



International Parkinson and  
Movement Disorder Society

# FINAL PROGRAM

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19TH INTERNATIONAL CONGRESS OF PARKINSON'S  
DISEASE AND MOVEMENT DISORDERS

JUNE 14-18

2015

SAN DIEGO, CA, USA



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International Parkinson and  
Movement Disorder Society

# 20<sup>th</sup> International Congress of Parkinson's Disease and Movement Disorders

JUNE 19-23, 2016 • BERLIN, GERMANY

## Save the Date

[www.mdscongress2016.org](http://www.mdscongress2016.org)



### IMPORTANT DATES

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**October 1, 2015** Abstract Submission Opens

**December 1, 2015** Registration Opens

**January 7, 2016** Abstract Submission Closes

**April 15, 2016** Early Registration Deadline

**May 18, 2016** Final Pre-Registration Deadline

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International Parkinson and  
Movement Disorder Society

Dear Colleagues,

We would like to formally welcome you to San Diego, CA, USA, where blue skies line over 70 miles of picturesque coastline and beautiful weather and friendly locals create a welcoming vibe all its own. The International Parkinson and Movement Disorder Society is excited to be hosting the 19<sup>th</sup> International Congress of Parkinson's Disease and Movement Disorders in San Diego, June 14-18, 2015.

Bordered by the Pacific Ocean to the west, the Laguna Mountains to the east and Mexico to the south, the diverse neighborhoods of San Diego are spread out over 4,200 square miles, offering endless opportunities for exploration and activities. Enjoy a variety of cuisine and culture in San Diego, a vibrant metropolitan city with a laid-back, small town feel.

We are pleased to have you join us to share knowledge with each other and to actively participate in advancing the field of Movement Disorders all while enjoying one of the fastest growing cities in the United States.

We are pleased to welcome you to San Diego for the 19<sup>th</sup> International Congress and are glad you are taking part in this exceptional Scientific Program. We promise an unforgettable experience.

With kind regards,



Matthew Stern  
President,  
International Parkinson and  
Movement Disorder Society,  
2013-2015



Victor Fung  
Chair,  
Congress Scientific  
Program Committee,  
2013 - 2015



Irene Litvan  
Co-Chair,  
Congress Scientific  
Program Committee,  
2015



## About MDS

The International Parkinson and Movement Disorder Society (MDS) is a professional society of clinicians, scientists, and other healthcare professionals who are interested in Parkinson's disease, related neurodegenerative and neurodevelopmental disorders, hyperkinetic movement disorders, and abnormalities in muscle tone and motor control. The spectrum of clinical disorders represented by the Society includes, but is not limited to:

Ataxia  
Chorea  
Dystonia  
Gait disorders  
Huntington's disease  
Myoclonus and startle  
Parkinson's disease and parkinsonism  
Restless legs syndrome  
Stiff person syndrome  
Tardive dyskinesia  
Tics and Tourette syndrome  
Tremor and essential tremor

In recent years, there has been tremendous growth in new diagnostic information, pharmacological and neurosurgical treatments for Movement Disorders, as well as a greater understanding of impaired motor control function. MDS offers you and your patients an essential link to this knowledge.

In 1985, The *Movement* Disorder Society was founded on the initiative of Professors Stanley Fahn and C. David Marsden, whose leadership and vision guided the expansion of clinical expertise and research in this field. This not-for-profit organization merged in 1992 with the International Medical Society for Motor Disturbances. Publication of the journal *Movement Disorders* began in 1986, and the first International Congress was held in 1990.

In 2013, The *Movement* Disorder Society officially changed its name to the International Parkinson and Movement Disorder Society, in order to recognize the growing importance of Parkinson's disease care and research within the field of Movement Disorders.

## PURPOSE, MISSION AND GOALS

### Purpose:

The objective and mission of the Society shall be to advance the neurological sciences pertaining to Movement Disorders; to improve the diagnosis and treatment of patients; to operate exclusively for scientific, scholarly and educational purposes; to encourage research; to provide forums, such as medical journals, scientific symposia and International Congresses, for sharing ideas and for advancing the related clinical and scientific disciplines; to encourage interest and participation in the activities of the Society among healthcare and allied professionals and scientists; and to collaborate with other related professional and lay organizations.

### Mission and Goals:

To disseminate knowledge about Movement Disorders by:

- Providing educational programs for clinicians, scientists and the general public designed to advance scientific and clinical knowledge about Movement Disorders
- Sponsoring International Congresses and Symposia on Movement Disorders
- Collaborating with other international organizations and lay groups
- Publishing journals, video and other collateral materials committed to high scientific standards and peer review

To promote research into causes, prevention and treatment of Movement Disorders by:

- Using the Society's influence and resources to enhance support for research
- Facilitating the dissemination of information about research
- Encouraging the training of basic and clinical scientists in Movement Disorders and related disorders

For the purposes of favorably affecting the care of patients with Movement Disorders, the Society will provide expertise, advice and guidance to:

- Regulatory agencies to assist them in the approval process of safe and effective therapeutic interventions
- The public (media) and patient support groups by informing them of new research and therapeutic advances
- Governments to assist them in the development of policies that affect support of research and patient care
- Educational efforts to assist in developing standards of training in the specialty



International Parkinson and  
Movement Disorder Society

## About MDS

### MDS OFFICERS (2013-2015)



**President**  
Matthew Stern,  
USA



**President-Elect**  
Oscar Gershanik,  
Argentina



**Secretary**  
Francisco Cardoso,  
Brazil



**Secretary-Elect**  
Claudia Trenkwalder,  
Germany



**Treasurer**  
Christopher Goetz,  
USA



**Treasurer-Elect**  
David John Burn,  
United Kingdom



**Past-President**  
Günther Deuschl,  
Germany

### MDS INTERNATIONAL EXECUTIVE COMMITTEE

Paolo Barone, *Italy*  
Bastiaan Bloem, *Netherlands*  
Murat Emre, *Turkey*  
Susan Fox, *Canada*  
Victor Fung, *Australia*  
Etienne Hirsch, *France*  
Beom Jeon, *Korea*  
Michael Okun, *USA*  
Anthony Schapira, *United Kingdom*  
Mark Stacy, *USA*

### INTERNATIONAL CONGRESS OVERSIGHT COMMITTEE

Chair: Philip Thompson, *Australia*  
Günther Deuschl, *Germany*  
Victor Fung, *Australia*  
Oscar Gershanik, *Argentina*  
Christopher Goetz, *USA*  
Anthony Lang, *Canada*  
Irene Litvan, *USA*  
Matthew Stern, *USA*

### CONGRESS SCIENTIFIC PROGRAM COMMITTEE

Chair: Victor Fung, *Australia*  
Co-Chair: Irene Litvan, *USA*  
Tim Anderson, *New Zealand*  
Daniela Berg, *Germany*  
Erwan Bezard, *France*  
K. Ray Chaudhuri, *United Kingdom*  
Carlo Colosimo, *Italy*  
Marina de Koning-Tijssen, *Netherlands*

Günther Deuschl, *Germany*  
Joaquim Ferreira, *Portugal*  
Oscar Gershanik, *Argentina*  
Glenda Halliday, *Australia*  
Hyder Jinnah, *USA*  
Paul Krack, *France*  
Olle Lindvall, *Sweden*  
Timothy Lynch, *Ireland*  
José Obeso, *Spain*  
Per Odin, *Sweden*  
Lynn Rochester, *United Kingdom*  
Robert Rodnitzky, *USA*  
Raymond Rosales, *Philippines*  
Klaus Seppi, *Austria*  
Matthew Stern, *USA*  
Antonio Strafella, *Canada*  
D. James Surmeier, *USA*  
Ryosuke Takahashi, *Japan*  
Eng-King Tan, *Singapore*  
Philip Thompson, *Australia*  
Claudia Trenkwalder, *Germany*

### CONGRESS LOCAL ORGANIZING COMMITTEE

Chair: Irene Litvan  
David Barba  
Jennifer Friedman  
Stephanie Lessig  
Stuart Lipton  
Fatta Nahab  
Howard Poizner  
Dee Silver  
Mark Tuszynski

### PAST-PRESIDENTS

2011-2013 Günther Deuschl, *Germany*  
2009-2011 Philip Thompson, *Australia*  
2007-2009 Anthony Lang, *Canada*  
2005-2006 Andrew Lees, *United Kingdom*  
2003-2004 C. Warren Olanow, *USA*  
2001-2002 Werner Poewe, *Austria*  
1999-2000 Mark Hallett, *USA*  
1997-1998 Eduardo Tolosa, *Spain*  
1995-1996 Joseph Jankovic, *USA*  
1991-1994 C. David Marsden, *United Kingdom*  
1988-1991 Stanley Fahn, *USA*

### INTERNATIONAL MEDICAL SOCIETY FOR MOTOR DISTURBANCES PAST-PRESIDENTS

1993-1994 C. Warren Olanow, *USA*  
1991-1992 Bastian Conrad, *Germany*  
1989-1990 Mark Hallett, *USA*  
1987-1988 Mario Manfredi, *Italy*  
1985-1986 C. David Marsden, *United Kingdom*

### MDS INTERNATIONAL SECRETARIAT

International Parkinson and  
Movement Disorder Society  
555 East Wells Street, Suite 1100  
Milwaukee, WI 53202-3823 USA  
Tel: +1 414-276-2145  
Fax: +1 414-276-3349  
E-mail: [info@movementdisorders.org](mailto:info@movementdisorders.org)  
Website: [www.movementdisorders.org](http://www.movementdisorders.org)

## MDS Membership Information

### JOIN OUR MEMBERSHIP COMMUNITY

The International Parkinson and Movement Disorder Society (MDS) warmly welcomes all individuals practicing, researching, or studying in the field of Movement Disorders to become members of the Society, its activities, and to contribute to the development of the specialty and field.

MDS aims to facilitate communication between Researchers, Clinicians, and other Health Professionals in working towards common goals of:

- Disseminating updated knowledge
- Promoting research; and
- Improving quality of life, independence, and care for individuals affected by movement disorders.

We welcome you to join 5,000 (+) of your colleagues already working together in the MDS Community.



### MEMBERSHIP BENEFIT HIGHLIGHTS

Annual subscription to Society Journals:

*Movement Disorders* Available in Print and Online

*Movement Disorders-Clinical Practice* Available Online

Quarterly Newsletter entitled:

*Moving Along* Available in Print and Online

Members Only Access to the Society's online resources:

Membership Directory, CME Activities, Streaming Content, Webcasts, and an in-depth Video Library

Member Discounts for Registration at MDS Activities

Voting Rights in Society Leadership elections

Visit [www.movementdisorders.org/MDS/membership.htm](http://www.movementdisorders.org/MDS/membership.htm) for full details on benefits available to members.

### Free 12-Month Trial Membership!

#### MDS ASSOCIATE MEMBERSHIP PROGRAM\*

Non-members attending the International Congress have the opportunity to receive membership with the International Parkinson and Movement Disorder Society (MDS) absolutely free for one year's time! Eligible delegates will receive one year of membership including immediate access to online member benefits upon acceptance to the Society.

Eligible delegates will be contacted by e-mail one month following the International Congress. The International Secretariat will provide special instructions to apply online for the Associate Membership option.

Interested individuals are encouraged to apply online within 30 days of receiving the invitation via e-mail.

*\*Participants paying the Non-member registration fee are eligible to apply.*

#### Contact us or visit our website to learn more:

International Parkinson and Movement Disorder Society  
[www.movementdisorders.org](http://www.movementdisorders.org)

MDS International Secretariat  
555 East Wells Street, Suite 1100  
Milwaukee, WI 53202 USA  
Tel: + 1 414-276-2145  
Fax: + 1 414-276-3349  
E-mail: [info@movementdisorders.org](mailto:info@movementdisorders.org)



### JOIN US IN 2015!



We expect this to be an exciting year for MDS and look forward to bringing you news, updates and other initiatives in the field through the Society's journals, newsletter, and the MDS website.



## MDS Education Information

To better fulfill its global mission of advancing the neurological sciences as they relate to the field of Movement Disorders, MDS is continually expanding its educational portfolio. This growing portfolio offers an increasing variety of high caliber continuing medical education and continuing professional development opportunities in Movement Disorders. For more information about the opportunities listed in this section, please visit [www.movementdisorders.org/MDS/Education.htm](http://www.movementdisorders.org/MDS/Education.htm) or e-mail [education@movementdisorders.org](mailto:education@movementdisorders.org).

### OUTREACH EDUCATION PROGRAMS

The following outreach education programs are intended to support movement disorders conferences and meetings in underserved areas. Applications, which include a proposed program, a budget and an online form, are submitted through the MDS website. Corresponding MDS Regional Sections and the MDS Education Committee review outreach education applications throughout the year.

#### Developing World Education Program

Through the Developing World Education Program (DWEPE), funds are administered in a flexible support program tailored to the needs of each region. The funds can be used to sponsor faculty travel and accommodation, logistics costs or other course expenses which are approved at the time of application.

#### Ambassador Program

The Ambassador Program supports the travel of one or two international experts, who are MDS Members, to an underserved area for the purposes of education and scientific exchange. Sponsored speakers should deliver a keynote lecture during the meeting.

#### Visiting Professor Program

The Visiting Professor Program supports the travel of one or two international experts, who are MDS Members, to an underserved area for the purposes of education and scientific exchange. During the visit, invited experts should conduct teaching seminars in local hospitals or institutions, participate in grand rounds and/or provide input to further the understanding of movement disorders in the host country.

#### Parkinson and Movement Disorders Curriculum

The Parkinson and Movement Disorders Curriculum provides an overview of movement disorders and a clinical approach to the evaluation and management of common movement disorders. This curriculum is specially developed for trainees, internists, general neurologists and other clinicians interested in acquiring a basic understanding of movement disorders.

## ONLINE EDUCATION

### Device-Aided Medical Therapies for Parkinson's Disease

Device-Aided Medical Therapies in Parkinson's Disease is a new online course series designed by a panel of worldwide specialists around the main practical issues involved in therapeutic treatments of Parkinson's disease. This course series, provided as 10 separate modules, addresses issues such as identifying patients who may or may not benefit from the treatment, understanding the titration and the monitoring of clinical response, recognizing the main complications and managing them, and comparing these treatments with conventional oral dopaminergic therapies, as well as against each other. Each module will take approximately one hour to complete.

MDS is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians. MDS designates this educational activity for a maximum of 1.0 *AMA PRA Category 1 Credits™* for each module. Physicians should only claim credit commensurate with the extent of their participation in the activity.

### Coffee Break CME

The Coffee Break CME program provides education critical to providing the best care possible. Scientific content is presented in a modular format where each module is focused on a single topic. Each module can be completed in a short period of time and provides the clinician with updated information relevant to their practice. Both standard approaches and new advances are highlighted.

MDS is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians. MDS designates this educational activity for a maximum of 2.0 *AMA PRA Category 1 Credits™* for each module. Physicians should only claim credit commensurate with the extent of their participation in the activity.

### Journal CME

Visit the Educational Resources page on the MDS website to view a list of *Movement Disorders* journal articles available for CME credit.

MDS is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians. MDS designates this educational activity for a maximum of 1.0 *AMA PRA Category 1 Credits™* for each module. Physicians should only claim credit commensurate with the extent of their participation in the activity.

### MDS Video Library

This Members Only library consists of video supplements from the *Movement Disorders* journal since 1986. You may search the Video Library by keyword, author, volume and issue or a combination of these fields.



## MDS Education Information

### LIVE COURSES

Through the MDS Regional Sections, MDS offers a robust list of live course learning opportunities. Below is a sample of upcoming courses offered through MDS. Please note that dates and locations are subject to change. For the most up-to-date list of live courses, please visit [www.movementdisorders.org/MDS/Education.htm](http://www.movementdisorders.org/MDS/Education.htm).

- 8th Annual European Section Summer School for Young Neurologists; Prague, Czech Republic; September 4-6, 2015
- Deep Brain Stimulation for Movement Disorders; Grenoble, France; September 10-11, 2015
- Multidisciplinary Allied Health Professionals Team Training; São Paulo, Brazil; September 10-12, 2015
- Bridges and Boundaries in Movement Disorders: The Role of Neuroimaging; Pisa, Italy; November 12-13, 2015
- 2nd Middle East Camp for Parkinson's, Movement Disorders and Neuromodulation: From Neurodegeneration to Neuroregeneration; Dubai, UAE; November 19-21, 2015

### RATING SCALES AND TRAINING VIDEOS

#### Rating Scales

MDS provides rating scales and related resources published in the *Movement Disorders* journal to physicians, researchers and health professionals interested in Parkinson's disease and other movement disorders. By making these scales available, MDS works to improve the diagnosis of movement disorders and patient care, as well as increase the validity and reliability of research studies. You can access the rating scales below online by visiting: [www.movementdisorders.org/MDS/Education/Rating-Scales.htm](http://www.movementdisorders.org/MDS/Education/Rating-Scales.htm). Links to the MDS-UPDRS and UDysRS training programs and rating scales use permission forms are also available through the rating scales link. Licensing fees are free for individual use, but fees may apply for government, non-profit or industry-funded research.

The following rating scales are currently available:

- Global Assessment Scale for Wilson's Disease
- Global Dystonia Scale
- Non-Motor Symptoms Scale (NMSS) + (Includes NMSQ)
- Quality of Life Essential Tremor Questionnaire
- Rating Scale for Psychogenic Movement Disorders
- Rush Dyskinesia Rating Scale \*
- Rush Videobased Tic Rating Scale
- UFMG Sydenham's Chorea Rating Scale (USCRS)
- Unified Dyskinesia Rating Scale (UDysRS) + \*
- Unified Dystonia Rating Scale (UDRS)
- Unified Multiple System Atrophy Rating Scale (UMSARS)
- Unified Parkinson's Disease Rating Scale (MDS-UPDRS) + \*

Asterisk (\*) indicates scale was developed by MDS;  
Plus symbol (+) indicates translations of the scale are available.

#### Training Videos

MDS publishes several audiovisuals, which are available for sale from the MDS International Secretariat. All materials are available in DVD format. Special reduced rates are available to MDS Members. For more information or to place an order, visit [www.movementdisorders.org/MDS/Education/Latest-E-Learning/MDS-E-Store.htm](http://www.movementdisorders.org/MDS/Education/Latest-E-Learning/MDS-E-Store.htm).

The titles that are currently available for purchase include:

#### Instructional Video for Motor Fluctuation Diaries in Parkinson's Disease

Authored by C.G. Goetz, M. Grobman, L. Blasucci, and G.T. Stebbins, this instructional video demonstrates the 3 states of Parkinson's disease, off, on, and on with dyskinesia, with the intent to assist patients in completion of their motor fluctuation diaries. This video is 15 minutes.

