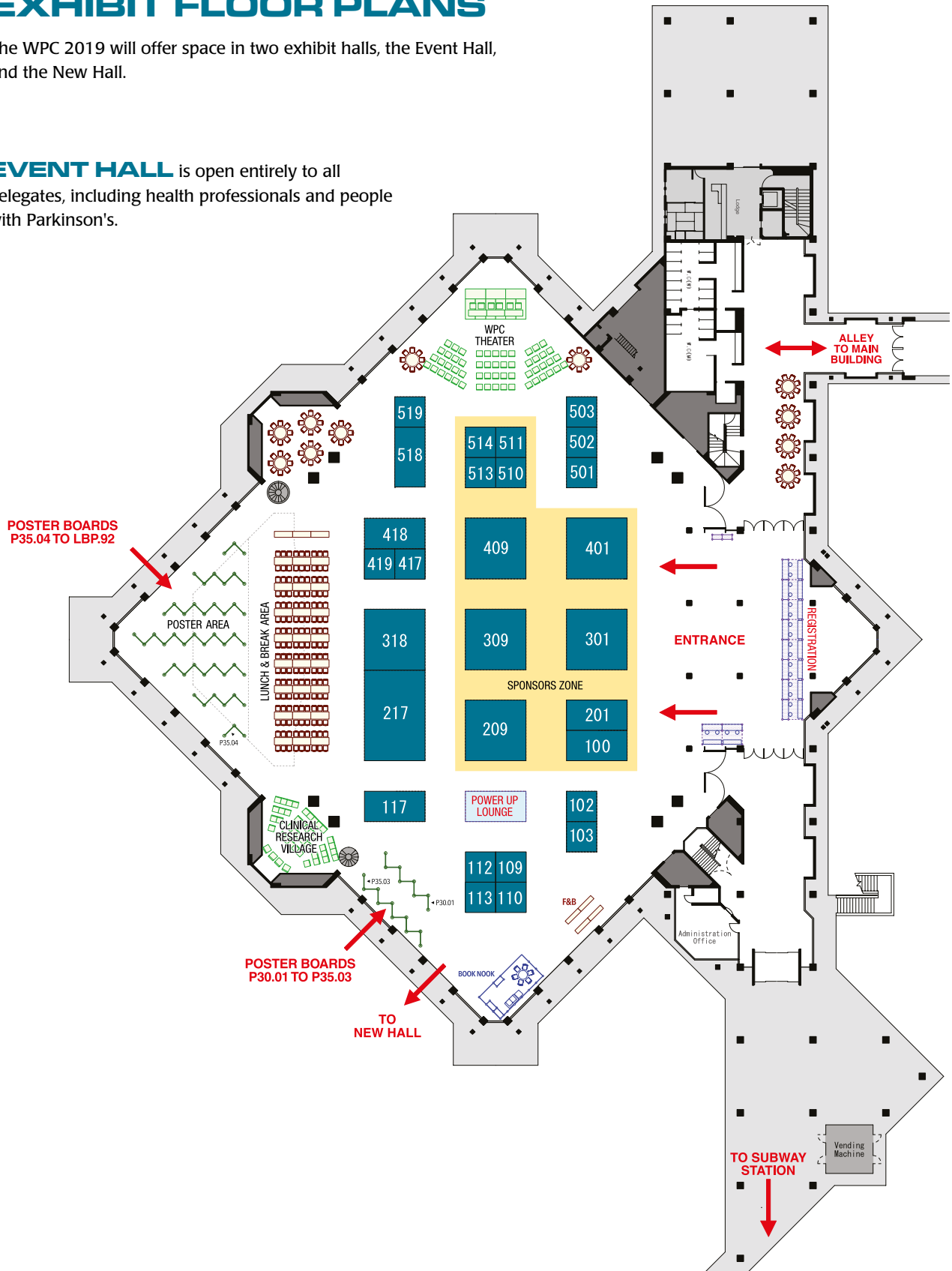
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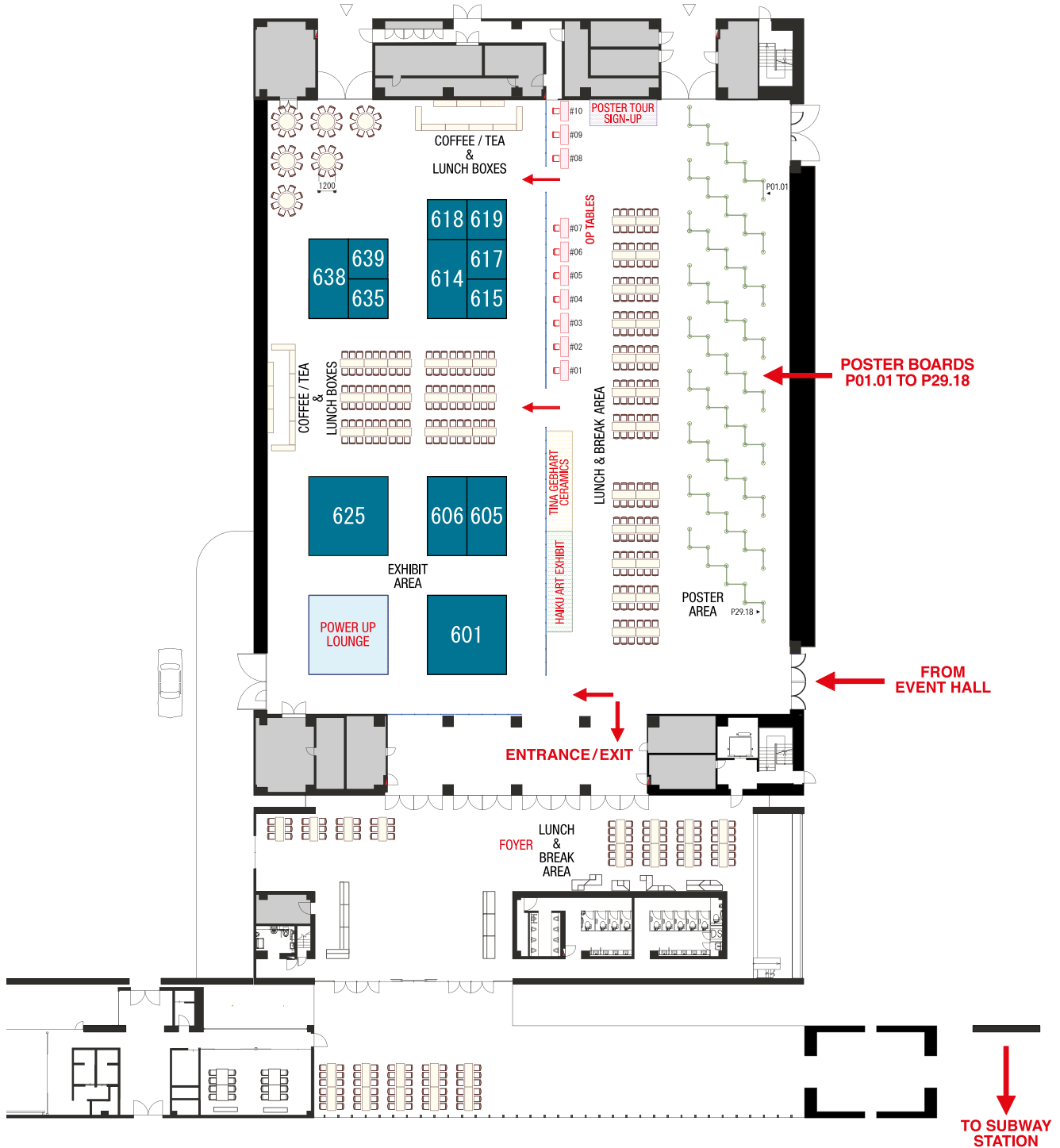
The WPC 2019 will offer space in two exhibit halls, the Event Hall, and the New Hall.

**EVENT HALL** is open entirely to all delegates, including health professionals and people with Parkinson's.





**NEW HALL** posters are open to all, but the exhibit area is designated solely for health professionals.



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[www.parkinson.org](http://www.parkinson.org)

The Parkinson's Foundation makes life better for people with Parkinson's disease by improving care and advancing research toward a cure. In everything we do, we build on the energy, experience and passion of our global Parkinson's community. For more information, visit [Parkinson.org](http://Parkinson.org) or call (800) 4PD-INFO (473-4636).



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[www.apdaparkinson.org](http://www.apdaparkinson.org)

The American Parkinson Disease Association (APDA) is the largest grassroots network dedicated to fighting Parkinson's disease (PD) and works tirelessly to assist the more than 1 million Americans with Parkinson's disease live life to the fullest in the face of this chronic, neurological disorder. APDA offers Strength in Optimism, Hope in Progress.

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## **IMPORTANT DATES**

**July 18, 2019:**  
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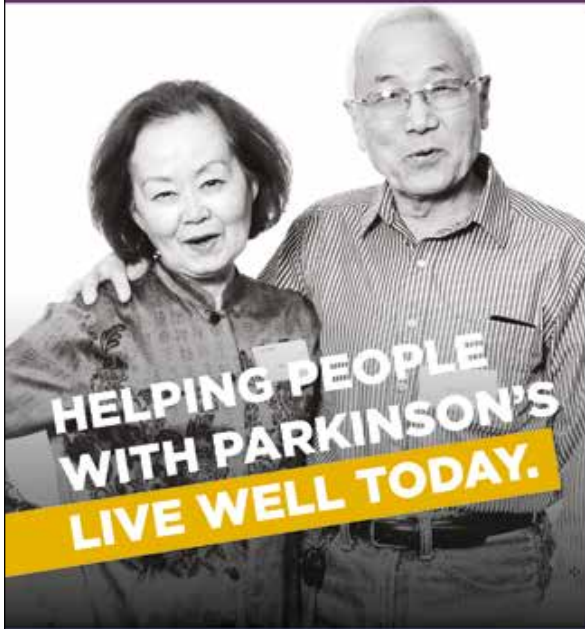
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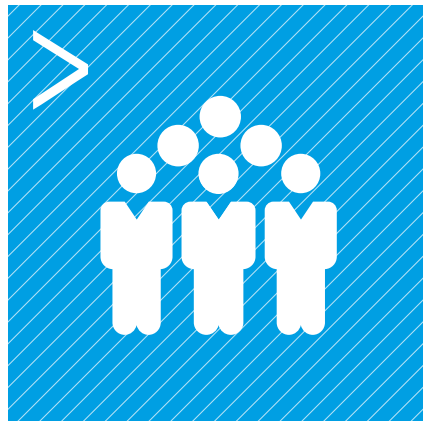
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## PARKINSON'S DISEASE GLOSSARY

*A guide to the scientific language of Parkinson's disease*

**Acetylcholine:** One of the chemical neurotransmitters in the brain and other areas of the central and peripheral nervous system. It is highly concentrated in the basal ganglia, where it influences movement. It is located in other regions of the brain as well, and plays a role in memory. Drugs that block acetylcholine receptors (so-called anticholinergics) are utilized in the treatment of PD.

**Acetylcholinesterase Inhibitors:** A drug that inhibits the enzyme that breaks down acetylcholine resulting in increased activity of the chemical neurotransmitter acetylcholine. Used to treat mild to moderate dementia in Parkinson's disease.

**Agonist:** A chemical or drug that can activate a neurotransmitter receptor. Dopamine agonists, such as pramipexole, ropinirole, bromocriptine and apomorphine, are used in the treatment of PD.

**Aggregate:** A whole formed by the combination of several elements. In Parkinson's disease, there is a clumping of many proteins inside neurons, including  $\alpha$ -synuclein. Lewy bodies are a kind of aggregate found in PD.

**Akinesia:** Literally, means loss of movement also described as a difficulty with initiating voluntary movements. It is commonly used interchangeably with bradykinesia, however bradykinesia means slow movement.

**Alpha-synuclein ( $\alpha$ -synuclein):** A protein present in nerve cells where it can be found in their cell body, their nucleus and their terminals. The accumulation and aggregation of this protein is a pathologic finding in PD. The first genetic mutation found in PD was discovered in the gene for  $\alpha$ -synuclein (SNCA), and was called PARK1.  $\alpha$ -synuclein also accumulates in multiple system atrophy (MSA) and in Lewy Body Disease.  $\alpha$ -synuclein appears to play a key role in the pathogenesis of PD.

**Alexander Technique:** This technique is a form of complementary therapy, pioneered at the turn of the century by FM Alexander. The principal aim is to help improve health by teaching people to stand and move more efficiently.

**Amantadine:** A medication used to treat Parkinson's disease as a single therapy or with L-DOPA and other medications. It has both an anti-Parkinson's effect and an anti-dyskinesia effect.

**Aminoguanidine:** Also known as pimagedine. It acts to reduce levels of advanced glycation end products. It has been investigated as a potential treatment for diabetic nephropathy and kidney diseases and as a disease modifying therapy in PD.

**Amygdala:** An almond-shaped nucleus located deep in the brain's medial temporal lobe in animals. It is involved in fear and anxiety responses, and in the formation of memories involving emotion.

**Anticholinergics:** A type of medication that interferes with the action of acetylcholine. It is sometimes used in PD to restore the balance between dopamine and acetylcholine in the striatum. They are not recommended for use in the elderly because they can cause confusion. Examples include:

- benztropine mesylate
- biperiden hydrochloride
- orphenadrine citrate
- procyclidine hydrochloride
- trihexyphenidyl hydrochloride

**Anhedonia:** Decreased ability or inability to experience pleasure.

**Anosmia:** Total loss of the sense of smell. See also Hyposmia.

**Antagonists:** Has the opposite effect from an agonist. Antagonists block neurotransmitter receptors. Dopamine antagonists can worsen Parkinson's symptoms and can cause drug-induced Parkinsonism. Virtually all antipsychotic drugs have dopamine antagonist action.

**Apathy:** Lack of interest, enthusiasm, or concern.

**Apomorphine:** A type of dopamine agonist, which is highly powerful and effective but also causes unpleasant effects, such as nausea. A pump delivering apomorphine can be used in more advanced stages of the disease.

**Astrocytes:** They are a major support cells in the brain. Among other things, they secrete growth factors that help neurons grow and communicate. They can also pump glutamate, a neurotransmitter that, in excess, can cause neurotoxicity.

**Ataxia:** Inability to coordinate voluntary muscle movements; unsteady movements and staggering gait.

**ATP13A2 (PARK 9):** A gene that codes for a form of the ATPase enzyme. When mutated, this gene may cause a form of early onset Parkinson's.

**Autonomic Nervous System (ANS):** Part of the peripheral nervous system, consisting of sympathetic and parasympathetic nerves that control involuntary actions, in particular the heartbeat, smooth muscle (such as bladder and blood vessels), the digestive system, and glands.

**Autonomic Dysfunction:** Any abnormal functioning of the autonomic nervous system resulting in problems with bodily functions such as bowel and bladder control, blood pressure control, sweating, drooling, and so forth.

**Autophagy:** The segregation and disposal of damaged organelles within a cell. This is a normal physiological process in the body. It maintains normal functioning by protein degradation and turnover of the destroyed cell organelles for new cell formation. During cellular stress the process of Autophagy is increased. Cellular stress is caused when there is deprivation

## PARKINSON'S DISEASE GLOSSARY

of nutrients and/or growth factors. Thus autophagy may provide an alternate source of intracellular building blocks and substrates that may generate energy to enable continuous cell survival. Dysfunctional autophagy can lead to the building of damaged organelles and misfolded proteins in the cell.

**Autosomes/autosomal:** Refers to all the chromosomes excluding the sex-related X and Y chromosomes.

**Autosomal recessive:** A mode of inheritance of genetic traits located on the autosomes that only manifests when two copies of a mutated gene (two alleles) are present. In order for a particular trait to be expressed, both parents must have the particular mutated allele or gene, and both must pass it to the offspring who then manifests the genetic disease. Some genetic forms of PD are autosomal recessive, such as from the genes known as parkin, PINK1 and DJ1. In some cases, the gene of interest is missing. In others, there are abnormalities and if two different abnormalities of the same gene are inherited, that can result in recessive inheritance.

**Axon:** A nerve fiber that carries electrical impulses from the nerve cell body to other neurons. Thick axons tend to be through the brain and spinal cord; they are surrounded by a protective fatty sheath called myelin (in multiple sclerosis the myelin is damaged). Thin axons tend to be unmyelinated. In PD,  $\alpha$ -synuclein is deposited in long, thin axons, and these are called Lewy neurites.

**Basal Ganglia:** Clusters of neurons that include the caudate nucleus, putamen, globus pallidus and substantia nigra which are located deep in the brain and play an important role in movement. Cell death in the substantia nigra contributes to Parkinsonian signs. The subthalamic nucleus is now also often considered part of the basal ganglia because it connects with other regions of the basal ganglia.

**Big data:** A term for data sets that are so large or complex that traditional data processing applications are inadequate.

**Biomarker:** An early indicator that a person may have a disease, such as Parkinson's. A biomarker, if present, could indicate that the person has a disease before symptoms of that disease appear. There is a search for biomarkers for PD. Biomarkers could be a chemical, clinical, or imaging finding.

**Blood brain barrier:** The separating membrane between the blood and the brain; a tight physical barrier that normally keeps immune cells, and some chemicals and drugs out of the brain.

**Braak Staging:** A method to classify the degree of pathology in Parkinson's disease on brain autopsy, based on the idea that more brain regions contain  $\alpha$ -synuclein pathology as Parkinson's disease progresses over time. There is also a (different) Braak staging for Alzheimer's disease.