#### Toronto-Western Spasmodic Torticollis Rating Scale TWSTRS Training Video

Authored by C. Comella, S. Bressman, C.G. Goetz, and A. Lang, this instructional video demonstrates the 10 categories in the TWSTRS scale with verbal and visual examples of scoring in each category. This video is approximately 1 hour and 25 minutes.

#### Unified Dyskinesia Rating Scale Teaching Program (UDysRS)

Authored by C.G. Goetz, John G. Nutt and G.T. Stebbins. This teaching program provides guidelines and rating examples of the Unified Dyskinesia Rating Scale, a new scale used for evaluating Parkinson's disease. This video is approximately 52 minutes.

#### Utility of an Objective Dyskinesia Rating Scale for Parkinson's Disease: (Rush Dyskinesia Rating Scale)

Authored by Goetz, et al. *Movement Disorders* Volume 9, Video Supplement. 2. This video provides guidelines and rating examples of the Rush Dyskinesia Rating Scale, a scale widely used for evaluating dyskinesias in Parkinson's disease. This video is approximately 17 minutes.

#### Unified Parkinson's Disease Rating Scale Training Video

(1995) Authored by C. G. Goetz, G.T. Stebbins, T. Chmura, S. Fahn, H. Klawans, and C. D. Marsden, this video demonstrates the different categories of the motor section of the UPDRS, with verbal and visual examples of scoring in each category. This video is approximately 1 hour.

#### Standardized Training Tools for the UPDRS Activities of Daily Living Scale (UPDRS Part II)

(2003) Authored by C.G. Goetz, P.A. Lewitt, and M. Weidenman. *Movement Disorders* Volume 18, Video Supplement. 2. This video provides suggestions on the application and interview techniques for Part II of



## MDS Education Information

the UPDRS with patient examples and guidelines for raters. This video is approximately 1 hour and 15 minutes.

### **The International Parkinson and Movement Disorder Society's Unified Parkinson's Disease Rating Scale (MDS-UPDRS) Training Video (2010)**

The International Parkinson and Movement Disorder Society (MDS)-sponsored new version of the UPDRS is founded on the critique that was formulated by the Task Force for Rating Scales in Parkinson's disease (Mov Disord 2003;18:738-750). The MDS-UPDRS has four parts: Part I (non-motor experiences of daily living), Part II (motor experiences of daily living), Part III (motor examination) and Part IV (motor complications). This video is approximately 2 hours and 5 minutes.

### **MDS REGIONAL SECTIONS**

#### **European Section**

The International Parkinson and Movement Disorder Society-European Section (MDS-ES) serves MDS Members who live in Europe as well as select countries in Northern Africa. The MDS-ES Executive Committee is chaired by Prof. Olivier Rascol of Toulouse University Hospital in Toulouse, France. The MDS-ES Education Committee is chaired by Prof. Angelo Antonini of the Institute of Neurology, IRCCS San Camillo in Venice, Italy. During the past year, MDS-ES educational activities have been held in Italy, Spain, Hungary, Portugal, Greece, Germany, Slovenia, Italy, Austria, Israel, Russia, Udmurtia, Moldova, Bulgaria, South Africa and Morocco. The official MDS-ES website includes a wealth of programming and Section information, including section leadership and mission and details about MDS Regional Development initiatives. One can also find information on fellowships, links to scholarly papers and keynote publications and a calendar of events.

For more information about the MDS-ES, please visit [www.movementdisorders.org/MDS/Regional-Sections/European-Section.htm](http://www.movementdisorders.org/MDS/Regional-Sections/European-Section.htm).

#### **Asian and Oceanian Section**

The International Parkinson and Movement Disorder Society-Asian and Oceanian Section (MDS-AOS) serves MDS members from the majority of the Asian continent, as well as Australia, New Zealand and Oceania. The MDS-AOS Executive Committee is chaired by Dr. Louis Tan of the National Neuroscience Institute in Singapore. The MDS-AOS Education Committee is co-chaired by Prof. Madhuri Behari of the All India Institute of Medical Sciences in New Delhi, India and Prof. Shen-Yang Lim of the University of Malaya in Kuala Lumpur, Malaysia. The Asian and Oceanian Section was formed in 2006 at the 10th International Congress of Parkinson's Disease and Movement Disorders in Kyoto, Japan. Since its foundation, MDS-AOS

has developed educational programs in India, Sri Lanka, China, Malaysia, the Philippines, Vietnam, Myanmar, Taiwan, Korea, Thailand and the United Arab Emirates among other locations. The official MDS-AOS website includes programming and Section information, including details about AOS Regional Partners, leadership, the MDS-AOS Visiting Trainee Grant and a calendar of events.

In 2016, the MDS-AOS is holding the *5th Asian and Oceanian Parkinson's Disease and Movement Disorders Congress (AOPMC)* in Manila, Philippines March 11-13, 2016. Please visit [www.movementdisorders.org/aopmc2016](http://www.movementdisorders.org/aopmc2016) for more information.

For further information on MDS-AOS or its educational opportunities, please visit [www.movementdisorders.org/MDS/Regional-Sections/Asian-Oceanian-Section.htm](http://www.movementdisorders.org/MDS/Regional-Sections/Asian-Oceanian-Section.htm).

#### **Pan American Section**

The International Parkinson and Movement Disorder Society-Pan American Section (MDS-PAS) is composed of MDS Members who live in the countries of the Western Hemisphere. The MDS-PAS Executive Committee is chaired by Dr. Jorge Juncos of Emory University in Atlanta, GA, USA. The MDS-PAS Education Committee is chaired by Dr. Irene Litvan of the University of California San Diego in San Diego, CA, USA. The MDS-PAS supports educational programming throughout the entire region and has recently held courses in the United States, Argentina, and Brazil. The official MDS-PAS website includes a variety of programming and section information including details about the Regional Needs Assessment Survey, MDS-PAS Visiting Trainee Grant and MDS-PAS calendar of events.

For additional information on the MDS-PAS or its educational programming, please visit [www.movementdisorders.org/MDS/Regional-Sections/Pan-America-Section.htm](http://www.movementdisorders.org/MDS/Regional-Sections/Pan-America-Section.htm).

## Continuing Medical Education (CME) Information

### PURPOSE

The purpose of the 19th International Congress of Parkinson's Disease and Movement Disorders is to offer a forum for clinical and basic discussion on a variety of movement disorder topics, including presentations of current research and available treatments.

### LEARNING OBJECTIVES

Through state-of-the-art lectures, hot topic reviews, controversy debates, teaching courses, skills workshops and video sessions, participants will be better able to:

1. Describe the pathophysiology and neurobiology of Parkinson's disease and other movement disorders;
2. Discuss the diagnostic approaches and tools available for Parkinson's disease and other movement disorders;
3. Discuss the pharmacological and non-pharmacological treatment options available for Parkinson's disease and other movement disorders.

### TARGET AUDIENCE

The target audience of the 19th International Congress of Parkinson's Disease and Movement Disorders includes clinicians, researchers, post-doctoral fellows, medical residents, medical students and other healthcare professionals with an interest in the current research and approaches for the diagnosis and treatment of movement disorders.

### ACCREDITATION STATEMENT

The International Parkinson and Movement Disorder Society is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

### CREDIT DESIGNATION

The International Parkinson and Movement Disorder Society designates this educational activity for a maximum of *35 AMA PRA Category 1 Credits™*. Physicians should claim only credit commensurate with the extent of their participation in the activity.

### FACULTY FINANCIAL DISCLOSURE INFORMATION

It is the policy of the International Parkinson and Movement Disorder Society (MDS) to ensure balance, independence, objectivity and scientific rigor in all sponsored educational activities. All faculty participating in any MDS sponsored activities are required to disclose to the activity audience any real or apparent conflict(s) of interest that may have a direct bearing

on the subject matter of the continuing medical education (CME) activity. This pertains to relationships with pharmaceutical companies, biomedical device manufacturers, or other corporations whose products or services are related to the subject matter of the presentation topic. The intent of this policy is not to prevent a speaker with a potential conflict of interest from making a presentation. It is merely intended that any potential conflict should be identified openly so that the listeners may form their own judgments about the presentation with the full disclosure of the facts. It remains for the audience to determine whether the speaker's outside interest may reflect a possible bias in either the exposition or the conclusions presented.

Faculty financial disclosure information will be provided to participants in San Diego.

### CLAIMING CME CREDIT

To claim CME credit for participation in the 19th International Congress of Parkinson's Disease and Movement Disorders, participants must complete and submit an online CME Request Form.

### Instructions for claiming credit:

After June 16, 2015, please visit: [www.mdscongress2015.org/registration/cme](http://www.mdscongress2015.org/registration/cme).

1. Log in after reading the instructions on the page. You will need your International Congress Registration ID which is located on your name badge, registration confirmation or e-mail [education@movementdisorders.org](mailto:education@movementdisorders.org).
2. Follow the on-screen instructions to claim CME credit for the sessions you attended.
3. You may print your certificate from your home or office, or save it as a PDF for your records.

The UEMS-EACCME® and the AMA recognize each other's CME credits since 2000. In 2002 the UEMS-EACCME® and the AMA signed an agreement of mutual recognition of CME credits between Europe and the USA whereby European physicians attending an event in the USA have their credits recognized in Europe and American physicians attending an event in Europe have their credits recognized in the USA.

If you have any questions or need help claiming credit contact the MDS International Secretariat at [education@movementdisorders.org](mailto:education@movementdisorders.org).





International Parkinson and  
Movement Disorder Society

## International Congress Information A-Z

### ABSTRACTS

All accepted abstracts (including Late-Breaking and MDS Study Group Abstracts) are presented as a poster at the 2015 International Congress. All regular accepted abstracts are published as a supplement to the MDS Journal online edition. Additionally, select abstracts are presented in a Guided Poster Tour. All published abstracts are available on the MDS abstracts website, where you can download a PDF of accepted abstracts or search by author, keyword or abstract title. Please visit [www.mdscongress2015.org](http://www.mdscongress2015.org) for further publication information.

All registered Congress delegates will also receive the published abstracts on a USB, available for pickup in the registration area during regular Congress hours.

For further information regarding abstracts, poster presentation schedules and abstract publication, please see pages 15–18.

### LATE-BREAKING ABSTRACTS AND MDS STUDY GROUP ABSTRACTS

All accepted Late-Breaking Abstract and MDS Study Group posters are displayed in the Harbor Foyer, 2nd Level, Monday – Thursday throughout the duration of the International Congress. These poster presentations will take place on Wednesday, June 16 from 12:00 – 13:30. An online

publication supplement of the Late-Breaking Abstracts and MDS Study Group Abstracts is available as of June 14, 2015 on the 2015 International Congress website, [www.mdscongress2015.org](http://www.mdscongress2015.org).

For further information regarding Late-Breaking and MDS Study Group Abstracts, poster presentation schedules and publication, please see page 15.

### BADGES

All International Congress attendees will receive a name badge with their registration materials. Badges should be worn at all times as they are used to gain access into all International Congress sessions and activities. Badge colors will be identified as follows:

Blue = Delegate

Yellow = Exhibitor

Purple = Press

Black = Staff

### CAMERA POLICY

Cameras are not permitted in any 19th International Congress educational sessions or in the poster areas.

### CERTIFICATE OF ATTENDANCE

A certificate of attendance is available in the back of the 2015 Final Program.

## Connect to the Movement Disorder Community Through the MDS Website



International Parkinson and  
Movement Disorder Society

#### MDS Website Resources:

- Journals
- Online CME
- Video Library
- EBM Reviews
- Regional Section Updates
- Rating Scales
- MDS-UPDRS and UDysRS Online Training
- and much more!



Visit the MDS website today at [www.movementdisorders.org](http://www.movementdisorders.org)

## International Congress Information A-Z

### COFFEE BREAKS

Coffee and tea will be available at the following times/locations:

Sunday, June 14, 10:00 – 11:00	Seaport Foyer, 2nd Level
Monday, June 15, 10:00 – 10:30	Grand Hall, Lobby Level
Tuesday, June 16, 10:00 – 11:00	Grand Hall, Lobby Level
Wednesday, June 17, 10:00 – 10:30	Grand Hall, Lobby Level
Thursday, June 18, 9:30 – 10:00	Grand Hall, Lobby Level

### CONGRESS INFORMATION DESK

Location: Palm Foyer, 2nd Level (in the Registration area)

### CONTINUING MEDICAL EDUCATION (CME)

Please refer to page 9 for Continuing Medical Education information.

### CURRENCY

The official currency of the 19th International Congress is US Dollars; no other currency will be accepted.

### EVALUATIONS

Please take time to complete the evaluation form provided at each session you attend. Your input and comments are essential in planning future educational programs for MDS.

Upon completion, evaluations may be returned to the session room attendants, or to the MDS Booth (located in the Grand Hall, Lobby Level).

### EVENTS

#### Welcome Ceremony

##### Sunday, June 14

Location: Seaport Ballroom A–E, 2nd Level, Seaport Tower  
19:30 – 21:30

All International Congress attendees are warmly invited to attend the International Congress Welcome Ceremony at the Manchester Grand Hyatt. This event is open to all registered delegates.

#### MDS Video Challenge Pre-Event Gathering

##### Wednesday, June 17

Location: Harbor and Seaport Foyers, 2nd Level  
19:00 – 20:00

#### MDS Video Challenge

##### Wednesday, June 17

Location: Seaport Ballroom A–E, 2nd Level, Seaport Tower  
20:00 – 22:00

Please join Masters of Ceremony Anthony Lang and Kapil Sethi as they host a world-renowned panel of Movement Disorders experts in guiding

participants through unique Movement Disorder cases. The cases will be presented by representatives from Movement Disorder Centers around the world and discussed by the Panel of Experts. Awards will be given for the most interesting and challenging cases. Country pride will add an enjoyable spirit of competition to this event. The goal of this session is for attendees to learn from a series of unusual and interesting patients and see how senior experts approach these types of challenging cases.

The 2015 Panel of Experts are:

Susan Fox, *Canada*  
Shen-Yang Lim, *Malaysia*  
Tim Lynch, *Ireland*  
Susanne Schneider, *Germany*  
Maria Stamelou, *Greece*

This event is open to all registered delegates.

### EXHIBIT HALL

Location: Grand Hall, Lobby Level

For more information, please refer to pages 132-140.

Monday, June 15:	9:00 – 18:00
Tuesday, June 16:	9:00 – 18:00
Wednesday, June 17:	9:00 – 18:00
Thursday, June 18:	9:00 – 16:00

### FLOOR PLANS OF THE MANCHESTER GRAND HYATT

Please refer to page 14.

### GUIDED POSTER TOURS

Guided Poster Tours will give small groups of delegates an opportunity to hear discussion by abstract authors on a select group of abstracts in several sub-categories. They will take place in various session rooms, and will be led by members of the MDS faculty and leadership. There will be 16 total Guided Poster Tours with four simultaneous tours per day from Monday, June 15 through Thursday, June 18. Each tour will feature abstracts on a specific topic.

Please refer to pages 15–18 for further Guided Poster Tour information and schedules.

### INTERNET

Complimentary Wi-Fi will be available throughout the Manchester Grand Hyatt for all attendees. To access:

1. View available Wireless Networks
2. Connect to MDS Wi-Fi Network
3. Enter Password: sandiego



International Parkinson and  
Movement Disorder Society

## International Congress Information A-Z

### MDS BOOTH

Location: Grand Hall, Lobby Level

The MDS Booth hours are as follows:

Monday, June 15:	9:00 – 18:00
Tuesday, June 16:	9:00 – 18:00
Wednesday, June 17:	9:00 – 18:00
Thursday, June 18:	9:00 – 16:00

### OFFICIAL LANGUAGE

The official language of the International Congress is English.

### PRESS INFORMATION

Members of the working media receive waived registration for the 19th International Congress. Journalists and writers should report to the Congress Information Desk on the 2nd Level with their credentials to register for the International Congress. All press must wear their name badge for admittance into MDS sessions.

Please visit [www.mdscongress2015.org/Congress-2015/Press.htm](http://www.mdscongress2015.org/Congress-2015/Press.htm) for further information and requirements.

### REGISTRATION DESK

Location: Palm Foyer, 2nd Level

Name badges, scientific session tickets, abstract USB's, Final Programs and International Congress bags can be collected at the International Congress Registration Desk.

Registration Desk hours are as follows:

Saturday, June 13:	16:00 – 20:00
Sunday, June 14:	7:00 – 20:00
Monday, June 15:	7:00 – 18:00
Tuesday, June 16:	7:00 – 18:00
Wednesday, June 17:	7:00 – 18:00
Thursday, June 18:	7:00 – 16:00

### SCIENTIFIC SESSIONS

The 2015 Scientific Program will incorporate Therapeutic Plenary Sessions, Plenary and Parallel Sessions, Teaching Courses, Video Sessions, Skills Workshops, Guided Poster Tours and Blue Ribbon Highlights.

Sessions will focus on the latest developments in:

- Multi-system proteinopathies
- Movement Disorder topics, including, but not limited to, ataxia, chorea, dystonia, myoclonus, Parkinson's disease, restless legs syndrome, spasticity, stereotypies, tics and tremors

- Basic Science issues, including, but not limited to, genetics, neuroimaging, neuropharmacology, surgical therapy and transplantation
- Other less common clinical conditions

### SPECIAL ACCESSIBILITY NEEDS

To ensure any special needs can be properly met, requests should have been addressed in advance with the MDS International Secretariat. Delegates requiring special arrangements in order to fully participate in the International Congress should provide a written description of such needs to the MDS Information Desk upon arrival.

### SPEAKER READY ROOM

Location: Balboa A-B, 2nd Level, Seaport Tower

All speakers and Guided Poster Tour presenters must check in at the Speaker Ready Room with their presentation materials the day prior to their scheduled presentation. Equipment is available to allow faculty and presenters to review their presentations. Audio/Visual personnel will be available for assistance.

The Speaker Ready Room hours are as follows:

Saturday, June 13:	16:00 – 20:00
Sunday, June 14:	7:00 – 18:00
Monday, June 15:	7:00 – 18:00
Tuesday, June 16:	7:00 – 18:00
Wednesday, June 17:	7:00 – 18:00
Thursday, June 18:	7:00 – 16:00

### TICKETED SESSIONS

Tickets are required for admission into all Parallel Sessions, Teaching Courses, Video Sessions, and Skills Workshops. There is no additional fee for tickets to these sessions. Please check the Registration Desk for ticket availability.

Therapeutic Plenary Sessions, Plenary Sessions and poster sessions do not require a ticket to attend.

### VENUE

The Manchester Grand Hyatt  
One Market Place  
San Diego, CA 92101  
USA

### WEATHER

The average daytime temperature in San Diego in June is approximately 67° F (19° C).