**Bradykinesia:** Literally, means slowness of movement. It is commonly (but erroneously) used synonymously with akinesia and hypokinesia. Bradykinesia is a clinical hallmark of Parkinsonism.

**Bradyphrenia:** Slowness of thought common to many brain disorders.

**Brain stem:** The part of the brain between the cerebral hemispheres and the spinal cord. The three parts of the brain stem are the medulla oblongata, pons, and midbrain. The brain stem is a vital structure that is a passageway between the brain and spinal cord, and it contains neurons involved in sleep and wakefulness, as well as the main centers that command vital functions such as respiration and heart function. The substantia nigra, which is damaged in Parkinson's, is located in the midbrain of the brain stem.

**C-Abl:** A gene implicated in the processes of cell differentiation, cell division, cell adhesion, and stress response.

**Calcium:** An essential mineral. Calcium is important for neurological "signaling" and is involved in many chemical reactions within neurons and in mitochondria function. Calcium overload in substantia nigra has been postulated as one mechanism that could contribute to death of these neurons.

**Carbidopa:** A drug given with levodopa. Carbidopa blocks the enzyme dopa decarboxylase, thereby preventing levodopa from being metabolized to dopamine. Because carbidopa does not penetrate the blood brain barrier, it only blocks levodopa metabolism in the peripheral tissues and not in the brain, thereby reducing side effects, but increasing the effectiveness of levodopa.

**Carer/ Care Partner:** A name used to describe anyone who provides help or support of any kind to a relative or friend.

**Caudate nucleus:** A nucleus located in the basal ganglia important in learning and memory. It is one component of the basal ganglia called the striatum. The other component is the putamen.

**Cerebellum:** Part of the hindbrain; controls smooth movements. When damaged, it results in ataxia.

**Cerebrospinal fluid (CSF):** A watery fluid generated within the brain's ventricles. CSF circulates to bathe the brain and spinal cord to cushion these from physical impact. Small amounts can be harvested in humans by lumbar puncture to measure chemicals coming from the brain.

**Chemokines:** Signaling proteins that are part of the Cytokines family. They are named for their ability to induce movement in an organism in response to chemical stimulus.

## PARKINSON'S DISEASE GLOSSARY

**Chronic:** (opposite: acute) Chronic diseases are of long duration. Chronic diseases are typically of subtle onset and slow worsening over time. The term does not imply anything about the severity of a disease.

**Clinical Trials:** Refers to those research studies that involve human volunteers and are conducted to add to our understanding of certain diseases or to determine whether a drug may be effective in treating a disease.

**Central Nervous System (CNS):** consists of the brain, brain stem and spinal cord.

**Coenzyme Q10:** An antioxidant studied in Parkinson's disease to slow down disease progression, but with little proven benefit so far.

**Cognition:** Mental processes including attention, remembering, producing and understanding language, solving problems and making decisions.

**Cognitive:** Relating to mental activity such as thinking, reasoning, making judgments and remembering.

**Cogwheel:** Stiffness of the muscles characterized by jerky movements when arms and legs are moved against a resistance.

**Complementary therapies:** These are non-medical treatments, which many people use in addition to conventional medical treatments, such as the Alexander technique, acupuncture, aromatherapy, music and art therapies, reflexology, and osteopathy.

**Computed tomography (CT):** A medical imaging method employing computer processing to produce images seen as slices through the tissue. This presentation of images is known as tomography.

**COMT Inhibitor:** A drug used to treat Parkinson's symptoms. It works by inhibiting COMT thereby preventing the breakdown of dopamine resulting in increased levels of this neurotransmitter.

**COMT (catechol-O-methyltransferase):** One of the enzymes that break down dopamine, adrenaline (also called epinephrine) and noradrenaline (also called norepinephrine).

**Continuous Dopaminergic Stimulation (CDS):** A therapeutic concept for the management of Parkinson's disease that proposes that continuous (as opposed to discontinuous or pulsatile) stimulation of striatal dopamine receptors will delay or prevent the onset of levodopa-related motor complications.

**Controlled Release Drugs:** These are special preparations of drugs that release the drug into the body slowly and steadily

rather than all at once. They keep the amount of the drug in the bloodstream at a steadier level than the 'ordinary' version of the same drug.

**Cytokines:** A family of small proteins that are secreted by specific cells of the immune system and carry signals locally between cells, and thus have an effect on other cells. Unlike growth factors, they have no specific role in cell proliferation and are primarily linked to blood and immune cells. Some cytokines are "pro-inflammatory, which is beneficial against infections ut may also cause death of cells in the body whereas others are "anti inflammatory" and may be beneficial in stopping inflammation. Higher levels of pro-inflammatory cytokines are found in Parkinson's brains.

**DaTscan:** a type of neuroimaging that can be used to differentiate between Parkinson's disease and conditions that look similar, by evaluating the brain's dopamine system.

**Deep Brain Stimulation (DBS):** A surgical treatment that involves the implantation of a medical device (electrical stimulator) that acts as a brain pacemaker sending electrical impulses to the specific area in which the electrode was inserted. In Parkinson's patients, the device is typically inserted in either the subthalamic nucleus or the globus pallidus, less often in the thalamus or pedunculopontine nucleus, depending upon the specific problem.

**Dementia:** A decline in cognitive function due to damage or disease in the brain beyond what might be expected from normal aging. Areas particularly affected include memory, attention, judgment, language, planning and problem solving.

- **Alzheimer's disease dementia:** The most common form of dementia, typically presents with difficulty in remembering names and events. May also initially include apathy and depression, and later impaired judgment, disorientation, confusion, behavior changes and difficulty speaking, swallowing and walking. Associated with abnormal deposits of the protein fragment beta-amyloid (plaques) and twisted strands of the protein tau (tangles) as well as brain nerve cell damage and death.

- **Dementia with Lewy bodies (DLB):** Similar, but not identical, symptoms as in Alzheimer's dementia. DLB commonly has a greater occurrence of sleep disturbances, well-formed visual hallucinations, and muscle rigidity. Associated with aggregation of  $\alpha$ -synuclein in the cerebral cortex. Lewy bodies are also a pathologic hallmark in Parkinson's disease. The relationship of DLB and PD remains to be resolved.

- **Parkinson's dementia:** Presents similarly to Alzheimer's dementia or dementia with Lewy bodies, but is typically preceded by clinical Parkinson's disease. Associated with  $\alpha$ -synuclein aggregates that more likely begin in the brain stem, including the substantia nigra.

## PARKINSON'S DISEASE GLOSSARY

**Dendrites:** (from Greek meaning, "tree") Nerve fibers that project from the nerve cell body. Branches of dendrites are the receiving fibers of signals coming to the neuron from other neurons and convert these chemical signals into electrical ones to the nerve cell body.

**Depression:** Causes feelings of sadness and/or a loss of interest in activities once enjoyed. It can decrease one's ability to function in daily activities. Depression can be a clinical symptom of PD.

**Disease modification:** Treatments or interventions that affect the underlying pathophysiology of the disease and have a beneficial outcome on the course of a disease, for example Parkinson's.

**Disequilibrium:** Another word for unsteadiness or balance problems.

**DJ-1:** Mutations in this gene cause an autosomal recessive form of Parkinson's disease. The function of the DJ-1 protein appears to reduce oxidative stress.

**Dopa decarboxylase inhibitors:** Drugs (such as carbidopa) that inhibit the metabolism of levodopa to form dopamine. By inhibiting dopa decarboxylase only in the peripheral organs (not the Central Nervous System), levodopa concentration is increased and more can enter the brain. These drugs are particularly useful in Parkinson's when used with levodopa.

**Dopamine:** A small chemical molecule that is one of the brain's neurotransmitters. Among other brain regions, it is found in cells within the substantia nigra. These cells project to the striatum in the basal ganglia. Deficiency of dopamine in the striatum due to the death of cells in the substantia nigra causes symptoms of Parkinsonism.

**Dopamine agonist:** A compound that activates dopamine receptors, other than dopamine. Examples include, bromocriptine mesylate (Parlodel), pergolide (Permax), pramipexole (Mirapex), ropinirole hydrochloride (Requip), piribedil, cabergoline, apomorphine (Apokyn), rotigotine (Neupro patch) and lisuride. These act like dopamine, but are not actually dopamine. They can be used in both the early and late stages of Parkinson's disease. They are the second most powerful type of anti-Parkinson medication after levodopa. They can cause side effects such as sleepiness, sleep attacks, ankle swelling, hallucinations and impulse control problems, more commonly than levodopa does.

**Dopaminergic pathways:** Neural pathways in the brain which utilize dopamine as their neurotransmitter. There are four major groups: the nigrostriatal, mesocortical, mesolimbic and tuberoinfundibular pathways.

- **Nigrostriatal:** Connects the substantia nigra to the striatum. Involved heavily in Parkinson's.

- **Mesocortical:** Connects the ventral tegmental area (adjacent to the substantia nigra) to the cerebral cortex. Closely associated with the mesolimbic pathway. Can cause hallucinations and schizophrenia if not functioning properly.

- **Mesolimbic:** Connects ventral tegmental area to nucleus accumbens, amygdala & hippocampus and prefrontal cortex. Along with the mesocortical pathway, is involved in memory, motivation, emotional response, reward and addiction.

- **Tuberoinfundibular:** from hypothalamus to pituitary gland involved in hormonal regulation, maternal behavior (nurturing), pregnancy and sensory processes.

**Drug Repurposing:** Repurposing generally refers to studying drugs that are already approved to treat one disease or condition to see if they are safe and effective for treating other diseases.

**Duodopa:** Advanced Parkinson's therapy. It is a new means of delivering the current gold-standard via pump directly in the small intestines.

**Dysarthria:** Impaired speech function.

**Dyskinesia:** Abnormal involuntary movements; also sometimes called hyperkinesia.

**Dysphagia:** Difficulty in swallowing.

**Dystonia:** Characterized by persistent or intermittent contractions of opposing muscles causing abnormal movements or postures. It should not be confused with dyskinesia.

**Embryonic stem (ES) cells:** See stem cells.

**Encephalitis:** Inflammation of the brain. See neuroinflammation.

**Entacapone:** A Parkinson's drug that is used alongside levodopa and carbidopa. It inhibits the enzyme COMT, decreasing the breakdown of levodopa.

**Exosomes:** Small ball-like structures produced by the cells and which can be found in all sorts of body fluids such as blood, urine, and CSF and cultured medium of cell cultures. They are formed inside the cell and during this process they engulf bits of the cellular fluid and contents.

**Executive Dysfunction:** A deficit in executive functioning that may occur in Parkinson's dementia. Executive functioning allows the completion of tasks using higher level mental skills such as planning, organization, memory, flexible thinking, and self-regulation.

**Festination:** An involuntary quickening of the gait; the acceleration of gait noted in Parkinsonism and similar disorders, literally means "chasing the center of gravity".



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**Freezing of Gait (FOG):** The sudden brief inability to walk or to continue walking.

**Functional magnetic resonance imaging (fMRI):** An imaging technique designed specifically for the brain. It measures the rate at which oxygen is removed from the blood to the cells, therefore suggesting the activity of a particular area of the brain.

**GABA (gamma amino butyric acid):** The principal inhibitory neurotransmitter in human brain. GABA neurons are rich in the striatum, globus pallidus, substantia nigra and cerebellum.

**GBA (Glucocerebrosidase):** An enzyme found within the lysosome of cells. Mutations in the GBA gene are associated with Parkinson's disease.

**GDNF:** Glial Cell line derived nerve growth factor. See growth factors.

**Gene therapy:** The insertion of genes into an individual's cells and tissues to treat hereditary diseases where deleterious mutant alleles can be replaced with functional ones. The genes are usually placed within a non-pathogenic virus, which serves as the vector to penetrate the cells. Gene therapy can also be used to correct non-genetic deficiencies such as the loss of dopamine in Parkinson's, to modify the function of a group of cells (e.g. convert an excitatory structure to one that is inhibitory) or to provide a source of growth factors.

**Genotype:** The collection of genetic material in an organism that gives rise to its characteristics.

**Glia (Glial cells):** Non-neural cells, commonly called neuroglia or simply glia (Greek for "glue"), that maintain homeostasis, form myelin, and provide support and protection for the brain's neurons. Astrocytes are one kind of glial cells.

**Globus pallidus:** A major part of the basal ganglia involved in movement control. It is split into two main parts: the internal globus pallidus (GPI), and the external globus pallidus (GPe). Deep brain stimulation of the GPI causes an increase in motor function in Parkinson's patients. Often patients also show a reduction in dyskinesia, probably because they require less levodopa.

**Glucose:** A simple sugar that is an important energy source in living organisms and is a component of many carbohydrates.

**Glutamate:** An amino acid and the main excitatory neurotransmitter in the human brain. The major input to the striatum is from the cerebral cortex and uses glutamate as a neurotransmitter. Excess glutamate can occur if the neurotransmitter is not well regulated and may cause cell death.

**Glycation:** The bonding of a sugar molecule to a protein or lipid molecule without enzymatic regulation.

**Glycosylceramide:** A type of cerebroside. Cerebroside is an important component in muscle and nerve cell membranes.

**Growth factors:** Naturally occurring substances (usually proteins) that help maintain the health of neurons and encourage cell growth, proliferation and differentiation. Some growth factors are being looked at to try to promote the survival of the neural cells that are degenerating in Parkinson's.

- **Glial cell line derived nerve growth factor (GDNF):** Thought to promote the health of dopamine neurons.
- **Brain-derived nerve growth factor (BDNF):** Also supports dopamine neurons.
- **Fibroblast growth factor (FGF):** Studies have found a possible genetic link to Parkinson's disease on the FGF20 gene.
- **Vascular endothelial growth factor-B (VEGF-B):** May have neuroprotective effects in Parkinson's disease.

**Gut microbiome:** The complex community of microorganisms that live in the digestive tracts of humans and other animals.

**Heterogeneity:** Lacking uniformity in composition or character (as opposed to homogeneity, which is uniformity in composition or character).

**Hippocampus:** A complex neural structure (shaped like a sea horse) located in the temporal lobes of the brain; involved in memory storage, motivation and emotion as part of the limbic system.

**Hoehn and Yahr scale:** A commonly used system for describing how the symptoms of Parkinson's disease progress. The higher the stage, the more advanced the disease.

- **Stage 0:** No signs of disease.
- **Stage 1:** Unilateral symptoms only.
- **Stage 1.5:** Unilateral and axial (midline) involvement.
- **Stage 2:** Bilateral symptoms. No impairment of balance.
- **Stage 2.5:** Mild bilateral disease with recovery on pull test.
- **Stage 3:** Balance impairment. Mild to moderate disease. Physically independent.
- **Stage 4:** Severe disability, but still able to walk or stand unassisted.
- **Stage 5:** Needing a wheelchair or bedridden unless assisted.

**Hyperkinesia:** An abnormal increase in movement and/or muscle activity; sometimes used synonymously with dyskinesia.

**Hypokinesia:** Literally means reduced amplitude of movement. It is commonly used synonymously (but erroneously) with akinesia and bradykinesia.

**Hypothalamic pituitary adrenal axis (HPA):** The three primary components of the endocrine system. Made up of



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the hypothalamus, pituitary gland and the adrenal cortex, the HPA has a wide range of functions from stimulating the stress response to controlling digestion, the immune system, mood, sexuality and energy storage and consumption.

**Hypothalamus:** A brain region that links the limbic system to the pituitary gland and is a master area for the autonomic nervous system.

**Idiopathic:** Arising from an unknown cause.

**Idiopathic Parkinson's disease:** This term is used to describe the common type of Parkinson's disease to distinguish it from other forms of Parkinsonism (also termed "Sporadic PD").

**Impulse control disorder (ICD):** A set of psychiatric disorders characterized by an inability to control one's actions, in particular those that might bring harm to oneself or others. Common ICDs in patients receiving dopamine agonists are pathologic gambling, compulsive eating, compulsive shopping and hypersexuality.

**Interdisciplinary care:** Multiple healthcare professionals collaborating to provide care with a common perspective, often involving joint consultations.

**iPS Cells:** Stem cells that can be generated directly from adult cells. See stem cells.

**Learned voluntary movements:** Movements that we learn to do, like walking and talking.

**Leucine rich repeat kinase 2 (LRRK2):** A protein created by the LRRK2 gene which when mutated can lead to Parkinson's. Several different mutations in the LRRK2 gene have been found to cause Parkinson's disease, but there may also be variants within the general population that do not necessarily cause disease.

**Levodopa (L-DOPA):** A chemical that is the precursor to dopamine. It can pass through the blood-brain barrier (whereas dopamine cannot). Once it has entered the central nervous system, L-dopa is converted into dopamine by aromatic L-amino acid decarboxylase (DOPA decarboxylase/DDC). L-DOPA is also converted into dopamine within the peripheral nervous system, but this is usually blocked by employing peripherally-active dopa decarboxylase inhibitors to avoid unwanted effects.

**Lewy bodies:** A pathologic hallmark of Parkinson's disease and dementia with Lewy bodies. First described by Frederic Lewy, Lewy bodies are seen microscopically as inclusions in neurons in several brain regions, including the substantia nigra and locus ceruleus. One protein seen is  $\alpha$ -synuclein in an aggregated form. Aggregates of this protein in axons are called Lewy neurites.

**Magnetic resonance imaging (MRI):** A noninvasive medical imaging technique to visualize detailed internal structure and limited function of the body. MRI provides much greater contrast between the different soft tissues of the body than computed tomography (CT), making it especially useful in neurological (brain), musculoskeletal, cardiovascular and oncological (cancer-related) imaging.

**MAO (monoamine oxidase):** A family of enzymes with two subtypes: MAO-A and MAO-B. These catalyze the oxidation of amine molecules (replacing the amine group with an oxygen molecule.)