International Parkinson and  
Movement Disorder Society  
Asian & Oceanian Section



# Save the Date

5<sup>th</sup> Asian and Oceanian Parkinson's Disease  
and Movement Disorders Congress  
March 11–13, 2016 • MANILA, PHILIPPINES



## Important Dates:

Abstract Submission Opens: **July 1, 2015**

Registration and Housing Opens: **September 25, 2015**

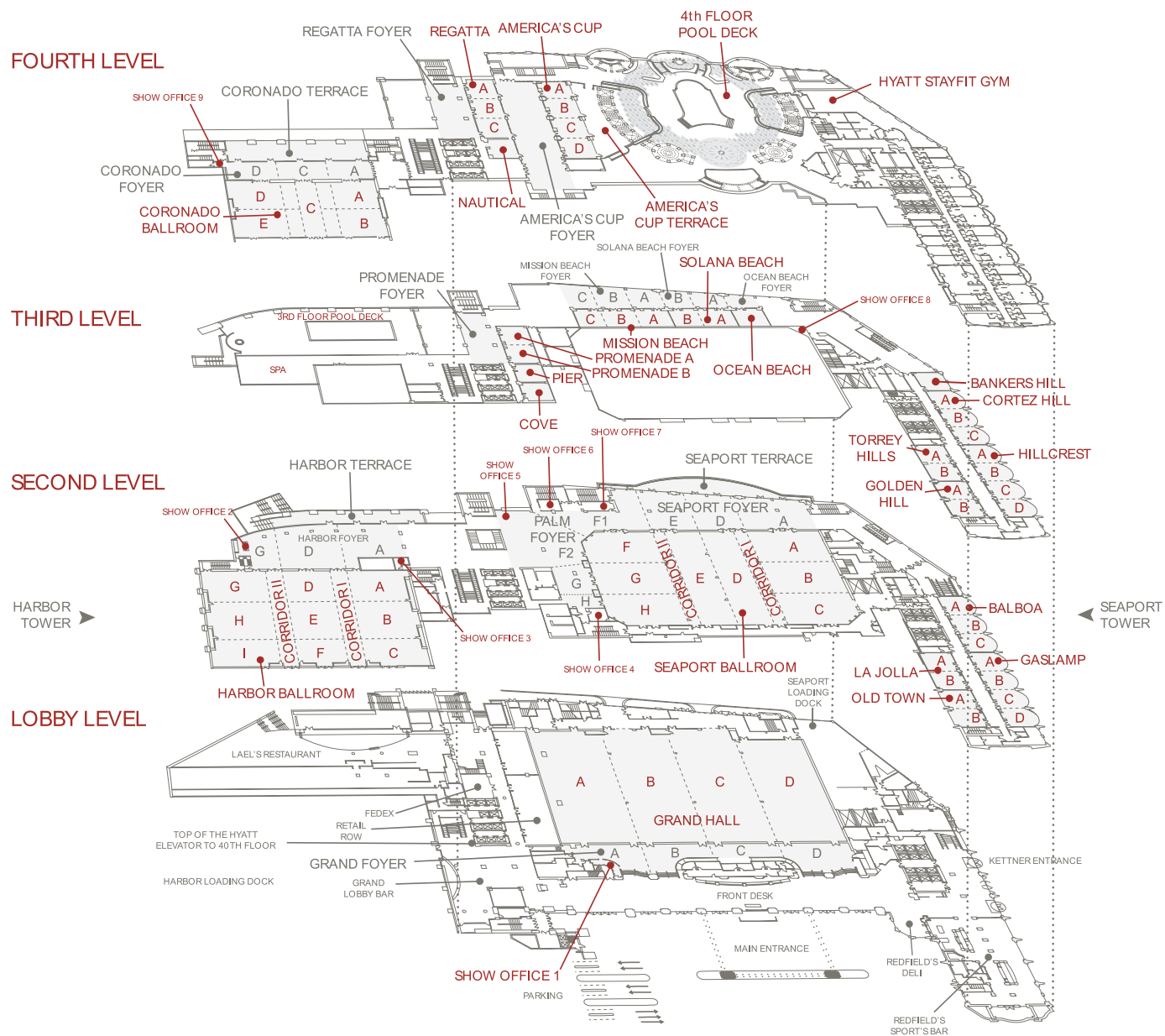
Abstract Submission Closes: **September 30, 2015**



[www.movementdisorders.org/AOPMC2016](http://www.movementdisorders.org/AOPMC2016)



## Manchester Grand Hyatt Floor Plan



### FOURTH LEVEL:

Posters  
Science and Technology Pavilion

### THIRD LEVEL:

Faculty/Leadership Lounge

### SECOND LEVEL:

Registration  
Speaker Ready Room  
Plenary Sessions  
Breakout Sessions  
Late-Breaking and  
Study Group Posters

Guided Poster Tours  
Regional Assemblies  
MDS Business Meeting  
Welcome Ceremony  
MDS Video Challenge  
Corporate Therapeutic Symposia

### LOBBY LEVEL:

Exhibits  
Posters

## Abstract Information and Schedules

### ABSTRACT PUBLICATION

All regular accepted abstracts are published as a supplement to the MDS Journal and are available utilizing a searchable feature on the Congress website, [www.mdscongress2015.org/Congress-2015/Abstracts](http://www.mdscongress2015.org/Congress-2015/Abstracts), as of June 14, 2015. Please also visit [www.movementdisorders.org](http://www.movementdisorders.org) to access The *Movement Disorders* Journal, where you can download a PDF of accepted abstracts.

All registered Congress delegates will also receive the published abstracts on a USB, available for pickup in the registration area during regular Congress hours.

Late-Breaking Abstracts and MDS Study Group Abstracts are published as an online supplement on the 2015 International Congress website, [www.mdscongress2015.org/Congress-2015/Abstracts](http://www.mdscongress2015.org/Congress-2015/Abstracts). These abstracts are available for download as of June 14, 2015.

### GUIDED POSTER TOURS

Guided Poster Tours give groups of delegates an opportunity to hear discussion on a select group of abstracts in several sub-categories. Attendance is limited, and admission will be granted on a first-come, first-served basis. Guided Poster Tours do not require a ticket to attend.

A list of Guided Poster Tour abstracts and authors can be found on pages 54 – 61. Abstracts selected for a Guided Poster Tour presentation are published in a supplement to the MDS Journal, and can be found on the searchable abstract website.

### LATE-BREAKING ABSTRACTS

All accepted Late-Breaking Abstract posters are displayed in the Harbor Foyer, 2nd Level, Harbor Tower, Monday – Thursday throughout the duration of the Congress. Late-Breaking Abstract poster presentations will take place Wednesday, June 17 from 12:00 – 13:30 in the Harbor Foyer, 2nd Level, Harbor Tower.

### MDS STUDY GROUP ABSTRACTS

All accepted MDS Study Group Abstract posters are displayed in the Harbor Foyer, 2nd Level, Harbor Tower, Monday – Thursday throughout the duration of the Congress. MDS Study Group Abstract poster presentations will take place Wednesday, June 17 from 12:00 – 13:30 in the Harbor Foyer, 2nd Level, Harbor Tower.

### POSTER SESSIONS

Poster sessions give each delegate an opportunity to view their colleagues' posters on the most current research in the field of Movement Disorders. Authors will be present for 1.5 hours each day to explain their work and answer questions. All accepted abstracts are presented as a poster at the 2015 International Congress.

Poster sessions are held Monday – Thursday during the Congress. Posters are available for viewing in the Grand Hall, Lobby Level, and the Coronado Ballroom, 4th Level, Harbor Tower, from 9:00 – 18:00, Monday through Wednesday, and 9:00 – 16:00 on Thursday. Poster session topics and schedules vary by date; please see the complete listing of scheduled poster presentation dates, times and locations on pages 16 – 18.





## Abstract Information

### POSTER SESSION SCHEDULE (LISTED BY ABSTRACT NUMBER)

All poster sessions will take place at the Congress venue; the Manchester Grand Hyatt, in the specific room locations as listed below.

#### Monday, June 15 • Presentation Time: 12:30 - 14:00

Abstract Numbers:	Category Name:	Location:
1-66	Parkinson's disease: Neuroimaging and neurophysiology	Grand Hall (Lobby Level)
67-136	Parkinson's disease: Pathophysiology	Grand Hall (Lobby Level)
137-167	Parkinson's disease: Psychiatric manifestations	Grand Hall (Lobby Level)
168-350	Parkinson's disease: Clinical trials, pharmacology and treatment	Coronado Ballroom (4th Level, Harbor Tower)
351-364	Choreas (non-Huntington's disease)	Coronado Ballroom (4th Level, Harbor Tower)
365-374	Myoclonus	Coronado Ballroom (4th Level, Harbor Tower)

#### Tuesday, June 16 • Presentation Time: 12:30 - 14:00

Abstract Numbers:	Category Name:	Location:
375-489	Parkinson's disease: Non-motor symptoms	Grand Hall (Lobby Level)
490-514	Neurophysiology	Grand Hall (Lobby Level)
515-524	Therapy in movement disorders: Neurotoxin	Grand Hall (Lobby Level)
525-531	Pediatric movement disorders	Grand Hall (Lobby Level)
532-535	History	Grand Hall (Lobby Level)
536-633	Surgical Therapy: Parkinson's disease	Coronado Ballroom (4th Level, Harbor Tower)
634-667	Surgical Therapy: Other movement disorders	Coronado Ballroom (4th Level, Harbor Tower)
668-740	Other (non-category specific)	Coronado Ballroom (4th Level, Harbor Tower)

#### Wednesday, June 17 • Presentation Time: 12:00 - 13:30

Abstract Numbers:	Category Name:	Location:
741-754	Drug-induced movement disorders	Grand Hall (Lobby Level)
755-770	Neuropharmacology	Grand Hall (Lobby Level)
771-846	Parkinsonism (secondary and parkinsonism-plus)	Grand Hall (Lobby Level)
845-903	Parkinson's disease: Cognition	Grand Hall (Lobby Level)
904-907	Pathophysiology (other movement disorders)	Grand Hall (Lobby Level)
908-957	Ataxia	Coronado Ballroom (4th Level, Harbor Tower)
958-965	Education in movement disorders	Coronado Ballroom (4th Level, Harbor Tower)
966-1016	Neuroimaging	Coronado Ballroom (4th Level, Harbor Tower)
1017-1066	Parkinson's disease: Genetics	Coronado Ballroom (4th Level, Harbor Tower)
1067-1089	Rating scales	Coronado Ballroom (4th Level, Harbor Tower)
1090-1111	Therapy in movement disorders: Medical	Coronado Ballroom (4th Level, Harbor Tower)
	Late-Breaking and MDS Study Group Abstracts	Harbor Foyer (2nd Level, Harbor Tower)

#### Thursday, June 18 • Presentation Time: 12:00 - 13:30

Abstract Numbers:	Category Name:	Location:
1112-1148	Epidemiology	Grand Hall (Lobby Level)
1149-1182	Genetics	Grand Hall (Lobby Level)
1183-1218	Phenomenology and clinical assessment of movement disorders	Grand Hall (Lobby Level)
1219-1237	Rare genetic and metabolic diseases	Grand Hall (Lobby Level)
1238-1253	Restless legs syndrome and other sleep disorders	Grand Hall (Lobby Level)
1254-1263	Tics/Stereotypies	Grand Hall (Lobby Level)
1264-1266	Therapy in movement disorders: Gene and cell-based therapies	Grand Hall (Lobby Level)
1267-1278	Cognitive disorders	Coronado Ballroom (4th Level, Harbor Tower)
1279-1362	Dystonia	Coronado Ballroom (4th Level, Harbor Tower)
1363-1395	Huntington's disease	Coronado Ballroom (4th Level, Harbor Tower)
1396-1426	Quality of life/caregiver burden in movement disorders	Coronado Ballroom (4th Level, Harbor Tower)
1427-1439	Spasticity	Coronado Ballroom (4th Level, Harbor Tower)
1440-1473	Tremor	Coronado Ballroom (4th Level, Harbor Tower)

## Abstract Information

### POSTER SESSION SCHEDULE (LISTED ALPHABETICALLY BY ABSTRACT CATEGORY)

Category Name		Presentation Date:	Presentation Time:	Location
Ataxia	908-957	Wednesday, June 17	12:00 - 13:30	Coronado Ballroom (4th Level, Harbor Tower)
Choreas (non-Huntington's disease)	351-364	Monday, June 15	12:30 - 14:00	Coronado Ballroom (4th Level, Harbor Tower)
Cognitive disorders	1267-1278	Thursday, June 18	12:00 - 13:30	Coronado Ballroom (4th Level, Harbor Tower)
Drug-induced movement disorders	741-754	Wednesday, June 17	12:00 - 13:30	Grand Hall (Lobby Level)
Dystonia	1279-1362	Thursday, June 18	12:00 - 13:30	Coronado Ballroom (4th Level, Harbor Tower)
Education in movement disorders	958-965	Wednesday, June 17	12:00 - 13:30	Coronado Ballroom (4th Level, Harbor Tower)
Epidemiology	1112-1148	Thursday, June 18	12:00 - 13:30	Grand Hall (Lobby Level)
Genetics	1149-1182	Thursday, June 18	12:00 - 13:30	Grand Hall (Lobby Level)
History	532-535	Tuesday, June 16	12:30 - 14:00	Grand Hall (Lobby Level)
Huntington's disease	1363-1395	Thursday, June 18	12:00 - 13:30	Coronado Ballroom (4th Level, Harbor Tower)
Myoclonus	365-374	Monday, June 15	12:30 - 14:00	Coronado Ballroom (4th Level, Harbor Tower)
Neuroimaging	966-1016	Wednesday, June 17	12:00 - 13:30	Coronado Ballroom (4th Level, Harbor Tower)
Neuropharmacology	755-770	Wednesday, June 17	12:00 - 13:30	Grand Hall (Lobby Level)
Neurophysiology	490-514	Tuesday, June 16	12:30 - 14:00	Grand Hall (Lobby Level)
Other (non-category specific)	668-740	Tuesday, June 16	12:30 - 14:00	Coronado Ballroom (4th Level, Harbor Tower)
Parkinsonism (secondary and parkinsonism-plus)	771-846	Wednesday, June 17	12:00 - 13:30	Grand Hall (Lobby Level)
Parkinson's disease: Clinical trials, pharmacology and treatment	168-350	Monday, June 15	12:30 - 14:00	Coronado Ballroom (4th Level, Harbor Tower)
Parkinson's disease: Cognition	845-903	Wednesday, June 17	12:00 - 13:30	Grand Hall (Lobby Level)
Parkinson's disease: Genetics	1017-1066	Wednesday, June 17	12:00 - 13:30	Coronado Ballroom (4th Level, Harbor Tower)
Parkinson's disease: Neuroimaging and neurophysiology	1-66	Monday, June 15	12:30 - 14:00	Grand Hall (Lobby Level)
Parkinson's disease: Non-motor symptoms	375-489	Tuesday, June 16	12:30 - 14:00	Grand Hall (Lobby Level)
Parkinson's disease: Pathophysiology	67-136	Monday, June 15	12:30 - 14:00	Grand Hall (Lobby Level)
Parkinson's disease: Psychiatric manifestations	137-167	Monday, June 15	12:30 - 14:00	Grand Hall (Lobby Level)
Pathophysiology (other movement disorders)	904-907	Wednesday, June 17	12:00 - 13:30	Grand Hall (Lobby Level)
Pediatric movement disorders	525-531	Tuesday, June 16	12:30 - 14:00	Grand Hall (Lobby Level)
Phenomenology and clinical assessment of movement disorders	1183-1218	Thursday, June 18	12:00 - 13:30	Grand Hall (Lobby Level)
Quality of life/caregiver burden in movement disorders	1396-1426	Thursday, June 18	12:00 - 13:30	Coronado Ballroom (4th Level, Harbor Tower)
Rare genetic and metabolic diseases	1219-1237	Thursday, June 18	12:00 - 13:30	Grand Hall (Lobby Level)
Rating scales	1067-1089	Wednesday, June 17	12:00 - 13:30	Coronado Ballroom (4th Level, Harbor Tower)
Restless legs syndrome and other sleep disorders	1238-1253	Thursday, June 18	12:00 - 13:30	Grand Hall (Lobby Level)
Spasticity	1427-1439	Thursday, June 18	12:00 - 13:30	Coronado Ballroom (4th Level, Harbor Tower)
Surgical Therapy: Other movement disorders	634-667	Tuesday, June 16	12:30 - 14:00	Coronado Ballroom (4th Level, Harbor Tower)
Surgical Therapy: Parkinson's disease	536-633	Tuesday, June 16	12:30 - 14:00	Coronado Ballroom (4th Level, Harbor Tower)
Therapy in movement disorders: Gene and cell-based therapies	1264-1266	Thursday, June 18	12:00 - 13:30	Grand Hall (Lobby Level)
Therapy in movement disorders: Medical	1090-1111	Wednesday, June 17	12:00 - 13:30	Coronado Ballroom (4th Level, Harbor Tower)
Therapy in movement disorders: Neurotoxin	515-524	Tuesday, June 16	12:30 - 14:00	Grand Hall (Lobby Level)
Tics/Stereotypies	1254-1263	Thursday, June 18	12:00 - 13:30	Grand Hall (Lobby Level)
Tremor	1440-1473	Thursday, June 18	12:00 - 13:30	Coronado Ballroom (4th Level, Harbor Tower)



## Abstract Schedules

### GUIDED POSTER TOUR SCHEDULE

\* No Guided Poster Tours on Sunday

Guided Poster Tours give groups of delegates an opportunity to hear discussion on a select group of abstracts in several sub-categories. Attendance is limited, and admission will be granted on a first-come, first-served basis. Guided Poster Tours do not require a ticket to attend.

A list of Guided Poster Tour abstracts and authors can be found on page 54 – 61. Abstracts selected for a Guided Poster Tour presentation are published in a supplement to the MDS Journal, and can be found on the searchable abstract website.