- **MAO A inhibitors:** Drugs that inhibit the MAO-A enzyme, which is responsible for the metabolism of dietary tyramine. MAO-A inhibitors can cause tyramine-induced hypertension, the so-called "cheese effect" because tyramine can be found in high concentrations in some soft cultured cheeses.
- **MAO B inhibitors:** These drugs (e.g. selegiline, rasagiline) inhibit the breakdown of dopamine via MAO-B enzyme and do not cause the "cheese effect" of hypertension.

**MPTP (N-methyl-4-phenyl-1,2,3,6-tetrahydropyridine):** A neurotoxin precursor of MPP+ that is taken up in dopamine nerve terminals. MPP+ damages the dopamine cells. MPTP is catalyzed to MPP+ by MAO-B. MPTP has been widely used to create an animal model of Parkinsonism by depleting substantia nigra dopamine neurons.

**Microbiome:** The collection of microbes (bacteria, viruses, fungi) and their genetic material that live outside an area of the human body. See gut microbiome.

**Microglia:** A type of glial cell; it provides the first immune defense mechanism in the brain and central nervous system.

**Micrographia:** The tendency to have very small handwriting due to difficulty with fine motor movements in Parkinson's disease.

**Mild Cognitive Impairment (MCI):** A decline in memory or intellectual functioning that is not as severe as that found in dementia.

**Mitochondria:** A spherical or elongated organelle in the cytoplasm of nearly all eukaryotic cells, containing genetic material and many enzymes important for cell metabolism, including those responsible for the conversion of food to usable energy. It consists of two membranes: an outer smooth membrane and an inner membrane arranged to form cristae.

**Mitophagy:** The selective degradation of mitochondria by autophagy. See Mitochondria and Autophagy.

**Motor skills:** The degree of control or coordination provided by brain control of the skeletal muscles.

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**Motor symptoms:** Symptoms that involve movement, coordination, physical tasks or mobility. These include, among others: resting tremor, bradykinesia, rigidity, postural instability, freezing, micrographia, mask-like expression, unwanted accelerations, stooped posture, dystonia, impaired motor dexterity and coordination, speech problems, difficulty swallowing, muscle cramping, and drooling of saliva. See non-motor symptoms.

**Movement Disorder Specialist (MDS):** A neurologist that has special interest in and extra training and experience with movement disorders such as Parkinson's disease.

**Multidisciplinary care:** Care given by multiple healthcare professionals each approaching the patient from their professional perspective, often involves separate, individual consultations.

**Multiple System Atrophy (MSA):** A less common degenerative neurological disorder that causes symptoms similar to Parkinson's disease but with more widespread damage to the central nervous system. Other systems involved besides the basal ganglia include the cerebellum and autonomic systems.

**Neuroinflammation:** The swelling of the tissue in the nervous system. It could be initiated in response to a number of things including infection, traumatic brain injury, toxic metabolites, or autoimmunity. Microglia are the immune cells activated in response to these cues.

**Neurology:** A branch of medicine dealing with the diagnosis and treatment of disorders of the nervous system.

**Neuromelanin:** The dark pigment made from oxidized metabolites of monoamine neurotransmitters including dopamine and norepinephrine, found in neurons enriched with these amines, namely the substantia nigra and locus ceruleus, respectively. Neuromelanin gives the substantia nigra (Latin for "black substance") its black appearance.

**Neuromodulator:** A chemical substance other than a neurotransmitter, released by a neuron at a synapse and either enhances or dampens their activities.

**Neurological conditions:** Disorders caused by damage or malfunctioning of the brain or nervous system.

**Neurologist:** A doctor who specializes in the diagnosis, care and treatment of disorders of the brain or nervous system.

**Neuroplasticity:** The ability of the brain to change and form new connections even with aging. It involves neurons regenerating anatomically or functionally after partial injury, or changing (such as by making more numerous or more effective connections) in response to training and experience.

**Neuron:** A nerve cell that is the fundamental unit of the brain and nervous system. Neurons transmit information through electrochemical signals.

**Neuroprotection:** Mechanisms within the nervous system that would protect neurons from dying due to a degenerative disease or from other types of injury.

**Neuroprotective:** Serving to protect neurons from injury or degeneration or an effect that may result in salvage, recovery or regeneration of the nervous system, its cells, structure and function.

**Neuropsychology:** The study of how the structure and function of the brain influence behavior and cognition.

**Neuroscience:** The scientific study of the nervous system that deals with the anatomy, biochemistry, molecular biology, and physiology of neurons and neural circuits.

**Neurotransmitter:** A chemical messenger in the nervous system that permits communication between two neuronal cells, often but not always across a synapse. The neurotransmitter is usually released from the nerve terminals on the axons. Examples of neurotransmitters include dopamine, acetylcholine, adrenaline, noradrenaline, serotonin, glutamate, and GABA.

**Neurotrophic factors:** A family of biomolecules that support the growth, survival, and differentiation of both developing and mature neurons.

**Nicotine:** A stimulant that acts as an agonist at nicotinic receptors, which are one kind of receptors for acetylcholine. Nicotine is present in cigarette smoke and has been proposed to decrease chances of developing Parkinson's disease, but this remains controversial and the mechanism of the relationship is not well understood.

**Non-motor symptoms:** Symptoms that do not involve movement, coordination, physical tasks or mobility, including impaired sense of smell, constipation, sleep disturbances, mood disorders, orthostatic hypotension, bladder problems, sexual problems, excessive saliva, weight loss or gain, vision and dental problems, fatigue, depression, fear and anxiety, skin problems, and cognitive issues. See motor symptoms.

**Objective measurements:** The repetition of a unit amount that maintains its size, within an allowable range of error, no matter which instrument, intended to measure the variable of interest, is used and no matter who or what relevant person or thing is measured.

**Occupational therapist:** Occupational therapists are concerned with assessing a person's home or work situation and then devising ways to make them more manageable and

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less hazardous. They can also advise on aids and equipment and leisure activities.

**Olfactory dysfunction:** An impaired ability to detect odors, impaired sense of smell. Thought to be an early sign of Parkinson's disease but can occur in many situations not related to Parkinson's.

**On and Off:** The clinical states of PD while being treated with levodopa, which commonly causes clinical fluctuations after a few years of treatment. The "on" state is when the PD symptoms and signs are reduced by levodopa. The "off" state is when the benefit has been reduced or lost. The most common type of "off" is wearing-off, due to the levodopa's benefit not lasting more than 4 hours after a dose. Sudden and unpredictable "off" states can also occur, but are less common. "Off" states usually will respond to another dose of levodopa. Clinical fluctuations are considered a complication of levodopa therapy.

**Organoid:** A miniature, simplified version of an organ that shows realistic micro-anatomy. They are derived from tissue, embryonic stem cells, or induced pluripotent stem cells.

**Orthostatic hypotension:** A drop in blood pressure when a person is standing. It can be a complication of medications, but can sometimes be due to Parkinson's itself.

**Oxidative stress:** See Reactive Oxidative Species.

**Paradoxical kinesia:** The ability to move as a response to an unexpected stimulus, occurring in a person who previously could not move so easily. Paradoxical kinesia can occur in Parkinson's disease.

**Parkin:** A protein that is generated by the Parkin gene. With homozygous (both alleles affected) Parkin mutations (PARK2 gene), Parkinson's disease develops. It is the most common cause of juvenile onset PD.

**Parkinson-plus syndromes:** A group of neurodegenerative diseases featuring the classical features of Parkinsonism (rigidity, akinesia/ bradykinesia, postural instability and less commonly tremor) with additional features that distinguish them from typical Parkinson's disease. Parkinson-plus syndromes include multiple system atrophy (MSA), progressive supranuclear palsy (PSP), and corticobasal degeneration (CBD).

**Parkinsonism:** A group of neurological diseases whose features include slowness and paucity of spontaneous movement (bradykinesia), rest tremors, rigidity of the muscles, loss of postural reflexes, flexed posture and freezing of gait.

**Parkinsonian gait:** With bradykinesia, gait is slow, short paced and with a tendency to shuffle, associated with decreased arm swing. Freezing of gait can also occur in Parkinsonism.

**Pathogenesis:** The underlying biologic mechanism responsible for a disease.

**Peripheral Nervous System:** The nervous system outside the brain and spinal cord.

**Phenotype:** The observable characteristics of an organism or person, such as appearance, development and behavior. Determined by the interaction between the genotype and the environment.

**Phosphorylation:** A process that modifies proteins by adding one or more phosphates. For proteins that function as enzymes, this results in activating or deactivating their function.

**Pill-rolling tremor:** A characteristic tremor in Parkinson's patient where the thumb and forefinger involuntary move in a way that resembles rolling a small object such as a pill.