#### MONDAY, JUNE 15 • 12:30 - 14:00

GPT 1	Parkinson's disease: Phenomenology	Seaport F, 2nd Level, Seaport Tower
GPT 2	Sleep disorders and RLS	Harbor A, 2nd Level, Harbor Tower
GPT 3	Tremor	Harbor B-C, 2nd Level, Harbor Tower
GPT 4	Parkinson's disease: Non- motor features	Harbor G, 2nd Level, Harbor Tower

#### TUESDAY, JUNE 16 • 12:30 - 14:00

GPT 5	Lewy body dementia and Dementias	Seaport F, 2nd Level, Seaport Tower
GPT 6	Huntington's disease and other choreiform disorders	Harbor A, 2nd Level, Harbor Tower
GPT 7	Rating scales	Harbor B-C, 2nd Level, Harbor Tower
GPT 8	Genetics	Harbor G, 2nd Level, Harbor Tower

#### WEDNESDAY, JUNE 17 • 12:00 - 13:30

GPT 9	Parkinson's disease: Clinical trials	Seaport F, 2nd Level, Seaport Tower
GPT 10	Dystonia	Harbor A, 2nd Level, Harbor Tower
GPT 11	Surgical therapy of Movement Disorders	Harbor B-C, 2nd Level, Harbor Tower
GPT 12	Basic Science	Harbor G, 2nd Level, Harbor Tower

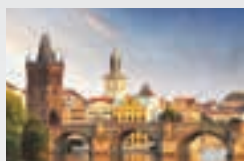
#### THURSDAY, JUNE 18 • 12:00 - 13:30

GPT 13	Atypical Parkinsonism	Seaport F, 2nd Level, Seaport Tower
GPT 14	Surgical therapy of Parkinson's disease	Harbor A, 2nd Level, Harbor Tower
GPT 15	Parkinson's disease: Cognitive and behavioral aspects	Harbor B-C, 2nd Level, Harbor Tower
GPT 16	Parkinson's disease: Neuropharmacology	Harbor G, 2nd Level, Harbor Tower

## 2015 MDS Education Calendar



International Parkinson and  
Movement Disorder Society



**MDS-ES Summer School for  
Young Neurologists**  
September 4-6, 2015  
Prague, Czech Republic



**Deep Brain Stimulation for  
Movement Disorders**  
September 10-11, 2015  
Grenoble, France



**Allied Health Team Training for  
Parkinson's Disease**  
September 10-12, 2015  
São Paulo, Brazil



**Bridges and Boundaries in  
Movement Disorders:  
The Role of Neuroimaging**  
November 12-13, 2015  
Pisa, Italy



**2nd Middle East  
Camp for Parkinson's,  
Movement Disorders and  
Neuromodulation**  
November 19-21, 2015  
Dubai, UAE



**MDS-PAS School for Young  
Neurologists**  
November 26-28, 2015  
Mexico City, Mexico

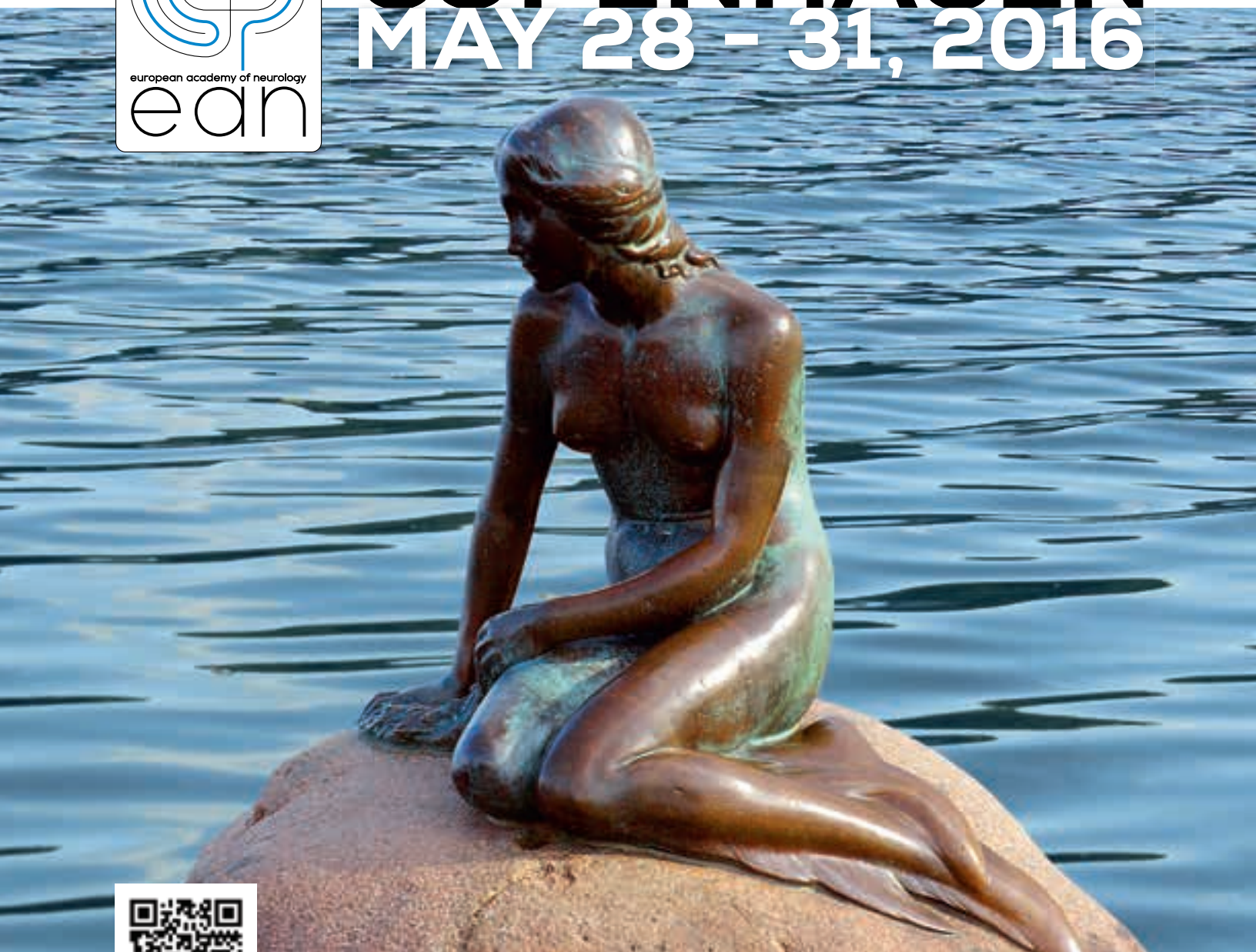
Dates and Locations are subject to change.  
For a complete up-to-date list of courses, visit

[www.movementdisorders.org/  
MDS/education.htm](http://www.movementdisorders.org/MDS/education.htm)





EUROPEAN ACADEMY OF NEUROLOGY  
**COPENHAGEN**  
MAY 28 - 31, 2016



JOIN MORE  
THAN 6000 COLLEAGUES  
AT THE SECOND CONGRESS OF THE  
**EUROPEAN ACADEMY  
OF NEUROLOGY!**

[www.eaneurology.org/copenhagen2016](http://www.eaneurology.org/copenhagen2016)



## Map of Downtown San Diego



### Downtown/Balboa Park/Hillcrest/North Park Accommodations

Map Location	Hotel	Guest Rooms	Map Location	Hotel	Guest Rooms
1 America's Best Value Inn – Convention Center		42	13 Ivy Hotel		142
2 The Bristol San Diego		102	14 Manchester Grand Hyatt San Diego		1,625
3 Courtyard by Marriott San Diego Downtown		245	15 Omni San Diego Hotel		511
4 Embassy Suites Hotel San Diego Bay – Downtown		337	16 Radisson Hotel Harbor View		333
5 Hard Rock Hotel San Diego		420	17 San Diego Marriott Gaslamp Quarter		306
6 Hilton San Diego Convention Center		1,190	18 San Diego Marriott Hotel & Marina		1,362
7 Hilton San Diego Gaslamp Quarter		282	19 Sheraton Suites San Diego at Symphony Hall		264
8 Holiday Inn Express – Downtown San Diego		136	20 The Sofia Hotel		212
9 Holiday Inn on the Bay		600	21 The US Grant		270
10 Horton Grand Hotel		132	22 The Westin Horton Plaza San Diego		450
11 Hotel Solamar San Diego		235	23 The Westin San Diego		436
12 Hostelling International		33	24 W San Diego		258



## Awards Information

### HONORARY MEMBERSHIP AWARDS

The Honorary Membership Awards recognize individuals who have made extraordinary contributions to the field of Movement Disorders or otherwise to the Society.

**Sunday, June 14, as part of the Welcome Ceremony**

19:30 – 21:30



C. Warren Olanow, MD, FRCPC  
New York, NY, USA



Anne Young, MD, PhD  
Boston, MA, USA

### PRESIDENT'S DISTINGUISHED SERVICE AWARD

The President's Distinguished Service Award is given in recognition of long and distinguished service to the International Parkinson and Movement Disorder Society.

**Sunday, June 14, as part of the Welcome Ceremony**

19:30 – 21:30

### STANLEY FAHN LECTURE

**Monday, June 15** as part of Plenary Session 2101: Presidential Lectures  
8:00 – 8:30

The Stanley Fahn Award Lecture was created to recognize an outstanding scholar and role-model clinician in the field of Movement Disorders. The selected lecturer must show evidence of exceptional contributions which have resulted in better understanding of the cause, diagnosis, or treatment of Movement Disorders, and have translated into meaningful improvements in the standard of clinical practice. The selected lecturer must demonstrate evidence of consistent dedication to Movement Disorders education and research.

### The enigma of action tremor in the elderly

Stanley Fahn Lecturer – Günther Deuschl, MD



Günther Deuschl received his MD at the University of Munich and started his training with Albrecht Strupp at the Department of Neurology in Munich and subsequently worked in Freiburg with C.H. Lüking and E. Schenk where he was promoted to assistant professor in 1988 and associate professor in 1993. In 1991 he spent a sabbatical at the National Institutes of Health, Bethesda/USA with Mark Hallett. In 1995 he was elected as full Professor of Neurology at the Christian-Albrechts-University in Kiel, Germany, and chairman of the Department of Neurology and is still in this position. He has built a visible deep brain surgery program in Kiel. Together with his team he focused on the pathophysiology and clinical studies for deep brain stimulation for Parkinson's disease and dystonia. He created a national research group for deep brain stimulation which has contributed to the development of the field. His other main interest has been the study of tremor particularly clinical analysis, epidemiology, genetics, computational analysis, pathophysiology and neurophysiology of tremors. He led the writing group for the MDS consensus statement on tremor. Further scientific interests are dystonia, amnesic syndromes and clinical neurophysiology. Publications see: [www.researcherid.com/rid/A-7986-201](http://www.researcherid.com/rid/A-7986-201).

Prof. Deuschl received many high ranking awards and honors like Max Nonne and H. Berger awards. He is currently a visiting Professor at the Shanghai Jiao Tong University and is an honorary member of several neurological Societies. He was the Editor of *Movement Disorders* from 2004-2010 and is an Editorial Board member of several international journals. He has served as the president of the German Society of Neurology (2006-2008), as the President of the International Parkinson and Movement Disorder Society (2011-2013) and is currently president of the European Academy of Neurology. He is glad to have many fellows and friends in the movement disorder community around the world.





## Awards Information

### C. DAVID MARSDEN LECTURE

**Monday, June 15** as part of Plenary Session 2101: Presidential Lectures  
9:30 – 10:00

The C. David Marsden Lecture was created to recognize an outstanding scholar and inspiring neuroscientist in the field of Movement Disorders. The selected lecturer must show evidence of exceptional contributions which have resulted in better understanding of the neurobiology of Movement Disorders, and have translated into tangible improvements in clinical therapy and/or providing insight into normal brain function in the control of movement. The selected lecturer must demonstrate evidence of consistent dedication to Movement Disorder education and research.

**Basil Ganglia and Pathophysiology: Puzzles, paradoxes and clues**  
C. David Marsden Lecturer – José Obeso, MD, PhD



José A. Obeso graduated from the University of Navarra in 1976 and specialized in neurology and neurophysiology in San Sebastian and Pamplona, Spain. From 1980 to 1982 he worked as a researcher in movement disorders under the supervision of Professor C. David Marsden in London. These two years made a decisive impact in his career. Prof. Obeso is currently director of the CINAC at the Hospital Puerta del Sur in Mostoles, Madrid, Spain and full Professor of Neurology in the CEU-San Pablo University in Madrid. He has directed a highly productive clinical and experimental group for many years, with significant contributions in areas such as dystonia and myoclonus, continuous dopaminergic for Parkinson's disease, pathophysiology of the basal ganglia and surgical treatment of Parkinson's disease. Prof. Obeso and his team have concentrated on defining compensatory mechanism in early phase of PD and in determining the most relevant therapeutic challenges in PD. Currently he is focused on defining the origin of cell vulnerability in Parkinson's disease and the need to stop the neurodegeneration process rather than concentrating on restoring striatal dopamine levels only. He is the Chief Editor of the *Movement Disorders Journal*, the leading publication in the field of Parkinson's disease and movement disorders.

Prof. Obeso has published more than 325 peer-reviewed papers on movement disorders and the pathophysiology of the basal ganglia, the mechanisms of surgery and more recently in a new more progressive model of inducing dopamine depletion in the rat and monkey. He has a high number of relevant publications in top general journals of medicine like *The Lancet* and *New England Journal of Medicine*, *Lancet Neurology*, *Nature*

*Medicine*, and particularly in neurology/neuroscience journals like, *Annals of Neurology*, *Brain*, *Trends in Neuroscience*. etc. His current H-index is 68. He has also contributed to teaching and academics with over one hundred book chapters including one recently in the Harrison's Textbook of Medicine (with Drs. Olanow and Schapira), editorial pieces and several hundred communications and lectures at scientific meetings. Prof. Obeso has also served on the editorial boards of prestigious journals, including *Annals of Neurology*, and *Movement Disorders* and has reviewed routinely for *Lancet*, *Lancet Neurology*, *Journal of Neuroscience*, *Brain*, *Neurobiology of Disease*, etc. and served on the scientific grants review committees of the Parkinson's Disease Foundation, Michael J. Fox Foundation, Anne Obrecht Parkinson Foundation or Dystonia Foundation. He is an honorary member and Invited Professor of several organizations and institutions such as the Colombian Neurological Association, French Neurological Society, Bolivian Neurological Association and Professor of the Universidad de La Habana (Cuba).

### JUNIOR AWARDS

Three Junior Awards recipients have been selected based on their significant contribution to research in the field of Movement Disorders.

**Monday, June 15**

8:30 – 9:30

2101: Plenary Session: Presidential Lectureships

Chairs: Matthew Stern, Oscar Gershanik

### Md. Mashiar Rahman, PhD

Jeonju-si, Jeollabuk-Do, Korea

#### The mitochondrial serine protease HtrA2 degrades disease-associated prion protein

Md. Mashiar Rahman, PhD<sup>1</sup>, Shahina Akhter, PhD<sup>2</sup> and Seong-Tshool Hong, PhD<sup>2</sup>. <sup>1</sup>Department of Genetic Engineering and Biotechnology, Jessore University of Science & Technology, Jessore, Khulna, Bangladesh, 7408 and <sup>2</sup>Department of Medicine, Chonbuk National University, Jeonju, Jeollabuk-do, Republic of Korea, 561756.

**Objective:** The goal of this study was to elucidate the neuroprotective role of HtrA2 in prion disease (PrD)

**Background:** The clearance of disease-associated prion protein in brain is the most challenging and important task in current biomedical research. Until now, there are no evidences available for intraneuronal PrP detoxification. Bacterial HtrA/DegP is part of a large family of related serine proteases, members of which are found in most organisms, including humans and *Drosophila*. One of the four human serine proteases, HtrA2 has extensive homology with bacterial heat-shock protein DegP, which protects bacterial cells from stress-induced toxicity due to misfolded proteins.



## Awards Information

**Methods:** We took advantages of *Drosophila* genetics to direct the pan-neuronal expression of wild-type mouse prion protein (mPrP) or HtrA2 or co-expression of mPrP with HtrA2 to examine the functional role of HtrA2 in prion disease by linking directly HtrA2 with the prion protein. It has been performed in vitro enzymatic assay between disease-associated mPrP and HtrA2 followed by inhibition assay by using HtrA2-specific inhibitor to shed light on HtrA2 ability to protect PrP-induced Prion disease (PrD).

**Results:** The ectopic expression of mPrP showed accumulation of mPrP in the brain of *Drosophila* with a much more punctuate pattern of immunoreactivity particularly at older ages with prominent intracellular inclusion, reduced lifespan, locomotor dysfunction and rough eyes phenotype, which indicates a toxic dominant mechanism of mPrP for the etiopathogenesis of PrD. The ectopic expression of HtrA2 alone markedly improved the locomotion and longevity of the fly. However, upon co-expression; HtrA2 completely degraded accumulated mPrP in the fly brain resulted the rescue of the mPrP-induced phenotype of premature loss of climbing ability, longevity and developmental defects in the *Drosophila* eye. In vitro enzymatic assay also showed that HtrA2 has the capability to degrade disease-associated prion protein from PrD *Drosophila* brain.

**Conclusions:** Our results demonstrated the new insight into the detoxification pathway of intraneuronal disease-associated PrP suggesting the neuroprotective role of HtrA2 in PrD, which recapitulates the possible neuroprotective function of HtrA2 in AD and PD because amyloid-beta, alpha-synuclein and prion protein have a common structure and mechanism of toxicity in their pathological state.

### Carine Maurer, MD, PhD

Bethesda, MD, USA

#### Mechanisms underlying impaired self-agency in functional movement disorders: a resting state fMRI study

Carine W Maurer, MD/PhD<sup>1</sup>, Silvina Horovitz, PhD<sup>1</sup>, Kathrin LaFaver, MD<sup>1</sup> and Mark Hallett, MD<sup>1</sup>. <sup>1</sup>Human Motor Control Section, NINDS, National Institutes of Health, Bethesda, MD, United States, 20892.

**Objective:** To assess the neural mechanisms underlying lack of self-agency in patients with functional movement disorders (FMD).

**Background:** The abnormal movements produced by patients with FMD are generated by normal voluntary motor pathways, but are perceived by patients as being involuntary. This lack of self-agency is one of the key features of FMD. The right temporo-parietal junction (TPJ) has been proposed to play an important role in self-agency by comparing internal predictions of movement with actual external events, acting as a

“mismatch detector”. Although task-based fMRI studies have previously demonstrated hypoactivity of the right TPJ in FMD patients, this region has not been examined in the resting state.

**Methods:** Resting state multi-echo BOLD fMRI and MP-RAGE images were obtained in 35 patients with clinically definite FMD and 35 age- and sex-matched healthy controls using a 3T Skyra Siemens scanner. Pre-processing was performed using the AFNI tool meica.py. Group-wise comparison between FMD patients and healthy controls was performed using AFNI GroupInstaCorr with the right TPJ as seed region-of-interest. Age, sex, BDI depression scores and childhood trauma scores were included as potential covariates.

**Results:** As compared to controls, FMD patients demonstrated decreased functional connectivity ( $p < 0.05$  corrected) between the right TPJ and the bilateral precentral gyri, left declive, bilateral insula, left middle cingulate, bilateral middle temporal gyri, right posterior cingulate, and left superior frontal gyrus. There was no effect of age, sex, or BDI score. Patients exhibited increased functional connectivity between the right TPJ and the left inferior parietal region with increasing levels of childhood emotional trauma.

**Conclusions:** We propose that the diminished functional connectivity between the right TPJ and the above-mentioned motor regions reflects impaired feedforward with the brain's “mismatch detector”. Furthermore, diminished functional connectivity between the right TPJ and the bilateral insula may reflect impaired intentional binding. We suggest that these mechanisms may contribute to the reduced sense of agency in FMD patients.

### Bettina Balint, MD

London, United Kingdom

#### Antibody spectrum in Stiff Person Syndrome and related disorders

Bettina Balint, MD<sup>1,2</sup>, Inga M Blöcker, PhD<sup>3</sup>, Mandy Unger, PhD<sup>3</sup>, Winfried Stöcker, MD<sup>3</sup>, Christian Probst, PhD<sup>3</sup>, Lars Komorowski, PhD<sup>3</sup> and Hans-Michael Meinck, MD<sup>2</sup>. <sup>1</sup>Sobell Department of Motor Neuroscience, UCL Institute of Neurology, London, United Kingdom; <sup>2</sup>Department of Neurology, University Hospital Heidelberg, Heidelberg, Germany and <sup>3</sup>Institute of Experimental Immunology, EUROIMMUN AG, Luebeck, Germany.

**Objective:** To determine the spectrum and prevalence of antibodies associated with Stiff Person Syndrome and related disorders (SPSD) in a large cohort.

**Background:** New antibodies targeting the glycine receptor (GlyR), GABA A receptor (GABAAR), and dipeptidyl-peptidase-like protein-6



## Awards Information

(DPPX) have been recently described in SPSP. Such neuronal surface antibodies are deemed pathogenic and to be associated with a better response to immunotherapy compared to the hitherto known antibodies against intracellular antigens like glutamic acid decarboxylase (GAD), amphiphysin, and gephyrin.

**Methods:** We included 73 SPSP patients (SPS=44; SLS=6; PERM=23) and 5 patients with acquired hyperekplexia, 3 of them with brainstem encephalitis. Previous positive antibody results (laboratories Prof Vincent, Oxford, and University Hospital Heidelberg) were included in the evaluation. For antibody detection we used indirect immunofluorescence applying frozen tissue sections (rat: hippocampus, cerebellum; monkey: cerebellum) and recombinant cell substrates, each expressing a different neuronal antigen [GABABR, GABAAR (A1+B3), GlyR, GAD65, amphiphysin, gephyrin, DPPX, SLC6A5/GlyT2].

**Results:** 54 SPSP sera contained GAD-ab (SPS=31; PERM=19; SLS=4). 7 of the GAD-ab positive sera harboured also GlyR-ab (n=1, SPS), GlyT2-ab (n=2, PERM), or amphiphysin-ab (low titre n=3, 1 SPS, 1 PERM; high titre

n=1, paraneoplastic SPS). 3 SPS patients had high titres of amphiphysin-ab; in 2 cases a paraneoplastic aetiology was established, for 1 patient data were incomplete. GlyR-ab were present in 9 sera (SPS=7, PERM=2); in 3 of these, other antibodies were also present (low titre DPPX-ab, n=2 (SPS), GAD-ab in 1 SPS patient). DPPX-ab at high titres were present in 2 sera of previously reported PERM patients. 1 patient with brainstem encephalitis with hyperekplexia had GlyR-ab and gephyrin-ab. No antibodies were detected in the remaining hyperekplexia patients and in 6 SPSP patients. No patient had GABAAR-ab.

**Conclusions:** We found antibodies against the presynaptic surface-expressed GlyT2 for the first time and report the second case with gephyrin-ab. Altogether, GAD-ab were the most prevalent (74%) followed by GlyR-ab (17%). Amphiphysin-ab were most frequently associated with paraneoplastic disease. DPPX-ab and GABAAR-ab seem not to be frequent in SPSP. Multiple antibodies occurred overall in 13%. We did not observe any phenotype-serotype correlation which might guide antibody testing.





## Awards Information — 2015 Travel Grants

Muneer Abu Snineh <i>Israel</i>	Anand Diwan <i>India</i>	Katsuo Kimura <i>Japan</i>	Robert Nickl <i>Germany</i>
Robert Adam <i>Australia</i>	Ahmad Elkouzi <i>United States</i>	Florian Krismer <i>Austria</i>	Roberto Ortega <i>United States</i>
Emmanuel Akano <i>United States</i>	Richard Erasm <i>Germany</i>	Marium Kulsum <i>India</i>	Jin Sung Park <i>Australia</i>
Ayca Altinkaya <i>Turkey</i>	Benedikt Fabry <i>Germany</i>	Sheng-Han Kuo <i>United States</i>	Sachin Patil <i>India</i>
Julius Anang <i>Canada</i>	Seyed-Mohammad Fereshtehnejad <i>Sweden</i>	Ling Liu <i>Peoples Republic of China</i>	Matthew Petrucci <i>United States</i>
Jan Bardon <i>Czech Republic</i>	Michelle Fullard <i>United States</i>	Karlo Lizarraga <i>United States</i>	Marina Picillo <i>Canada</i>
Rui Duarte Barreto <i>Portugal</i>	Carmen Gasca-Salas <i>Canada</i>	Matthias Lohle <i>Germany</i>	Ahmed Qavi <i>Pakistan</i>
Michael Bonello <i>United Kingdom</i>	Matthew Georgiades <i>Australia</i>	Jose Lopez-Castellanos <i>El Salvador</i>	Md. Mashiar Rahman <i>Bangladesh</i>
Linda Borellini <i>Italy</i>	Gimena Gomez <i>Argentina</i>	Marianne Luinstra <i>Netherlands</i>	Gesine Respondek <i>Germany</i>
Lauren Broom <i>United States</i>	Jessica Gonzalez Mujica <i>Peru</i>	Lingyan Ma <i>Peoples Republic of China</i>	Daphne Robakis <i>United States</i>
Florian Brugger <i>United Kingdom</i>	Jennifer Han <i>United States</i>	Graziella Madeo <i>Italy</i>	Priscila Rocha <i>Australia</i>
Abderrahmane Chahidi <i>Morocco</i>	Sebastian Heinzl <i>Germany</i>	Abhimanyu Mahajan <i>United States</i>	Flavio Augusto Sallem <i>Brazil</i>
Payel Chatterjee <i>India</i>	Andreas Horn <i>Germany</i>	Stephanie Mangesius <i>Austria</i>	Armando Sanchez-Jordan <i>Mexico</i>
Han-Lin Chiang <i>Taiwan</i>	Katja Huckelheim <i>Germany</i>	Nargiza Mansurova <i>Uzbekistan</i>	Sara Sanz-Blasco <i>Argentina</i>
Hyun Joo Sophie Cho <i>United States</i>	Edwin Jabbari <i>United Kingdom</i>	Raul Martinez <i>Spain</i>	Anna Sauerbier <i>United Kingdom</i>
Christine Cooper <i>United States</i>	Angela Jochim <i>Germany</i>	Eavan Mc Govern <i>Ireland</i>	Ruth Schneider <i>United States</i>
Florence Cormier-Dequaire <i>France</i>	Vincent Jourdain <i>United States</i>	Niccolo Mencacci <i>United Kingdom</i>	Laetitia Schwab <i>United Kingdom</i>
Aman Deep <i>United States</i>	Rukmini Mridula Kandadai <i>India</i>	Shahnaz Miri <i>United States</i>	Laura Scorr <i>United States</i>
Soaham Desai <i>India</i>	Eleanna Kara <i>United States</i>	Wael Mohamed <i>Egypt</i>	Shital Shah <i>United States</i>



## Awards Information — 2015 Travel Grants

Leili Shahgholi  
*United States*

Vibhash Sharma  
*United States*

Kara Smith  
*United States*

Jirada Sringean  
*Thailand*

Meera Sritharan  
*United Kingdom*

Morten Stokholm  
*Denmark*

Samuel Stuart  
*United Kingdom*

Irene Taravini  
*Argentina*

Baris Topcular  
*Turkey*

Yevgen Trufanov  
*Ukraine*

Zeynep Tufekcioglu  
*Turkey*

Lauren Turner  
*Australia*

Neeraj Upadhyay  
*Italy*

Michael Vesia  
*Canada*

Padmaja Vittal  
*United States*

Doris Wang  
*United States*

Daryl Wile  
*Canada*

Laura Williams  
*Ireland*

Ho Geol Woo  
*Korea*

Yue Xing  
*United Kingdom*

Gilad Yahalom  
*Israel*

Tritia Yamasaki  
*United States*

Jing Yang  
*Peoples Republic of China*

Heidemarie Zach  
*Austria*



## MDS 19th International Congress Session Definitions

### Blue Ribbon Highlights

This session will provide a critical review of the best poster presentations by a panel of experts, highlighting the relevance, novelty and quality of both clinical and basic research presented by the delegates.

### Controversies

This Plenary Session is designed to involve all International Congress attendees. Content is prepared to stimulate interest and debate among a panel of experts. Views from several angles will be addressed as discussion of pre-selected "hot" topics will be open for debate among the panelists.

### Corporate Therapeutic Sessions

These company-based informational sessions will provide attendees with non-CME educational opportunities to learn the latest in therapeutics.

### Guided Poster Tours

Guided Poster Tours will give small groups of delegates an opportunity to hear discussion on a select group of abstracts in several sub-categories.

### Parallel Sessions

These concurrent sessions provide an in-depth report of the latest research findings, state-of-the-art treatment options, as well as a discussion of future strategies. Parallel sessions will have evidence-based components and incorporate the "hot" issues in Parkinson's disease and other movement disorders.

### Plenary Sessions

These sessions provide a broad overview of the latest clinical and basic science research findings and state-of-the-art information.

### Poster Sessions

Poster sessions give each delegate an opportunity to view their colleagues' posters on the most current research in the field of Movement Disorders. Authors will be present for 1.5 hours each day to explain their work and answer questions.

### Skills Workshops:

These clinic-based training sessions provide an educational illustration of clinical techniques and treatment procedures through demonstrations utilizing patient video and proper equipment to further develop practitioners' skills and knowledge within the field of treatment of movement disorders.

### Teaching Courses

These educational sessions provide up-to-date information focused on a single topic. The sessions highlight both the clinical and basic science of topics of relevance to Movement Disorder specialists. The sessions are unique in providing a syllabus that includes a review of the topic and the presentation slides. In addition, these programs provide ample time for questions and a discussion period at the conclusion of the presentations.

### Therapeutic Plenary Sessions

These sessions provide the latest information regarding the scientific and clinical evidence supporting treatment options for Parkinson's disease and other movement disorders.

### Video Sessions

Designed to provide a broad overview of related movement disorders, the video sessions will focus on the phenomenology covering the many different kinds of movement disorders affecting the population today.

## SPECIAL MEETING THEME:

### MULTI-SYSTEM PROTEINOPATHIES: FROM PARADIGM SHIFT TO THERAPY

At each annual International Congress, the Congress Scientific Program Committee selects a theme that is highlighted throughout the meeting. This year's theme, "*Multi-system proteinopathies: From paradigm shift to therapy*" will be showcased in two Plenary Sessions, six Parallel Sessions, one Skills Workshop, one Video Session, and one Teaching Course. International experts will serve as faculty, and the meeting participants can elect to attend any or all of these sessions. Themed sessions are designated in the program with a .





## Schedule-At-A-Glance

	Sunday, June 14, 2015	Monday, June 15, 2015	Tuesday, June 16, 2015	Wednesday, June 17, 2015	Thursday, June 18, 2015
7:00	Committee Meetings 7:00 - 8:00	Committee Meetings 7:00 - 8:00	Committee Meetings 7:00 - 8:00	Committee Meetings 7:00 - 8:00	Committee Meetings 7:00 - 8:00
7:30					
8:00	Therapeutic Plenary Session 8:00 - 10:00	Plenary Session (Presidential Lectures) 8:00 - 10:00	Plenary Session 8:00 - 10:00	Plenary Session 8:00 - 10:00	Plenary Session 8:00 - 9:30
8:30					
9:00					Break 9:30 - 10:00
9:30					
10:00	Regional Assemblies 10:00 - 11:00	Break 10:00 - 10:30	Break 10:00 - 11:00	Break 10:00 - 10:30	Controversies 10:00 - 11:00
10:30			MDS Business Meeting 10:00 - 11:00		
11:00	Therapeutic Plenary Session 11:00 - 13:00	Plenary Session 10:30 - 12:30	Plenary Session 11:00 - 12:30	Plenary Session 10:30 - 12:00	Blue Ribbon Highlights 11:00 - 12:00
11:30					
12:00					
12:30		Break/Guided Poster Tours/ Poster Sessions 12:30 - 14:00	Break/Guided Poster Tours/ Poster Sessions 12:30 - 14:00	Break/Guided Poster Tours/ Poster Sessions 12:00 - 13:30	Break/Guided Poster Tours/ Poster Sessions 12:00 - 13:30
13:00					
13:30	Corporate Therapeutic Symposium 13:15 - 14:15			Corporate Therapeutic Symposia 13:30 - 14:30	Corporate Therapeutic Symposia 13:30 - 14:30
14:00	Break 13:00 - 14:30	Corporate Therapeutic Symposia 14:00 - 15:00	Corporate Therapeutic Symposia 13:45 - 15:00	Break 14:30 - 15:00	Break 14:30 - 15:00
14:30					
15:00	Therapeutic Plenary Session 14:30 - 16:30	Break 15:00 - 15:30	Break 15:00 - 15:30	Parallel Sessions/ Teaching Courses 15:00 - 17:00	Parallel Sessions/ Teaching Courses 15:00 - 17:00
15:30		Parallel Sessions/ Teaching Courses 15:30 - 17:30	Parallel Sessions/ Teaching Courses 15:30 - 17:30		
16:00					
16:30	Break 16:30 - 17:00				
17:00				Break 17:00 - 17:30	End
17:30	Therapeutic Plenary Session 17:00 - 19:00	Break 17:30 - 18:00	Break 17:30 - 18:00	Skills Workshops/ Video Sessions 17:30 - 19:00	
18:00		Skills Workshops/ Video Sessions 18:00 - 19:30	Skills Workshops / Video Sessions 18:00 - 19:30		
18:30					
19:00	Break 19:00 - 19:30				
19:30					
20:00	Welcome Ceremony 19:30 - 21:30		Corporate Therapeutic Symposia 19:45 - 20:45	MDS Video Challenge 19:00 - 22:00	
20:30					
21:00					
21:30					
22:00					



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## Sunday, June 14, 2015

### 1101 Therapeutic Plenary Session

#### Managing Parkinson's disease: Past, present and future

**8:00 – 10:00**

Location: Seaport Ballroom A-E, 2nd Level, Seaport Tower

- Chairs: Olivier Rascol  
*Toulouse, France*  
Lynn Rochester  
*Newcastle upon Tyne, United Kingdom*
- 8:00 Treatment approach to Parkinson's disease: A 25-year historical perspective  
Werner Poewe  
*Innsbruck, Austria*
- 8:40 Medical and surgical treatment of Parkinson's disease  
Alexander Storch  
*Dresden, Germany*
- 9:20 Rehabilitation therapies for Parkinson's disease  
Lynn Rochester  
*Newcastle upon Tyne, United Kingdom*

Recommended Audience: Basic scientists, Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Describe the most important steps in the historical development towards the therapy of today
- 2) Discuss medical and surgical therapy for Parkinson's disease for motor symptoms; focus on present and possible future developments
- 3) Discuss rehabilitation and exercise therapy

### AOS Regional Assembly

**10:00 – 11:00**

Location: Harbor A, 2nd Level, Harbor Tower

All delegates from Asia and Oceania are encouraged to attend.

### ES Regional Assembly

**10:00 – 11:00**

Location: Harbor B, 2nd Level, Harbor Tower

All delegates from Europe and North Africa are encouraged to attend.

### PAS Regional Assembly

**10:00 – 11:00**

Location: Harbor C, 2nd Level, Harbor Tower

All delegates from Pan America are encouraged to attend.

### 1102 Therapeutic Plenary Session

#### Treatment of dystonia

**11:00 – 13:00**

Location: Seaport Ballroom A-E, 2nd Level, Seaport Tower

- Chairs: Cynthia Comella  
*Chicago, IL, USA*  
Victor Fung  
*Sydney, NSW, Australia*
- 11:00 The spectrum of isolated and combined dystonia syndromes  
Victor Fung  
*Sydney, NSW, Australia*
- 11:40 Update on medical and surgical treatment of the dystonias  
Marie Vidailhet  
*Paris, France*
- 12:20 New and emerging therapies for dystonia  
Susan Fox  
*Toronto, ON, Canada*

Recommended Audience: Basic scientists, Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Recognize the full spectrum of isolated and combined dystonia syndromes
- 2) Recognize state-of-the-art in the medical and surgical treatment of the dystonias
- 3) Recognize novel and experimental treatments for dystonia under development

### 1103 Therapeutic Plenary Session

#### Therapeutic options for mood, cognition and psychosis in Parkinson's disease

**14:30 – 16:30**

Location: Seaport Ballroom A-E, 2nd Level, Seaport Tower

- Chairs: Jaime Kulisevsky  
*Barcelona, Spain*  
Daniel Weintraub  
*Ardmore, PA, USA*
- 14:30 How to treat anxiety, depression and apathy  
Daniel Weintraub  
*Ardmore, PA, USA*
- 15:10 How to treat the Parkinson's disease patient with cognitive impairment  
Jaime Kulisevsky  
*Barcelona, Spain*
- 15:50 How to treat the Parkinson's disease patient with psychosis  
Mateusz Zurowski  
*Toronto, ON, Canada*

Recommended Audience: Basic scientists, Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Understand the issues involved in selecting the best options for treating mood disorders and apathy in Parkinson's disease
- 2) Review treatment of cognitive impairment in Parkinson's disease
- 3) Evaluate treatment of psychosis in Parkinson's disease



## Sunday, June 14, 2015

### 1104 Therapeutic Plenary Session

#### Update on treatment of hyperkinetic movement disorders

**17:00 - 19:00**

Location: Seaport Ballroom A-E,  
2nd Level, Seaport Tower

Chairs: Alfredo Berardelli

*Rome, Italy*

Philip Thompson

*Adelaide, SA, Australia*

17:00 Huntington's disease: From  
natural history studies to  
experimental therapeutics

Ira Shoulson

*Washington DC, USA*

17:40 Myoclonus: Etiology,  
pathophysiology and treatment

Robert Chen

*Toronto, ON, Canada*

18:20 Update on Gilles de la Tourette  
syndrome and other tic disorders

Davide Martino

*Orpington, United Kingdom*

Recommended Audience: Basic scientists, Clinical  
academicians, Non-physician Health Professionals,

Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should  
be better able to:

- 1) Understand the natural history and emerging  
therapies for Huntington's disease
- 2) Understand the pathophysiological basis and  
treatment of myoclonus
- 3) Understand the pathophysiological basis and  
treatment of Gilles de la Tourette syndrome and  
other tic disorders