**PINK-1:** An abbreviation for the name of a gene that encodes a particular serine/threonine kinase found in mitochondria that stops stress related cell destruction. With homozygous (both alleles affected) PINK-1 mutations, juvenile or early onset Parkinson's disease can develop. Lack of PINK-1 causes an overload of calcium in mitochondria and indirectly cell death. The substantia nigra is particularly sensitive to PINK-1 mutations.

**Physiotherapist:** Physiotherapists use physical means such as exercise and manipulation to help prevent or reduce stiffness in joints and restore muscle strength. They can also advise on aids and equipment to help with movement problems.

**Placebo:** A simulated or inert form of treatment without known proven benefit on a symptom or a disease. A pill serving as a placebo is colloquially called a "sugar pill." Placebos are employed in controlled clinical trials along with the active drug being tested; patients and health professionals involved in the trial do not know who receives the placebo or the drug. The difference in responses between the two drugs is considered the true effect of the active drug. Surgical trials can also utilize a placebo arm in which sham or simulated surgery is performed in the control group. Sometimes placebos provide benefit; it is called a placebo effect. The mechanism of how placebos provide benefit may be associated with release of dopamine in the brain when patients believe that they receive an effective drug.

**Positron emission tomography (PET):** A medical imaging technique in which radioactive isotopes that emit gamma rays are used. The radioactive substance is incorporated into a chemically active compound (a radiotracer, which could be a substrate for an enzyme or a ligand that binds to neurotransmitter receptors) utilized by an organ in the body. The emitted gamma rays are detected by a special camera/scanner. These radioactive strikes on the camera are analyzed by a computer

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to produce an image to localize where that ligand is located in the organ being studied. Fluorodeoxyglucose (FDG) measures regional metabolism of glucose (sugar); fluorodopa (F-DOPA) is taken up in dopamine nerve terminals. The amount of uptake serves as a measure of the integrity of these nerve terminals. Other radiotracers may bind to neurotransmitter receptors (including those for dopamine) or to inflammatory cells, etc.

**Postural instability:** Difficulty with balance.

**PPMI – Parkinson's Progression Markers Initiative:** a study launched in 2010 by Michael J Fox Foundation to find biomarkers for PD; s a landmark observational clinical study to comprehensively evaluate people with Parkinson's disease and those at greater risk of developing the disease, as well as healthy controls.

**Prodromal:** Referring to the period before the classic manifestation of a disease leading to diagnosis.

**Progressive Supranuclear Palsy (PSP):** A rare degenerative brain disorder that causes serious and progressive problems with control of gait and balance, along with complex eye movement and thinking problems. A classic manifestation of the disease is the inability to move the eyes properly. PSP is one of the Parkinson-plus syndromes.

**Proteostasis:** A combination of the words protein and homeostasis. It is the concept that there are biological pathways within cells that control the creation, folding, tracking, and degradation of proteins present within and outside the cell.

**Proteasomes:** Protein complexes which degrade unneeded or damaged proteins.

**Protein:** 1. A class of food necessary for the growth and repair of the body tissues—sources of proteins include fish, meat, eggs and milk. 2. Large biomolecules or macromolecules consisting of long chains of amino acid residues. Within organisms, proteins catalyze metabolic reactions (enzymes), replicate DNA, and transport molecules.

**PwP:** Person with Parkinson's.

**Reactive oxygen species (ROS):** Chemically-reactive molecules containing oxygen that may trigger cell death. These are also called oxyradicals. These molecules are a cause of oxidative stress that may play a role in the pathogenesis of cell death of dopamine neurons. Oxyradicals are formed during regular cellular and mitochondrial metabolism. Defense mechanisms include naturally occurring reducing agents to neutralize the oxyradicals.

**Receptor:** A protein structure typically embedded in the cell membrane with which neurotransmitters and drugs interact.

**REM (rapid eye movement) sleep behavior disorder (RBD):** A sleep disorder that involves movement and abnormal behavior during the sleep phase with rapid eye movements – the stage of sleep in which dreaming occurs. In normal sleep, muscles are paralyzed during dreaming, except for the eye movements. In RBD, muscles are not paralyzed so that the dreamer acts out his or her dreams. RBD is common in people with Parkinson's disease or Multiple System Atrophy.

**Restless leg syndrome (RLS):** A neurological disorder characterized by unpleasant sensations in the legs, like the feeling of ants crawling underneath the skin. These sensations usually occur in the late evening and during sleep. Walking around relieves the sensation, hence the term "restless legs." RLS interferes with sleep and is common in people with PD. Medications, such as dopamine agonists, levodopa and opioids, can be effective treatments.

**Rigidity:** A special type of muscle stiffness, which is one of the main symptoms of Parkinson's disease. The muscles tend to pull against each other instead of working smoothly together.

**Schwab and England Activities of Daily Living (ADL) Scale:** An estimation of the abilities of a person's degree of independence. The person (or a family member) can self-assess this as:

- 100% – Completely independent. Able to do all chores without slowness, difficulty or impairment.
- 90% – Completely independent. Able to do all chores with some slowness, difficulty or impairment. May take twice as long to complete.
- 80% – Independent in most chores. Takes twice as long. Conscious of difficulty and slowing.
- 70% – Not completely independent. More difficulty with chores. 3 to 4 times longer to complete chores for some. May take large part of day for chores.
- 60% – Some dependency. Can do most chores, but very slowly and with much effort. Errors, some impossible.
- 50% – More dependent. Help with 1/2 of chores. Difficulty with everything.
- 40% – Very dependent. Can assist with all chores but few alone.
- 30% – With effort, now and then does a few chores alone or begins alone. Much help needed.
- 20% – Nothing alone. Can do some slight help with some chores. Severe invalid state
- 10% – Totally dependent, helpless.
- 0% – Vegetative functions such as swallowing, bladder/ bowel function are not functioning. Bedridden.

**Senescence:** A process in cells that stops them from dividing. It gets activated when certain types of damage occur.

**Serotonin:** A neurotransmitter that regulates mood, appetite, and sleep. It also has some cognitive functions, including memory and learning. The serotonin-containing neurons are in the brain stem. Serotonin is reduced in PD.



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**Shaking palsy:** Prior term for Parkinson's disease.

**Side effects:** A reaction to drugs, which is additional to the intended therapeutic actions. These unwanted extra effects are called side effects. Side effects vary in their severity from person to person, and often disappear when the body becomes used to a particular drug.

**Single photon emission computed tomography (SPECT):** A nuclear medicine tomographic imaging technique using gamma rays and able to provide 3D information, for instance on brain chemistry.

**Sleep apnea:** A sleep disorder characterized by abnormal pauses in breathing or instances of abnormally low breathing during sleep.

**Sodium channel:** Voltage gated channels in nerve cell membranes that allow the generation of action potentials. Sodium ions are important in generating the electrical impulses that travel down the dendrites and axons. After sodium enters the cell during this process, it needs to be pumped back out, via the so-called sodium-pump, a process that requires the utilization of cellular energy. Sodium channels may be a target for new drugs in Parkinson's.

**Stem cells:** Biological cells found in all multicellular organisms, that can divide (through mitosis) and differentiate into diverse specialized cell types and can self-renew to produce more stem cells. They are a potential line of treatment in Parkinson's, either by directly replacing the old nigrostriatal neuronal cells or by creating growth factor releasing cells. Problems have arisen due to the inability to stop growth, which may cause tumor growth.

**Striatum:** A large cluster of nerve cells that are part of the basal ganglia. The striatum consists of two sectors: the caudate nucleus and the putamen. It controls movement, balance, and walking; the striatum receives nerve inputs from many parts of the brain including dopamine neurons from the substantia nigra and glutamate neurons from the cerebral cortex. Acetylcholine and GABA neurons are located within the striatum. GABA neurons also send signals outside the striatum. The striatum contains the largest concentration of dopamine and acetylcholine in the brain.

**Substantia nigra:** (Latin for black substance). A brain structure located in the midbrain that plays an important role in movement. Parts of the substantia nigra appear darker than neighboring areas due to high levels of neuromelanin in dopaminergic neurons. The substantia nigra is the site of the brain's major collection of dopamine neurons, which project their axons to the striatum, the so-called nigrostriatal pathway. These neurons slowly die in PD. The substantia nigra is part of the basal ganglia; the other parts of the basal ganglia include

the striatum (caudate nucleus, putamen), globus pallidus, and subthalamic nucleus. The substantia nigra is made up of two parts: the pars compacta and the pars reticulata.

- **Pars compacta:** The part of the substantia nigra primarily involved in Parkinson's. It contains dopamine neurons, and it is black due to the high concentration of neuromelanin within these neurons. (Parkinson's disease is characterized by the death of dopaminergic neurons in the substantia nigra pars compacta.)
- **Pars reticulata:** Part of the substantia nigra that serves both as the location of dendrites from the pars compacta, receiving nerve signals to the substantia nigra and also as an output, conveying signals to numerous other brain structures. These output neurons are mainly GABAergic neurons.