### Welcome Ceremony

**19:30 - 21:30**

Location: Seaport Ballroom A-E,  
2nd Level, Seaport Tower





## Monday, June 15, 2015

2101	Plenary Session
	<b>Presidential Lectures</b> <b>8:00 – 10:00</b> Location: Seaport Ballroom A-E, 2nd Level, Seaport Tower
Chairs:	Matthew Stern <i>Philadelphia, PA, USA</i> Oscar Gershanik <i>Buenos Aires, Argentina</i>
8:00	Stanley Fahn Lecture Günther Deuschl <i>Kiel, Germany</i> Junior Award Lectures Md. Mashiar Rahman <i>Jeonju-si, Jeollabuk-Do, Korea</i> Carine Maurer <i>Bethesda, MD, USA</i> Bettina Balint <i>London, United Kingdom</i>
9:30	C. David Marsden Lecture José Obeso <i>Madrid, Spain</i>
	Recommended Audience: Basic scientists, Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

2102	Plenary Session
	<b>25 years of Movement Disorders - Movement Disorders Grand Rounds</b> <b>10:30 - 12:30</b> Location: Seaport Ballroom A-E, 2nd Level, Seaport Tower
	<i>In this interactive session, our expert MDS founders will examine interesting common and complex patients. During this session, you will learn how they formulate diagnoses and manage these interesting and challenging patients.</i>
Chairs:	Jennifer Friedman <i>Del Mar, CA, USA</i> Irene Litvan <i>San Diego, CA, USA</i>
MDS Experts:	Stanley Fahn <i>New York, NY, USA</i> Joseph Jankovic <i>Houston, TX, USA</i> Andrew Lees <i>London, United Kingdom</i> Eduardo Tolosa <i>Barcelona, Spain</i>

2102	Plenary Session, cont.
	Recommended Audience: Basic scientists, Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees
	At the conclusion of this session, participants should be better able to:
	1) Understand how our founder experts use clinical history and signs to formulate their diagnosis in complex movement disorder cases
	2) Understand how our founders use paraclinical methods to diagnose complex movement disorders
	3) Understand how our founders formulate therapies for complex movement disorder patients

### Guided Poster Tours

	<b>GPT 1: Parkinson's disease: Phenomenology</b> <b>12:30 – 14:00</b> Location: Seaport F, 2nd Level, Seaport Tower
	<b>GPT 2: Sleep disorders and RLS</b> <b>12:30 – 14:00</b> Location: Harbor A, 2nd Level, Harbor Tower
	<b>GPT 3: Tremor</b> <b>12:30 – 14:00</b> Location: Harbor B-C, 2nd Level, Harbor Tower
	<b>GPT 4: Parkinson's disease: Non-motor features</b> <b>12:30 – 14:00</b> Location: Harbor G, 2nd Level, Harbor Tower

### Poster Session

	<b>12:30 – 14:00</b> Abstract numbers: 1-374 See page 16 for category locations. Poster viewing: 9:00 – 18:00
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### Corporate Therapeutic Symposia

	<b>14:00 – 15:00</b> See pages 126 – 127 for more information.
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2203	Parallel Session
	<b>Chronic traumatic encephalopathy and movement disorders</b> <b>15:30 - 17:30</b> Location: Harbor A, 2nd Level, Harbor Tower
Chairs:	Andrew Lees <i>London, United Kingdom</i> Tamas Revesz <i>London, United Kingdom</i>
15:30	Movement disorders as a presentation of chronic traumatic encephalopathy Helen Ling <i>London, United Kingdom</i>
16:10	Boxing and parkinsonism Charles Bernick <i>Las Vegas, NV, USA</i>
16:50	Chronic traumatic encephalopathy: The spectrum of neuropathological changes Tamas Revesz <i>London, United Kingdom</i>
	Recommended Audience: Basic scientists, Clinical academicians, Practitioners, Students/Residents/Trainees

	At the conclusion of this session, participants should be better able to:
	1) Understand movement disorders as a presentation of chronic traumatic encephalopathy
	2) Learn about the association between repetitive traumatic brain injury and Parkinson's disease
	3) Discuss the spectrum of neuropathological changes in chronic traumatic encephalopathy

2204	Parallel Session
	<b>Designing a clinical trial for atypical parkinsonian disorders</b> <b>15:30 - 17:30</b> Location: Seaport F, 2nd Level, Seaport Tower
Chairs:	Christopher Goetz <i>Chicago, IL, USA</i> Gregor Wenning <i>Innsbruck, Austria</i>
15:30	Outcome of clinical trials in MSA Gregor Wenning <i>Innsbruck, Austria</i>



## Monday, June 15, 2015

### 2204 Parallel Session , cont.

16:10 Outcome of clinical trials in PSP and CBD

Adam Boxer  
*Palo Alto, CA, USA*

16:50 Overcoming challenges in clinical trial design in atypical parkinsonian disorders

Christopher Goetz  
*Chicago, IL, USA*

Recommended Audience: Basic scientists, Clinical academicians, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Understand what we have learned from prior clinical trials in MSA
- 2) Understand what we have learned from prior clinical trials in progressive supranuclear palsy and other uncommon tauopathies (corticobasal degeneration)
- 3) Understand the unique challenges of clinical trial design for atypical parkinsonian disorders and learn novel clinical trial paradigms to address limitations in identifying efficacious therapies

### 2205 Parallel Session

#### What's new in essential and non-essential tremor?

**15:30 – 17:30**

Location: Harbor D-F, 2nd Level, Harbor Tower

Chairs: Mark Hallett  
*Bethesda, MD, USA*  
Hyder Jinnah  
*Atlanta, GA, USA*

15:30 Parkinson's disease tremor

Rick Helmich  
*Nijmegen, Netherlands*

16:10 Essential tremor

Fatta Nahab  
*San Diego, CA, USA*

16:50 Dystonic tremor

Hyder Jinnah  
*Atlanta, GA, USA*

Recommended Audience: Basic scientists, Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

### 2205 Parallel Session , cont.

At the conclusion of this session, participants should be better able to:

- 1) Understand the most recent advances in the pathophysiology and diagnosis of Parkinson's disease tremor
- 2) Understand the most recent advances in the pathophysiology and diagnosis of essential tremor
- 3) Understand the most recent advances in the pathophysiology and diagnosis of dystonic tremor

### 2206 Parallel Session

#### Gastrointestinal dysfunction in Parkinson's disease

**15:30 – 17:30**

Location: Seaport G-H, 2nd Level, Seaport Tower

Chairs: Ronald Pfeiffer  
*Memphis, TN, USA*  
Barbara Sonies  
*Potomac, MD, USA*

15:30 Pathophysiology of gastrointestinal dysfunction in parkinsonism

Ronald Pfeiffer  
*Memphis, TN, USA*

16:10 Management of dysphagia and upper gastrointestinal dysfunction

Barbara Sonies  
*Potomac, MD, USA*

16:50 Management of bowel dysfunction in parkinsonism

Sarah Marrinan  
*Newcastle upon Tyne, United Kingdom*

Recommended Audience: Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Be aware of the pathophysiological basis for gastrointestinal dysfunction in Parkinson's disease at all levels of the gastrointestinal tract
- 2) Identify the most important management strategies for dysphagia and upper gastrointestinal tract in Parkinson's disease
- 3) Identify the most important management strategies for bowel dysfunction in parkinsonism

### 2207 Parallel Session

#### Environmental risk factors in Parkinson's disease

**15:30 – 17:30**

Location: Harbor G, 2nd Level, Harbor Tower

Chairs: Caroline Tanner  
*San Francisco, CA, USA*  
Ruey-Meei Wu  
*Taipei, Taiwan*

15:30 Epidemiological evidence linking environmental and lifestyle risk factors in Parkinson's disease

Caroline Tanner  
*San Francisco, CA, USA*

16:10 Military service and neurodegenerative diseases

John Duda  
*Philadelphia, PA, USA*

16:50 Gene environmental interactions in neurodegenerative diseases: Clinical association and mechanisms

Ruey-Meei Wu  
*Taipei, Taiwan*

Recommended Audience: Basic scientists, Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Understand the epidemiological evidence linking environmental and lifestyle risk factors and neurodegenerative diseases
- 2) Evaluate the potential for military service to act as a risk factor for neurodegenerative disease
- 3) Comprehend the pathophysiologic mechanisms underlying gene environmental interactions and neurodegenerative diseases

### 2208 Parallel Session

#### New technologies in evaluation of treatment of movement disorder patients

**15:30 – 17:30**

Location: Seaport Ballroom A-E, 2nd Level, Seaport Tower

Chairs: Bastiaan Bloem  
*Nijmegen, Netherlands*  
Alberto Espay  
*Cincinnati, OH, USA*

## Monday, June 15, 2015

### 2208 Parallel Session , cont.

- 15:30 Instrumental analysis of tremor  
Rodger Elble  
*Springfield, IL, USA*
- 16:10 Instrumental analysis of parkinsonian symptoms  
Walter Maetzler  
*Tübingen, Germany*
- 16:50 Instrumental analysis of gait and postural reflexes  
Alice Nieuwboer  
*Heverlee, Belgium*

Recommended Audience: Basic scientists, Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Understand the methods for the measurement and diagnosis of tremor
- 2) Understand the new methods to measure motor fluctuations in Parkinson's disease from the clinic to the home
- 3) Understand instrumental analysis of gait from the clinic to the home

### 2309 Teaching Course

#### Non-motor complications of Parkinson's disease

**15:30 – 17:30**

Location: Harbor H-I, 2nd Level, Harbor Tower

- Chairs: Wolfgang Oertel  
*Marburg, Germany*  
Anthony Schapira  
*London, United Kingdom*
- 15:30 Prevalence and tools to assess non-motor features of early and advanced Parkinson's disease  
K. Ray Chaudhuri  
*London, United Kingdom*
- 16:10 Autonomic and sleep disorders: Diagnosis and treatment  
Claudia Trenkwalder  
*Kassel, Germany*
- 16:50 Cognitive and neuropsychiatric issues  
Caroline Williams-Gray  
*Cambridge, United Kingdom*

Recommended Audience: Basic scientists, Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

### 2309 Teaching Course , cont.

At the conclusion of this session, participants should be better able to:

- 1) Describe the frequency of occurrence of non-motor disorders in early and advanced Parkinson's disease as well as best tools to assess these disorders
- 2) Discuss the autonomic and sleep issues in Parkinson's disease, how to assess and treat
- 3) Understand how to assess and manage cognitive decline, depression, anxiety, and impulse control symptoms in Parkinson's disease

### 2310 Teaching Course

#### Tips and tricks in movement disorders examination

**15:30 – 17:30**

Location: Harbor B-C, 2nd Level, Harbor Tower

- Chairs: Paul Greene  
*New York, NY, USA*  
Ryosuke Takahashi  
*Kyoto, Japan*
- 15:30 Examination pearls in parkinsonism  
Sean O'Sullivan  
*Cork, Ireland*
- 16:10 Examination tips in tremor  
Nin Bajaj  
*Nottingham, United Kingdom*
- 16:50 Examination highlights in hyperkinetic movement disorders  
Paul Greene  
*New York, NY, USA*

Recommended Audience: Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Identify key characteristics of different parkinsonian conditions through the clinical examination
- 2) Utilize a range of semiologic maneuvers to examine, characterize and differentiate tremors
- 3) Use strategic examination techniques to assist in the differential diagnosis of hyperkinetic movement disorders

### 2411 Skills Workshop

#### Conquest of Wilson's disease

**18:00 – 19:30**

Location: Harbor A, 2nd Level, Harbor Tower

*This interactive session will have didactic and video-interactive components that deal with Wilson's disease diagnosis and therapeutic advances.*

Annu Aggarwal  
*Mumbai, India*  
Egberto Barbosa  
*São Paulo, Brazil*

Recommended Audience: Basic scientists, Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Clinically recognize and diagnose Wilson's disease
- 2) Understand how to apply therapy in Wilson's disease in order to reduce morbidity and mortality
- 3) Understand how recent advances in the pathophysiology of Wilson's disease guide therapy

### 2412 Skills Workshop

#### DBS for non-parkinsonian movement disorders

**18:00 – 19:30**

Location: Seaport Ballroom A-E, 2nd Level, Seaport Tower

*This interactive session will have didactic and video-interactive components that deal with optimization of the postoperative management of non-parkinsonian movement disorders.*

Patricia Limousin  
*London, United Kingdom*  
Michele Tagliati  
*Los Angeles, CA, USA*

Recommended Audience: Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Resolve postoperative problems occurring in DBS for non-Parkinson's disease movement disorders
- 2) Recognize limitations of DBS in non-Parkinson's disease movement disorders
- 3) Optimize the management of DBS patients after surgery





## Monday, June 15, 2015

### 2413 Skills Workshop

#### Pain in Parkinson's disease

**18:00 – 19:30**

Location: Harbor D-F, 2nd Level,  
Harbor Tower

*This interactive session will focus on learning about the latest advances related to the issue of pain in Parkinson's disease, including how to classify the various types of pain in Parkinson's disease, what is Parkinson's disease related and what is not, the description of scales that may be appropriate to use in Parkinson's disease studies including Parkinson's disease specific pain scales, the prevalence of pain in Parkinson's disease and treatment advances and relevant pain focused clinical trials.*

Santiago Perez Lloret  
Buenos Aires, Argentina

Michele Tinazzi  
Verona, Italy

Recommended Audience: Basic scientists, Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Recognize the different types of chronic pain suffered by Parkinson's disease patients and not consider "pain" as a non-heterogeneous concept in Parkinson's disease
- 2) Recognize what may be the base bedside and other instruments to lend clarity to the concept of pain in Parkinson's disease and describe role of validated instruments for pain in Parkinson's disease if any
- 3) Identify a rational and classification based management strategy for pain in Parkinson's disease and address treatment based on origin of pain and also learn regarding emerging clinical trials addressing pain in Parkinson's disease

### 2414 Skills Workshop

#### Moving at night: RLS, RBD and other movement disorders in sleep

**18:00 – 19:30**

Location: Seaport G-H, 2nd Level,  
Seaport Tower

*This interactive session is designed to introduce attendees to the main motor sleep disorders in the setting of patients with movement disorders (e.g., Parkinson's disease, multiple system atrophy, dementia with Lewy bodies, restless legs syndrome). The aim is to provide an overview of sleep in REM Sleep Behavior Disorder and restless legs syndrome including periodic limb movements, which overlap with many neurodegenerative disorders. Participants will learn about these phenomena and syndromes by video presentations and practical examples given by sleep and movement specialists.*

William Ondo  
Houston, TX, USA  
Federica Provini  
Bologna, Italy

Recommended Audience: Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Identify signs and symptoms of restless legs syndrome, periodic limb movements and their nighttime appearance
- 2) Distinguish REM Sleep Behavior Disorder from other sleep disorders and explain its importance for neurodegeneration
- 3) Further understand movement disorders in sleep such as REM and non-REM parasomnias

### 2415 Skills Workshop

#### Mirror and motor overflow movements

**18:00 – 19:30**

Location: Seaport F, 2nd Level,  
Seaport Tower

*In this interactive session, participants will be able to recognize mirror and other motor overflow movements, understand their basis and mechanism, and learn the genetic, congenital and acquired causes.*

Massimo Cincotta  
Florence, Italy

Emmanuel Roze  
Paris, France

Recommended Audience: Basic scientists, Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Identify the phenomenology of physiological and pathological mirror and other motor overflow movements
- 2) Understand the neurobiology and pathophysiology of mirror and other motor overflow movements
- 3) Have a knowledge of the genetic, congenital, and range of acquired causes, including movement disorders, of mirror and other motor overflow movements

## Monday, June 15, 2015

### 2516 Video Session

#### What if it's not Huntington's disease?

**18:00 - 19:30**

Location: Harbor H-I, 2nd Level, Harbor Tower

*In this interactive video session, participants will improve their skills to recognize the phenomenology of chorea and outline appropriate investigations for the differential diagnosis. The session will focus on the most frequent forms of genetic and acquired chorea.*

Anne-Catherine Bachoud-Levi  
Creteil, France

Joaquim Ferreira  
Lisbon, Portugal

Recommended Audience: Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Recognize the phenomenology of Huntington's disease and other disorders in which chorea is the main clinical feature
- 2) Recognize the phenomenology of Huntington's disease-like (HDL) syndromes
- 3) Outline appropriate approach and diagnostic work-up for patients with chorea

### 2517 Video Session

#### Pediatric movement disorders

**18:00 - 19:30**

Location: Harbor G, 2nd Level, Harbor Tower

*This interactive session will use an interactive approach with both video and didactic presentations that address the spectrum of movement disorders in the pediatric population.*

Jennifer Friedman  
Del Mar, CA, USA

Terence Sanger  
Los Angeles, CA, USA

Recommended Audience: Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Recognize the spectrum of common movement disorders in children and adolescents
- 2) Recognize the spectrum of uncommon or unusual movement disorders in children and adolescents
- 3) Recognize the diagnostic workup of movement disorders in children and adolescents

### 2518 Video Session

#### Facial movement disorders

**18:00 - 19:30**

Location: Harbor B-C, 2nd Level, Harbor Tower

*In this interactive session, participants will be able to recognize common and rare facial involuntary movements and understand their causes and learn about their underlying pathophysiologic mechanisms.*

Carlo Colosimo  
Rome, Italy

Eng-King Tan  
Singapore

Recommended Audience: Basic scientists, Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Understand the phenomenology of different facial movement disorders
- 2) Recognize the association of various movement disorders with neurological diseases
- 3) Understand the pathophysiology and management of the etiology and racial differences in hemifacial spasm





## Tuesday, June 16, 2015

### 3101 Plenary Session

#### Understanding and treating proteinopathies

**8:00 - 10:00**

Location: Seaport Ballroom A-E,  
2nd Level, Seaport Tower

- Chairs: Ted Dawson  
*Baltimore, MD, USA*  
Eliezer Masliah  
*La Jolla, CA, USA*
- 8:00 What does genetics tell us about  
treating proteinopathies?  
Ted Dawson  
*Baltimore, MD, USA*
- 8:40 RNAi and antibody-based  
therapeutic approaches  
Eliezer Masliah  
*La Jolla, CA, USA*
- 9:20 Therapies targeting autophagy in  
movement disorders  
David Sulzer  
*New York, NY, USA*

Recommended Audience: Basic scientists, Clinical  
academicians, Non-physician Health Professionals,  
Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should  
be better able to:

- 1) Describe insights from genetic causes into the  
pathogenesis of sporadic proteinopathies
- 2) Discuss the potential of antibody therapy  
to slow the progression of tauopathies and  
synucleinopathies
- 3) Describe the potential of therapies targeting  
autophagy in movement disorders

### MDS Business Meeting

**10:00 - 11:00**

Location: Seaport F, 2nd Level,  
Seaport Tower

*Open to all delegates*

### 3102 Plenary Session

#### The overlap between epilepsy and movement disorders

**11:00 - 12:30**

Location: Seaport Ballroom A-E,  
2nd Level, Seaport Tower

- Chairs: Marina de Koning-Tijssen  
*Groningen, Netherlands*  
Sarosh Irani  
*Oxford, United Kingdom*
- 11:00 Genetic syndromes in the  
hinterland of epilepsies and  
movement disorders  
Marina de Koning-Tijssen  
*Groningen, Netherlands*
- 11:40 Autoimmune syndromes in the  
hinterland of epilepsies and  
movement disorders  
Sarosh Irani  
*Oxford, United Kingdom*
- 12:20 Role of channelopathies in  
epilepsy and movement disorders  
Holger Lerche  
*Ulm, Germany*

Recommended Audience: Basic scientists, Clinical  
academicians, Non-physician Health Professionals,  
Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should  
be better able to:

- 1) Describe the genetic associations and clinical  
features of disorders which show features of both  
epilepsies and movement disorders
- 2) Describe the clinical features, phenomenological  
and treatment responses of patients with  
antibody mediated syndromes which show  
features of movement disorders and epilepsies
- 3) Correlate the pathophysiology of these disorders  
with channel and cellular defects and compare  
and contrast the disorders with one another at the  
molecular level

### Guided Poster Tours

#### GPT 5: Lewy body dementia & Dementias

**12:30 - 14:00**

Location: Seaport F, 2nd Level,  
Seaport Tower

### Guided Poster Tours, cont.

#### GPT 6: Huntington's disease and other choreiform disorders

**12:30 - 14:00**

Location: Harbor A, 2nd Level,  
Harbor Tower

#### GPT 7: Rating Scales

**12:30 - 14:00**

Location: Harbor B-C, 2nd Level,  
Harbor Tower

#### GPT 8: Genetics

**12:30 - 14:00**

Location: Harbor G, 2nd Level,  
Harbor Tower

### Poster Session

**12:30 - 14:00**

Abstract numbers: 375-740  
See page 16 for category locations.  
Poster viewing: 9:00 - 18:00

### Corporate Therapeutic Symposia

**13:45 - 15:00**

**14:00 - 15:00**

See pages 126 - 127 for more  
information.