**Subthalamic nucleus (STN):** A small lens-shaped nucleus involved in movement control. As suggested by its name, the subthalamic nucleus is located below the thalamus. It is part of the basal ganglia. It receives input from the cerebral cortex and from the globus pallidus interna. It sends its output mainly to the globus pallidus externa and substantia nigra pars reticulata. It is a component of the "indirect pathway" within the basal ganglia. It is "overactive" in PD due to loss of inhibitory incoming fibers. It is a common target in deep brain stimulation for PD.

**Shuffling gait:** Refers to short, slow steps, with feet close to the ground or dragging along the ground. This gait is often seen in people with advanced Parkinson's disease.

**SWEDD- Scans Without Evidence of Dopamine Deficit:** When individuals with early-stage Parkinson's disease have normal dopaminergic functional imaging scans, these are called Scans Without Evidence of Dopamine Deficit.

**Synapse:** The narrow space between two neurons (axon to dendrite) or between a neuron and a muscle. Axons release neurotransmitters at the nerve terminal. The neurotransmitter crosses the synapse to activate or inhibit another nerve cell by acting on a receptor on the dendrite.

**Synaptic plasticity:** The ability of synaptic activity to modify and adapt to changes.

**Syndrome:** A group of symptoms that tend to occur together and which reflect the presence of a specific disorders or diseases. Parkinson syndrome, also called Parkinsonism, comprise a group of disorders with symptoms and signs in common, such as bradykinesia, rigidity, tremor, loss of postural reflexes, flexed posture and freezing of gait. A person with Parkinsonism does not need to have all of these but must have bradykinesia according to one diagnostic criterion. Disorders that fall within Parkinson syndrome include Parkinson's disease, atypical Parkinsonism, Parkinson Plus Syndromes, drug-induced Parkinsonism, and normal pressure hydrocephalus.



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**Synucleinopathy:** A class of neurodegenerative disease resulting from pathological accumulation of  $\alpha$ -synuclein in neurons (Parkinson's, Lewy Body Dementia) or a kind of glia cells called oligodendrocytes (Multiple System Atrophy).

**Tau proteins:** Proteins that stabilize microtubules, which are structural entities in axons. They are abundant in neurons in the central nervous system and are less common elsewhere. When tau proteins are defective and no longer stabilize microtubules properly, they can result in dementia (including Alzheimer's disease).

**Tauopathies:** A class of neurodegenerative diseases resulting from the pathological aggregation of tau protein in so-called neurofibrillary tangles (NFT) in the human brain. Besides Alzheimer's, this is commonly seen in Pick's disease, progressive supranuclear palsy (PSP) and corticobasal degeneration (CBD).

**Thalamotomy:** A now uncommon surgical procedure used to treat Parkinson's tremor in which a small portion of the brain area called the thalamus is destroyed.

**Thalamus:** A midline paired symmetrical structure situated between the cerebral cortex and brain stem, both in terms of location and neurological connections. It is composed of many regions with distinct functions. For example, some thalamic regions relay sensory signals to the cerebral cortex, other relay signals from the basal ganglia to the cerebral cortex, and others relay motor signals from the cortex to the spinal cord and brain stem.

**Toxicity:** The degree to which a chemical substance or a particular mixture of substances can damage an organism.

**T.R.A.P.:** Acronym for four primary Parkinson's disease symptoms:

- **Tremor:** Shaking of limb (usually hands) while they are at rest.
- **Rigidity:** Muscle stiffness and resistance to movement.
- **Akinesia/bradykinesia:** Difficulty initiating voluntary body movements/Slowed ability to start and continue movements.
- **Postural instability:** Loss of postural stability can cause falls and produce a feeling of unsteadiness.

**Transcranial Magnetic Stimulation:** A method in which a changing magnetic field is used to cause electric current to flow to a small region of the brain.

**Transcription factors:** Proteins in eukaryotes (cells which contain complex membrane-bound structures within the cell) that regulate the transcription (i.e. the expression) of genes.

**Translation:** A step in protein biosynthesis wherein the genetic code transferred from DNA to messenger RNA (mRNA) is decoded to allow the formation of a protein molecule. The process is preceded by transcription of the DNA into the mRNA.

**Tyramine-induced hypertension:** High blood pressure caused by an increase in tyramine in the blood, which forces noradrenaline/norepinephrine out of vesicles and into circulation. This is the so-called "cheese effect" because some fermented cheeses (and other foods) contain high concentrations of tyramine. Normally, tyramine is broken down in the gut by MAO-A. When this enzyme is inhibited, the tyramine in food is able to enter the blood stream and produce its hypertensive crisis.

**Tyrosine:** An amino acid used by cells to synthesize proteins. It is also the precursor of dopamine.

**Ubiquitin:** A small regulatory protein that is composed of 76 amino acids. It is involved in the degradation of damaged proteins. In Parkinson's disease, it is believed that accumulation of damaged proteins "choke" the cell, leading to the eventual death of the cell.

**Unified Parkinson's Disease Rating Scale (UPDRS):** A rating scale used to measure the severity of Parkinson's disease. The UPDRS can follow a person's worsening over time and also measure improvement with various treatments. The UPDRS is made up of the following sections:

- **Part I:** Evaluation of mentation, behavior, motivation and mood
- **Part II:** Self-evaluation of the activities of daily life (ADLs) including speech, swallowing, handwriting, dressing, hygiene, falling, salivating, turning in bed, walking, cutting food
- **Part III:** Clinician-scored motor evaluation
- **Part IV:** Measures some of the adverse effects (such as motor complications of "off" states and dyskinesias) of levodopa therapy in Parkinson's disease

The UPDRS has been modified by the Movement Disorder Society to include more non-motor features of PD. This new version is called MDS-UPDRS.

**Ventral Tegmental Area (VTA):** A group neurons located in the midbrain next to the substantia nigra and involved in cognition and motivation, including reward and addiction.

**Vesicle:** An organelle in a cell that separates some molecules from the rest of the cell. In nerve terminals, the vesicles are called synaptic vesicles. They store neurotransmitters, which are released into the synapse when the nerve fires.

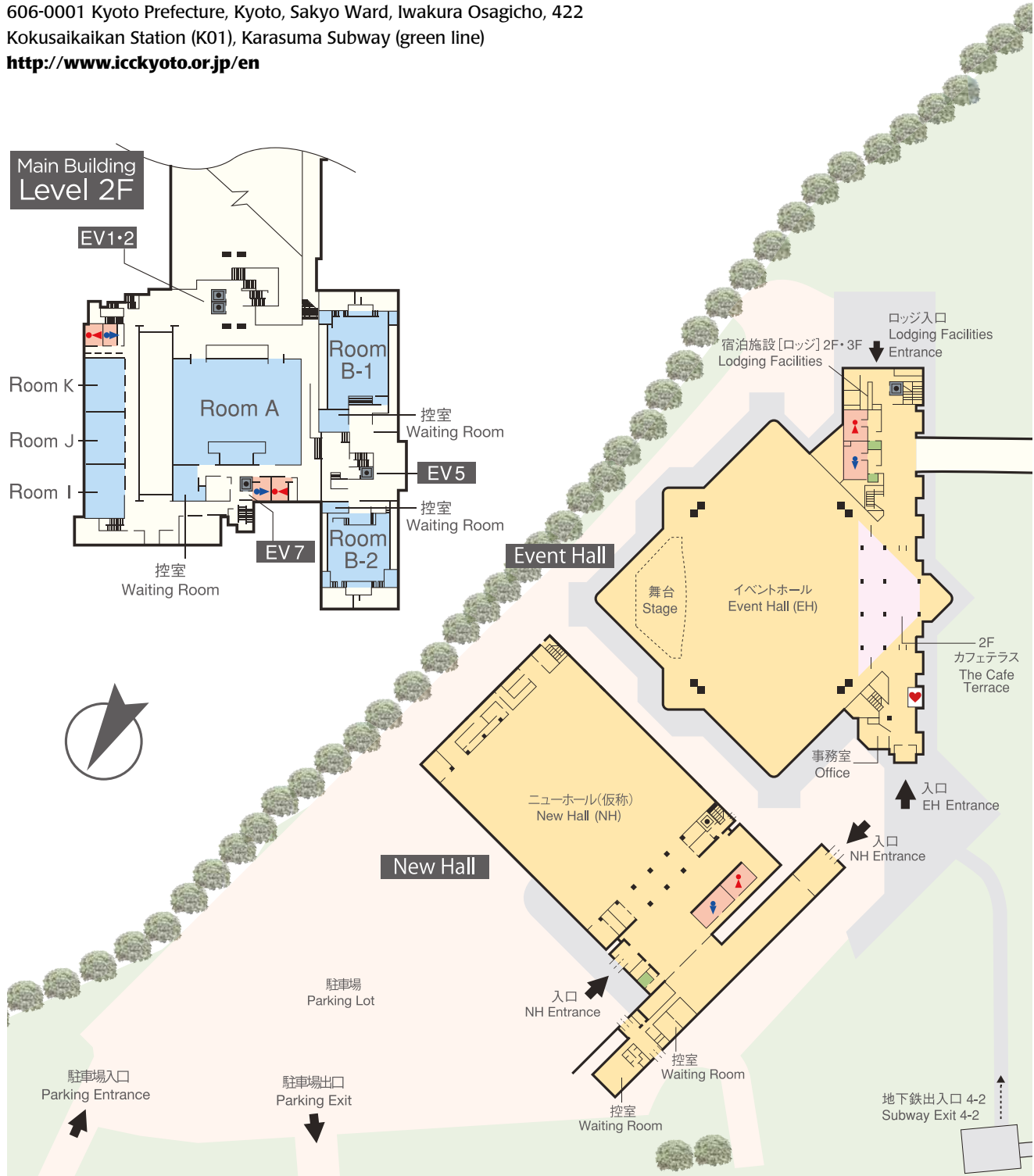
**Wearable devices:** Devices worn on the body, incorporating computers, electronics, software and/or sensors, often used to measure some aspect of function or physical manifestation, for example: activity trackers, accelerometers, gyroscopes, etc.