### 3203 Parallel Session

#### Is there a role for therapies with human-induced- pluripotent stem cells- derived (hiPSC) neurons in patients with Parkinson's disease and Huntington's disease?

**15:30 - 17:30**

Location: Harbor G, 2nd Level,  
Harbor Tower

- Chairs: William Mobley  
*La Jolla, CA, USA*  
Ole Isacson  
*Belmont, MA, USA*

15:30 Isogenic human-induced-  
pluripotent stem cells for  
studying Parkinson's disease  
Stuart Lipton  
*La Jolla, CA, USA*



## Tuesday, June 16, 2015

### 3203 Parallel Session , cont.

16:10 Human-induced-pluripotent stem cells and human embryonic stem cell-based therapies in Parkinson's disease

Ole Isacson  
Belmont, MA, USA

16:50 Human-induced-pluripotent stem cells in Huntington's disease

Steven Finkbeiner  
San Francisco, CA, USA

Recommended Audience: Basic scientists, Clinical academicians

At the conclusion of this session, participants should be better able to:

- 1) Understand the role of human-induced-pluripotent stem cells in studying the pathogenesis and developing treatments for Parkinson's disease
- 2) Understand the cell biology discovery, diagnosis and transplantation of dopaminergic cells differentiated from patient-derived iPS cells or human ES Cells for Parkinson's disease
- 3) Understand the role of using human-induced-pluripotent stem derived neurons in Huntington's disease

### 3204 Parallel Session

#### Genetics of proteinopathy-associated parkinsonian disorders

**15:30 – 17:30**

Location: Harbor D-F, 2nd Level, Harbor Tower

Chairs: Don Cleveland  
La Jolla, CA, USA  
Eng-King Tan  
Singapore

15:30 Utility of next generation sequencing in the diagnosis of parkinsonian disorders  
Andrew Singleton  
Bethesda, MD, USA

16:10 Clinico-genetic correlations in parkinsonian disorders  
Zbigniew Wszolek  
Jacksonville, FL, USA

16:50 Therapeutic strategies in genetic forms of proteinopathies  
Don Cleveland  
La Jolla, CA, USA

### 3204 Parallel Session , cont.

Recommended Audience: Basic scientists, Clinical academicians, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Understand the clinical utility and future application of next generation diagnostics in deciphering the genetics of proteinopathies
- 2) Appreciate the relevance of clinico-genetic correlations in proteinopathy associated neurodegenerative movement disorders
- 3) Understand different therapeutic strategies in genetic forms of proteinopathies

### 3205 Parallel Session

#### What's new in Huntington's disease?

**15:30 – 17:30**

Location: Seaport F, 2nd Level, Seaport Tower

Chairs: Michael Levine  
Los Angeles, CA, USA  
Cristina Sampaio  
Princeton, NJ, USA

15:30 Biomarkers of pre-manifest and manifest Huntington's disease: Ready for clinical trials?  
Ralf Reilmann  
Münster, Germany

16:10 From pathophysiology to new treatment strategies: Insights from the laboratory and animal models  
Michael Levine  
Los Angeles, CA, USA

16:50 Update on disease modifying and symptomatic treatments  
Cristina Sampaio  
Princeton, NJ, USA

Recommended Audience: Basic scientists, Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

### 3205 Parallel Session , cont.

At the conclusion of this session, participants should be better able to:

- 1) Discuss biomarkers of pre-manifest and manifest Huntington's disease their role as potential outcomes of clinical trials in Huntington's disease
- 2) Assess the contribution of preclinical research to understand pathophysiology and to study new treatment strategies in Huntington's disease
- 3) Describe current achievements in and future options for the treatment of Huntington's disease

### 3206 Parallel Session

#### Integrated care models in Movement Disorders: Past, present and future

**15:30 – 17:30**

Location: Seaport G-H, 2nd Level, Seaport Tower

Chairs: David John Burn  
Newcastle upon Tyne, United Kingdom  
Sue Thomas  
London, United Kingdom

15:30 The history of interdisciplinary care in Parkinson's disease and other movement disorders  
Sue Thomas  
London, United Kingdom

16:10 Developments in interdisciplinary care: What have we achieved so far?  
Galit Kleiner-Fisman  
Toronto, ON, Canada

16:50 What does the future hold for interdisciplinary care?  
David John Burn  
Newcastle upon Tyne, United Kingdom

Recommended Audience: Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees



## Tuesday, June 16, 2015

### 3206 Parallel Session , cont.

At the conclusion of this session, participants should be better able to:

- 1) Appreciate the roots and development of interdisciplinary care in Parkinson's disease and other movement disorders from a worldwide perspective
- 2) Understand the current status and evidence of interdisciplinary care in Parkinson's disease and other movement disorders within a wide geographical context
- 3) Be appraised of potential future developments in interdisciplinary care and how this may change practice

### 3207 Parallel Session

#### Dopa-responsive dystonia and related disorders

**15:30 – 17:30**

**Location:** Seaport Ballroom A-E, 2nd Level, Seaport Tower

**Chairs:** Beom Jeon  
*Seoul, Korea*  
Manju Kurian  
*London, United Kingdom*

15:30 Clinical spectrum of dystonias that are responsive to dopamine-related drugs

Beom Jeon  
*Seoul, Korea*

16:10 Laboratory investigation of dystonias that are responsive to dopamine-related drugs

Manju Kurian  
*London, United Kingdom*

16:50 Treatments, long-term outcomes, and strategies for complications

Anne Weissbach  
*Lübeck, Germany*

**Recommended Audience:** Basic scientists, Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Appreciate the clinical and genetic spectra of dystonias that are responsive to levodopa
- 2) Understand genotype-phenotype correlations and different pathogenesis
- 3) Appreciate strategies for diagnostic testing and treatment

### 3208 Parallel Session

#### Gaucher and Parkinson's disease: Lessons from an unexpected link

**15:30 – 17:30**

**Location:** Harbor A, 2nd Level, Harbor Tower

**Chairs:** Roy Alcalay  
*New York, NY, USA*  
Anthony Schapira  
*London, United Kingdom*

15:30 Parkinson's disease penetrance and phenotype in GBA carriers

Roy Alcalay  
*New York, NY, USA*

16:10 Pathophysiological mechanisms linking Parkinson's disease and Gaucher's disease

Kathrin Brockmann  
*Tübingen, Germany*

16:50 Prospects for therapy

Anthony Schapira  
*London, United Kingdom*

**Recommended Audience:** Basic scientists, Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Describe the Parkinson's disease phenotype of carriers and understand the risk of conversion in carriers of GBA mutations
- 2) Understand the pathophysiology that may link Parkinson's disease and Gaucher's disease
- 3) Discuss potential new therapies for Parkinson's disease focused on the glucocerebrosidase pathway

### 3309 Teaching Course

#### Diagnosis and treatment of atypical parkinsonism

**15:30 – 17:30**

**Location:** Harbor H-I, 2nd Level, Harbor Tower

**Chairs:** Lawrence Golbe  
*New Brunswick, NJ, USA*  
Günter Höglinger  
*Munich, Germany*

15:30 Clinical "red flag" signs for the diagnosis of MSA and PSP/CBD

Yvette Bordelon  
*Los Angeles, CA, USA*

### 3209 Teaching Course , cont.

16:10 Laboratory investigations supporting the diagnosis of MSA and PSP/CBD

Günter Höglinger  
*Munich, Germany*

16:50 Treatment options and their evidence

Lawrence Golbe  
*New Brunswick, NJ, USA*

**Recommended Audience:** Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Distinguish MSA and PSP/CBD from other parkinsonian disorders including Parkinson's disease
- 2) Describe clinical diagnosis criteria and laboratory investigations
- 3) Discuss therapeutic options for MSA and PSP/CBD based on available evidence

### 3310 Teaching Course

#### Management misadventures in Movement Disorders

**15:30 – 17:30**

**Location:** Harbor B-C, 2nd Level, Harbor Tower

**Chairs:** Kelly Foote  
*Gainesville, FL, USA*  
Jorge Juncos  
*Atlanta, GA, USA*

15:30 Pitfalls in the management of Parkinson's disease

Jorge Juncos  
*Atlanta, GA, USA*

16:10 Preventable iatrogenic errors in movement disorders

John O'Sullivan  
*Coorparoo, QLD, Australia*

16:50 Surgical mismanagement of Parkinson's disease and dystonia

Kelly Foote  
*Gainesville, FL, USA*

**Recommended Audience:** Clinical academicians, Practitioners, Students/Residents/Trainees

## Tuesday, June 16, 2015

### 3310 Teaching Course , cont.

At the conclusion of this session, participants should be better able to:

- 1) Recognize the capacity of the standard Parkinson's disease pharmacotherapy to harm when inappropriately chosen or not chosen
- 2) Highlight preventable management errors in a variety of movement disorders to avoid replacing the original disability with a clinician-induced one
- 3) Review pitfalls in the surgical management of Parkinson's disease and other diseases to limit suboptimal outcomes

### 3411 Skills Workshop

#### The clinician loses his balance: How to approach genetic and non-genetic ataxia

**18:00 – 19:30**

**Location:** Harbor H-I, 2nd Level, Harbor Tower

*In this interactive session, which will be illustrated with video examples, participants will be instructed on the use of clinical, radiological and genetic tools to investigate different forms of ataxia.*

Pramod Pal  
Bangalore, India  
Massimo Pandolfo  
Brussels, Belgium

Recommended Audience: Basic scientists, Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Use a logical clinical diagnostic approach to distinguish genetic ataxia from non-genetic ataxia
- 2) Examine a patient with loss of balance and recognize the phenomenology of ataxia and distinguish ataxia from vestibular dysfunction
- 3) Use laboratory, genetic and imaging studies to identify the different forms of ataxia in a logical structured fashion in the diagnosis of ataxia

### 3412 Skills Workshop

#### Practical issues in using neuroimaging in Movement Disorders: What, when, why

**18:00 – 19:30**

**Location:** Seaport Ballroom A-E, 2nd Level, Seaport Tower

*In this interactive session, an approach to the use and application of neuroimaging for diagnosis and management of movement disorders will be presented.*

Danna Jennings  
New Haven, CT, USA  
Klaus Seppi  
Innsbruck, Austria

Recommended Audience: Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Describe the neuroimaging techniques used in the field of movement disorders
- 2) Develop a strategy for when to order specific tests and which tests to order in clinical practice to aid in the diagnosis of movement disorders
- 3) Describe the typical neuroimaging patterns that are typical of movement disorders that will be encountered regularly in clinical practice

### 3513 Video Session

#### Multiple phenotypic presentations of atypical parkinsonian disorders due to proteinopathies

**18:00 – 19:30**

**Location:** Harbor B-C, 2nd Level, Harbor Tower

*In this interactive session, participants will be able to recognize classical and more recently-described phenotypes of atypical parkinsonian disorders.*

Giovanni Fabbrini  
Rome, Italy  
Irene Litvan  
San Diego, CA, USA

Recommended Audience: Clinical academicians, Practitioners, Students/Residents/Trainees

### 3513 Video Session , cont.

At the conclusion of this session, participants should be better able to:

- 1) Identify the common and rare forms of tauopathies
- 2) Identify the common and rare forms of synucleinopathies
- 3) Understand what investigations can help differentiate between tauopathies and synucleinopathies

### 3514 Video Session

#### Psychogenic movement disorders

**18:00 – 19:30**

**Location:** Seaport F, 2nd Level, Seaport Tower

*In this video session, participants will learn about clinical features useful in the assessment of patients with a possible diagnosis of a psychogenic movement disorder.*

Kailash Bhatia  
London, United Kingdom  
Francesca Morgante  
Messina, Italy

Recommended Audience: Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Appreciate the clinical characteristics of hyperkinetic psychogenic movement disorders
- 2) Recognize the clinical signs of psychogenic parkinsonism and other hypokinetic psychogenic movement disorders
- 3) Understand common social, psychological, medical, and legal circumstances associated with the appearance of psychogenic movement disorders





International Parkinson and  
Movement Disorder Society

## Tuesday, June 16, 2015

### 3515 Video Session **TICKET**

#### Tics and stereotypies from childhood to adulthood

**18:00 - 19:30**

Location: Harbor A, 2nd Level,  
Harbor Tower

*This interactive session will feature video-based, case-oriented content differentiating tics vs. stereotypies and new subtypes of both these movements. Included are strategies in the pharmacological, psychological and behavioral approaches in the management of tics and stereotypies.*

Tammy Hedderly  
West Sussex, United Kingdom

Mayur Pandya  
Cleveland, OH, USA

Recommended Audience: Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Recognize key terminology and differentiating factors of tics vs. stereotypies, including updates on new subtypes of both these movements
- 2) Recognize how phenomenology and symptoms vary through transition and recognize the signs and cognitive features within a biopsychosocial model
- 3) Develop pharmacological, psychological and behavioral approaches in the management of tics and stereotypies

### HEALTHCARE PROFESSIONALS NETWORKING OPPORTUNITY (Open to all attendees)

**Tuesday, June 16, 2015**

**13:00 - 14:00**

Location: Harbor H-I, 2nd Level,  
Harbor Tower

Join the Health Professionals (Non-Physician) Special Interest Group (SIG) as they discuss exciting updates going on around the world, meet the SIGs Leadership, and discuss the current trends in the field.

### 3516 Video Session **TICKET**

#### Unusual presentation of common movement disorders

**18:00 - 19:30**

Location: Harbor D-F, 2nd Level,  
Harbor Tower

*In this interactive session, participants will be better able to recognize the spectrum of unusual presentations of common movement disorders, distinguish them from other less common disorders, and discuss the pragmatic diagnostic work-up in such patients.*

Michael Hayes  
Concord, NSW, Australia

Stephen Reich  
Baltimore, MD, USA

Recommended Audience: Basic scientists, Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Recognize the phenotypic spectrum of unusual presentations of common movement disorders
- 2) Contrast these presentations with comparable presentations in uncommon movement disorders
- 3) Be familiar with the pragmatic diagnostic work-up in patients with an unusual presentation of a common movement disorder

### 3517 Video Session **TICKET**

#### Unusual gait disorders

**18:00 - 19:30**

Location: Seaport G-H, 2nd Level,  
Seaport Tower

*In this video session, participants will learn how to clinically analyze gait and learn how to diagnose unusual gait disorders and their disease associations.*

Bastiaan Bloem  
Nijmegen, Netherlands

Alfonso Fasano  
Toronto, ON, Canada

Recommended Audience: Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

### 3517 Video Session **TICKET**, cont.

At the conclusion of this session, participants should be better able to:

- 1) Understand the different components of normal gait
- 2) Understand how to evaluate gait disorders by breaking down the abnormalities into the different components of the gait cycle
- 3) Understand how to diagnose unusual gait disorders and their disease associations

### 3518 Video Session **TICKET**

#### Movement disorder emergencies

**18:00 - 19:30**

Location: Harbor G, 2nd Level,  
Harbor Tower

*In this interactive session, participants will be better able to recognize the spectrum of acute presentations of Parkinson's disease and other movement disorders, and discuss the pragmatic diagnostic and therapeutic approach in such cases.*

Steven Frucht  
New York, NY, USA

Timothy Lynch  
Dublin, Ireland

Recommended Audience: Clinical academicians, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Identify, diagnose and manage Parkinson's disease related emergencies
- 2) Recognize common and rare hyperkinetic disorders which may present as an acute condition
- 3) Manage all emergencies related to DBS

### Corporate Therapeutic Symposia

**19:45 - 21:00**

See pages 126 - 127 for more information.

## Wednesday, June 17, 2015

### 4101 Plenary Session

#### Proteinopathies: From paradigm shift to diagnosis of parkinsonian disorders

**8:00 – 10:00**

Location: Seaport Ballroom A-E, 2nd Level, Seaport Tower

Chairs: C. Warren Olanow  
New York, NY, USA  
Werner Poewe  
Innsbruck, Austria

8:00 Prion-like mechanisms in the pathogenesis of parkinsonian disorders

C. Warren Olanow  
New York, NY, USA

8:40 Are we ready for a protein-based clinical classification of parkinsonian disorders?