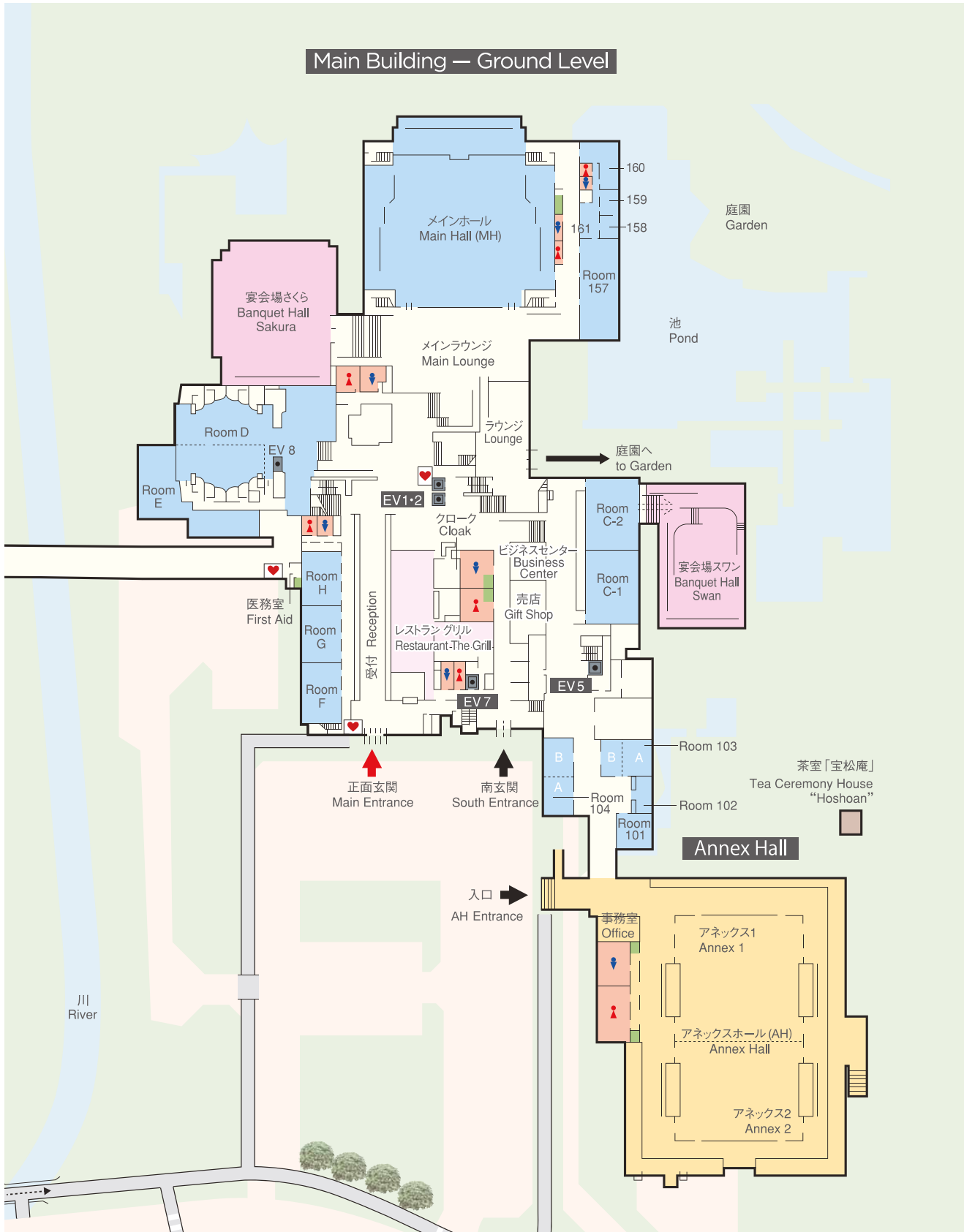
**Wearing Off:** The loss of the effectiveness of Parkinson's medication between doses resulting in the return of symptoms.

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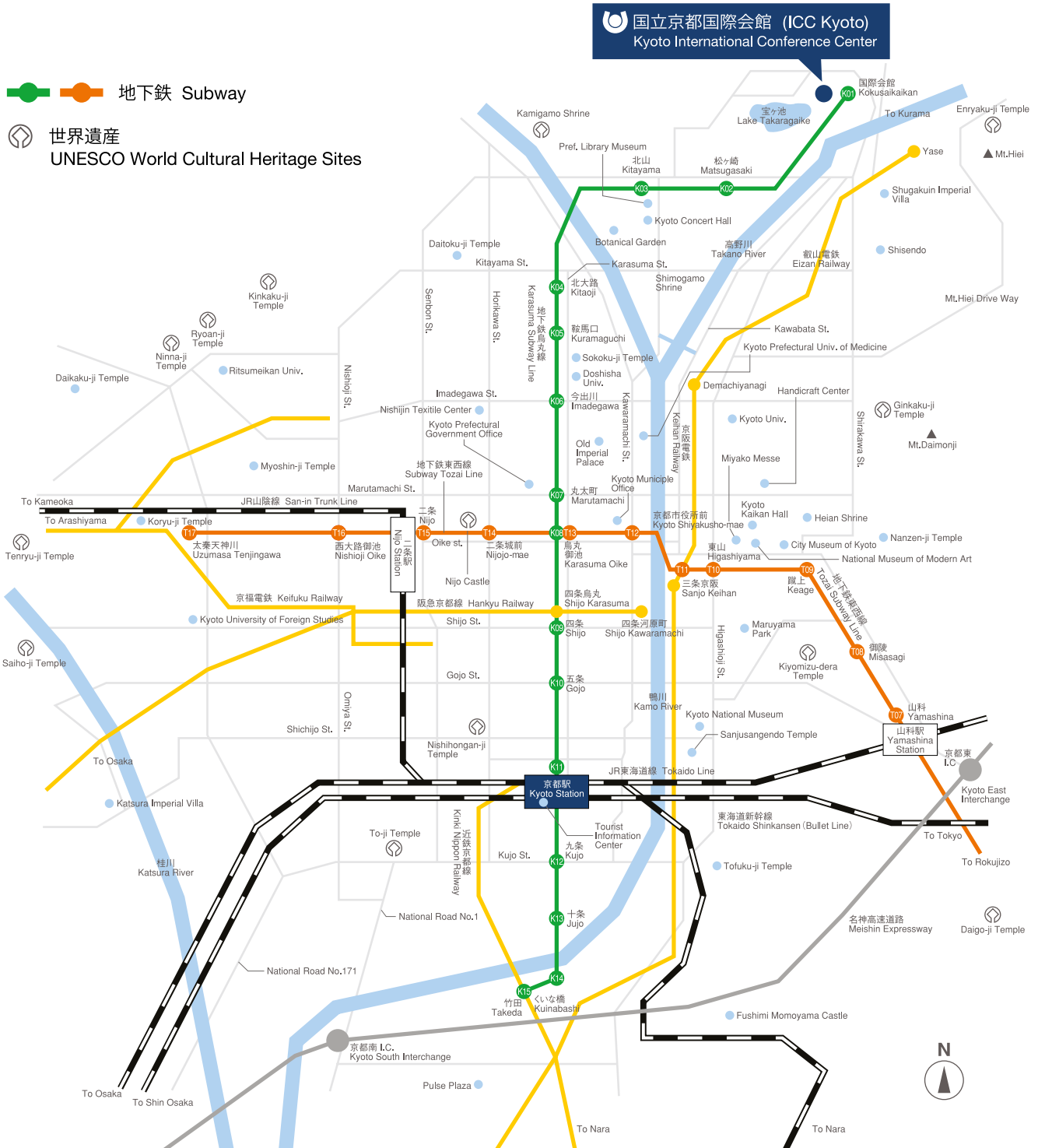
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