David Williams  
Brighton, VIC, Australia

9:20 Novel proteinopathy based tracers for diagnosis  
Makoto Higuchi  
Chiba, Japan

Recommended Audience: Basic scientists, Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Discuss how alpha-synuclein and other misfolded proteins might propagate
- 2) Discuss the concept of a clinical protein-based classification for parkinsonian disorders
- 3) Identify new imaging techniques (tau, alpha-synuclein) for protein identification and their use diagnostically

### 4102 Plenary Session

#### Breaking news in movement disorders

**10:30 – 12:00**

Location: Seaport Ballroom A-E, 2nd Level, Seaport Tower

Chairs: Anthony Lang  
Toronto, ON, Canada  
Ryosuke Takahashi  
Kyoto, Japan

10:30 Late-breaking clinical trials and clinical science in Parkinson's disease

Tanya Simuni  
Chicago, IL, USA

11:00 Late-breaking clinical trials and clinical science in other movement disorders

Tiago Mestre  
Ottawa, ON, Canada

11:30 Late-breaking advances in basic science

D. James Surmeier  
Chicago, IL, USA

Recommended Audience: Basic scientists, Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Review recent advances in the therapy and other clinical aspects of Parkinson's disease
- 2) Provide an update on the progress of therapeutic interventions and other clinical domains for other movement disorders
- 3) Provide an update on the latest advances in basic science related to movement disorders

### Guided Poster Tours

#### GPT 9: Parkinson's disease: Clinical trials

**12:00 – 13:30**

Location: Seaport F, 2nd Level, Seaport Tower

#### GPT 10: Dystonia

**12:00 – 13:30**

Location: Harbor A, 2nd Level, Harbor Tower

#### GPT 11: Surgical therapy of Movement Disorders

**12:00 – 13:30**

Location: Harbor B-C, 2nd Level, Harbor Tower

#### GPT 12: Basic Science

**12:00 – 13:30**

Location: Harbor G, 2nd Level, Harbor Tower

### Poster Session

**12:00 – 13:30**

Abstract numbers: 1112 – 1473  
See page 16 for category locations.

### Late-Breaking and MDS Study Group Abstracts

**12:00 – 13:30**

Location: Harbor Foyer, 2nd Level

Poster viewing: 9:00 – 18:00

### Corporate Therapeutic Symposia

**13:30 – 14:30**

See pages 126 – 127 for more information.

### NEW!

#### How to Publish in *Movement Disorders Journal* and *Movement Disorders – Clinical Practice*

**Wednesday, June 17, 2015**

**12:00-13:30**

Location: Harbor H-I, 2nd Level, Harbor Tower

Meet the Editors, Associate Editors and members of the Editorial Board for both MDS Journals and learn the process of how decisions are made regarding acceptance of articles, what the timeline for publishing involves, what the difference is between the two journals and the type of articles that are published in each. This is a non-CME activity. Tickets are not required for this event.



## Wednesday, June 17, 2015

### 4203 Parallel Session

#### **Novel biomarkers to differentiate neurodegenerative parkinsonian disorders** **15:00 – 17:00**

**Location:** Seaport G-H, 2nd Level, Seaport Tower

**Chairs:** Werner Poewe  
*Innsbruck, Austria*  
Antonio Strafella  
*Toronto, ON, Canada*

15:00 Nuclear imaging to study parkinsonian disorders

Antonio Strafella  
*Toronto, ON, Canada*

15:40 MRI to differentiate parkinsonian disorders

Stephane Lhéricy  
*Paris, France*

16:20 Biological markers to differentiate parkinsonian disorders

Mario Masellis  
*Toronto, ON, Canada*

**Recommended Audience:** Basic scientists, Clinical academicians, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Understand how PET imaging is helping to study neurodegenerative movement disorders
- 2) Understand how structural imaging is helping to differentiate neurodegenerative movement disorders
- 3) Understand about biomarkers helping to differentiate proteinopathies presenting as movement disorders

### 4204 Parallel Session

#### **Mild cognitive impairment in Parkinson's disease** **15:00 – 17:00**

**Location:** Harbor D-F, 2nd Level, Harbor Tower

**Chairs:** Hubert Fernandez  
*Cleveland, OH, USA*  
Vincent Filoteo  
*San Diego, CA, USA*

### 4204 Parallel Session cont.

15:00 MCI in Parkinson's disease: Results from the MDS Validation Study Group

Jennifer Goldman  
*Chicago, IL, USA*

15:40 Early markers of cognitive decline in Parkinson's disease

Alice Chen-Plotkin  
*Philadelphia, PA, USA*

16:20 Therapeutic developments in the treatment of cognitive impairment

Hubert Fernandez  
*Cleveland, OH, USA*

**Recommended Audience:** Basic scientists, Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Recognize recent data showing the validity and prediction of dementia of MDS Parkinson's disease Mild Cognitive Impairment criteria
- 2) Understand the role of alpha-synuclein and genetics in cognitive decline
- 3) Recognize new developments in the treatment of PD-MCI and dementia

### 4205 Parallel Session

#### **Next generation genetics for clinicians**

**15:00 – 17:00**

**Location:** Seaport F, 2nd Level, Seaport Tower

**Chairs:** Thomas Gasser  
*Tübingen, Germany*  
Haydeh Payami  
*Albany, NY, USA*

15:00 The benefits and pitfalls in data interpretation in gene panel and exome sequencing

Owen Ross  
*Jacksonville, FL, USA*

15:40 Genotype-phenotype correlations: Insights from the new versus old genetics

Thomas Gasser  
*Tübingen, Germany*

### 4205 Parallel Session cont.

16:20 Mendelian genetics does not explain all familial disease: GWAS-environmental studies, epigenetics and single cell genetic variability

Haydeh Payami  
*Albany, NY, USA*

**Recommended Audience:** Basic scientists, Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Provide an overview of recent and future developments in disease genetics, and opportunities associated with these methods
- 2) Compare insights into genotype-phenotype correlations gained from new versus older genetic techniques
- 3) Discuss the likely long term implication of these methods for clinical diagnosis and treatment

### 4206 Parallel Session

#### **Electrophysiological, morphological and molecular basis of levodopa-induced dyskinesias and their therapeutic implications** **15:00 – 17:00**

**Location:** Harbor G, 2nd Level, Harbor Tower

**Chairs:** Erwan Bezard  
*Bordeaux, France*  
Paolo Calabresi  
*Rome, Italy*

15:00 Electrophysiological basis

Paolo Calabresi  
*Rome, Italy*

15:40 Morphological basis

Masahiko Tomiyama  
*Aomori, Japan*

16:20 Molecular basis

Erwan Bezard  
*Bordeaux, France*

**Recommended Audience:** Basic scientists, Clinical academicians, Practitioners, Students/Residents/Trainees



## Wednesday, June 17, 2015

### 4206 Parallel Session , cont.

At the conclusion of this session, participants should be better able to:

- 1) Describe the pre- and postsynaptic electrophysiological alterations of striatal neural networks in levodopa-induced dyskinesias
- 2) Describe the neuroanatomical changes including those of striatal dendritic spines in levodopa-induced dyskinesias
- 3) Describe the molecular basis of levodopa-induced dyskinesia and its therapeutic implications

### 4207 Parallel Session

#### Movement disorders in paraneoplastic and autoimmune disease

**15:00 – 17:00**

**Location:** Seaport Ballroom A-E, 2nd Level, Seaport Tower

**Chairs:** Josep Dalmau  
*Philadelphia, PA, USA*  
Oscar Gershanik  
*Buenos Aires, Argentina*

15:00 Paraneoplastic movement disorders  
Jessica Panzer  
*Philadelphia, PA, USA*

15:40 Sydenham's chorea and systemic autoimmune disorders  
Shekeeb Mohammad  
*Wentworthville, NSW, Australia*

16:20 Movement disorders associated with antibodies against cell-surface or synaptic proteins  
Josep Dalmau  
*Philadelphia, PA, USA*

**Recommended Audience:** Basic scientists, Clinical academicians, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Understand and diagnose paraneoplastic movement disorders
- 2) Recognize the clinical features and pathogenesis of Sydenham's chorea and other systemic autoimmune movement disorders
- 3) Identify the spectrum of movement disorders associated with antibodies against cell-surface and synaptic proteins

### 4208 Parallel Session

#### Movement disorders in the media

**15:00 – 17:00**

**Location:** Harbor A, 2nd Level, Harbor Tower

**Discussion Panel:**

Brandon Barton  
*Chicago, IL, USA*  
Aikaterini Kompoliti  
*Chicago, IL, USA*  
Maria Stamelou  
*Athens, Greece*  
Carolyn Sue  
*Sydney, NSW, Australia*

**Recommended Audience:** Basic scientists, Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Recognize how movement disorders are represented in the movies
- 2) Recognize how movement disorders are represented in the news
- 3) Recognize how movement disorders are represented on the internet

### 4309 Teaching Course

#### Cognitive and psychiatric disturbances in atypical parkinsonian disorders

**15:00 – 17:00**

**Location:** Harbor H-I, 2nd Level, Harbor Tower

**Chairs:** Murray Grossman  
*Philadelphia, PA, USA*  
David Salmon  
*La Jolla, CA, USA*

15:00 How to test cognition and behavior  
Alexander Troster  
*Phoenix, AZ, USA*

15:40 Cognitive disturbance in atypical parkinsonian disorders  
Murray Grossman  
*Philadelphia, PA, USA*

16:20 Psychiatric disturbances in atypical parkinsonian disorders  
Javier Pagonabarraga Mora  
*Barcelona, Spain*

### 4309 Teaching Course , cont.

**Recommended Audience:** Basic scientists, Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Recognize how to screen, detect, and evaluate cognitive and psychiatric symptoms using the most relevant bedside tests in atypical parkinsonian disorders
- 2) Recognize and understand the pathophysiology and treatment of cognitive disturbance in atypical parkinsonian disorders
- 3) Recognize and treat psychiatric disturbances of patients with atypical parkinsonian disorders (PSP, MSA, CBS)

### 4310 Teaching Course

#### Detecting prodromal Parkinson's disease

**15:00 – 17:00**

**Location:** Harbor B-C, 2nd Level, Harbor Tower

**Chairs:** Inga Liepelt-Scarfone  
*Tübingen, Germany*  
Ron Postuma  
*Montreal, QC, Canada*

15:00 Clinical markers of prodromal Parkinson's disease  
Ron Postuma  
*Montreal, QC, Canada*

15:40 Imaging and other biomarkers of prodromal Parkinson's disease  
Kenneth Marek  
*New Haven, CT, USA*

16:20 Putting it together: Can we make diagnostic criteria for prodromal Parkinson's disease?  
Inga Liepelt-Scarfone  
*Tübingen, Germany*

**Recommended Audience:** Basic scientists, Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees



## Wednesday, June 17, 2015

### 4310 Teaching Course , cont.

At the conclusion of this session, participants should be better able to:

- 1) Understand the range of clinical markers of early/prodromal Parkinson's disease, their predictive value, and eventual diagnostic utility
- 2) Understand neuroimaging features of early/prodromal Parkinson's disease, including MRI, dopaminergic functional neuroimaging, ultrasound, and cardiac scintigraphy as well as blood and cerebrospinal biomarkers for early/prodromal Parkinson's disease
- 3) Review research criteria for prodromal Parkinson's disease and discuss ethical issues

### 4411 Skills Workshop

#### Neuropathology of proteinopathies

**17:30 – 19:00**

**Location:** Harbor H-I, 2nd Level, Harbor Tower

*This interactive session is intended to provide the participant with an understanding of the basic neuropathologies of proteinopathies and will include basic methodologies and principles of neuropathology that can be understood by non-neuropathologists to enhance interpreting neuropathological data in scientific studies.*

Irina Alafuzoff  
Uppsala, Sweden  
Thomas Beach  
Sun City, AZ, USA

**Recommended Audience:** Basic scientists, Clinical academicians, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Understand the different laboratory techniques and limitations for identifying proteinopathies
- 2) Identify different proteinopathic lesions and their significance
- 3) Describe the classification system for diagnosing proteinopathies

### 4412 Skills Workshop

#### Managing acute and chronic post-operative issues following DBS in Parkinson's disease

**17:30 – 19:00**

**Location:** Seaport Ballroom A-E, 2nd Level, Seaport Tower

*This interactive session will have didactic and video-interactive components that deal with optimization of postoperative management of DBS in Parkinson's disease.*

Anna Castrियो  
Grenoble, France  
Jill Ostrem  
Greenbrae, CA, USA

**Recommended Audience:** Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Manage post-operative motor problems in Parkinson's disease patients
- 2) Manage post-operative non-motor problems in Parkinson's disease patients
- 3) Analyze and understand postoperative side effects related to DBS

### 4413 Skills Workshop

#### Palliative care for parkinsonian syndromes: A focus on non-motor issues

**17:30 – 19:00**

**Location:** Harbor B-C, 2nd Level, Harbor Tower

*In this interactive session, participants will be able to understand the principles of palliative care framed within a conceptual model as well as lessons learned from its practical application in an interdisciplinary clinic. The faculty will outline key principles of palliative care management in the Parkinson's disease nurse specialist in this pathway. Practical tips will be given on how to best apply those principles.*

Veronica Bruno  
Toronto, ON, Canada  
Julie Carter  
Portland, OR, USA

### 4413 Skills Workshop ,c ont.

**Recommended Audience:** Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Identify the key principles of palliative care (with a focus on non-motor) in Parkinson's using a conceptual framework
- 2) Understand the practical benefits and pitfalls of a model of palliative care in Parkinson's disease
- 3) Understand the role of the Parkinson's disease nurse in palliative care in Parkinson's disease

### 4414 Skills Workshop

#### Practical management of bladder and sexual dysfunction in parkinsonian disorders

**17:30 – 19:00**

**Location:** Seaport F, 2nd Level, Seaport Tower

*In this interactive session, participants will be able to understand the principles of managing bladder and sexual dysfunction in parkinsonian disorders, practical strategies on how to best to detect and evaluate disturbance and their practical management. The faculty will illustrate these points through lectures and case presentations.*

Gila Bronner  
Ramat-Gan, Israel  
Jalesh Panicker  
London, United Kingdom

**Recommended Audience:** Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Understand the basis for bladder and sexual dysfunction in patients with parkinsonian disorders
- 2) Understand how to investigate and manage bladder and sexual dysfunction in patients with parkinsonian disorders
- 3) Become familiar with newer treatment options for managing bladder and sexual dysfunction in parkinsonian disorders

## Wednesday, June 17, 2015

### 4415 Skills Workshop

#### The dystonic or spastic upper limb: Reassessing strategies 17:30 – 19:00

Location: Harbor A, 2nd Level,  
Harbor Tower

*This interactive session will have didactic and video-didactic components that deal with dystonia and spasticity assessment in regard to impacts in impairment and disability, as well as therapeutic strategies.*

Ryuji Kaji  
Tokushima City, Japan  
Raymond Rosales  
Manila, Philippines

Recommended Audience: Basic scientists, Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Assess upper limb dystonia and spasticity in regard to severity of impairment, postures and functional disability
- 2) Differentiate pure upper limb dystonia and spasticity, spastic dystonia and associated reactions
- 3) Formulate a therapeutic strategy that will reduce impairment and improve passive and active functions in spasticity and dystonia

### 4516 Video Session

#### Unusual movement disorders 17:30 – 19:00

Location: Seaport G-H, 2nd Level,  
Seaport Tower

*This interactive session will help attendees develop an approach to the differential diagnosis of unusual movement disorders.*

Orlando Barsottini  
São Paulo, Brazil  
Mandar Jog  
London, ON, Canada

Recommended Audience: Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

### 4516 Video Session , cont.

At the conclusion of this session, participants should be better able to:

- 1) Identify less common inherited movement disorders
- 2) Recognize less common acquired or "idiopathic" movement disorders
- 3) Develop an approach to the differential diagnosis of unusual movement disorders

### 4517 Video Session

#### Movement disorders in neuromuscular diseases 17:30 – 19:00

Location: Harbor G, 2nd Level,  
Harbor Tower

*This session will demonstrate examples of neuromuscular diseases with abnormal movements and postures that may be seen in or present to a movement disorder clinic.*

Alberto Espay  
Cincinnati, OH, USA  
Nestor Galvez-Jimenez  
Weston, FL, USA

Recommended Audience: Basic scientists, Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Recognize movements arising from peripheral nerve hyper-excitability syndromes
- 2) Identify myopathic causes of cramps and abnormal postures (ie. Limb, trunk camptocormia)
- 3) Recognize neuromuscular disease that can mimic a movement disorder due to weakness

### 4518 Video Session

#### Eyes and movement disorders 17:30 – 19:00

Location: Harbor D-F, 2nd Level,  
Harbor Tower

*In this interactive session, participants will learn bedside examination techniques, recognize categories of abnormal eye movements, and become familiar with patterns of oculomotor dysfunction in many movement disorders.*

Tim Anderson  
Christchurch, New Zealand  
Janet Rucker  
New York, NY, USA

Recommended Audience: Basic scientists, Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Undertake an efficient bedside examination of eye movements including saccades, pursuit, vergence, vestibular and alignment
- 2) Comprehend the phenomenology of abnormal spontaneous and evoked eye movements on bedside examination
- 3) Recognize patterns of abnormal eye movements that aid diagnosis in movement disorders

### MDS Video Challenge Pre-Event Gathering

19:00 – 20:00

Location: Harbor and Seaport Foyer,  
2nd Level

### MDS Video Challenge

20:00 – 22:00

Location: Seaport Ballroom A-E,  
2nd Level, Seaport Tower

See page 11 for more information.





## Thursday, June 18, 2015

### 5101 Plenary Session

#### Emerging paradigms for functional surgery for movement disorders

**8:00 – 9:30**

Location: Seaport Ballroom A-E, 2nd Level, Seaport Tower

Chairs: Jens Volkmann  
Würzburg, Germany

Paul Krack  
Grenoble, France

8:00 Focused ultrasound  
Jeff Elias  
Charlottesville, VA, USA

8:30 Gamma Knife  
Yoshinori Higuchi  
Chiba City, Japan

9:00 New stimulation techniques in DBS  
Jens Volkmann  
Würzburg, Germany

Recommended Audience: Basic scientists, Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Understand the pros and cons of focused ultrasound
- 2) Understand the pros and cons of gamma knife surgery
- 3) Understand the potential of steering technology for DBS such as demand pacemakers, directional stimulation, visual representation of electrode localization and shape of electrical stimulation field

### 5102 Controversies in Movement Disorders

**10:00 – 11:00**

Location: Seaport Ballroom A-E, 2nd Level, Seaport Tower

Chairs: Anthony Lang  
Toronto, ON, Canada

Matthew Stern  
Philadelphia, PA, USA

10:00 Are synucleopathies prion diseases? (YES)

Patrik Brundin  
Grand Rapids, MI, USA

10:15 Are synucleopathies prion diseases? (NO)

Glenda Halliday  
Randwick, NSW, Australia

10:30 Should infusion therapies be considered before DBS? (YES)

Angelo Antonini  
Venice, Italy

10:45 Should infusion therapies be considered before DBS? (NO)

Andres Lozano  
Toronto, ON, Canada

Recommended Audience: Basic scientists, Clinical academicians, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

Topic 1:

- 1) Define the basic characteristics of a prion disease
- 2) Assess the pros and cons of the prion paradigm applied to proteinopathies
- 3) Understand the state-of-the-art developments in modeling such phenomenon

Topic 2:

- 1) Describe the clinical effects of STN-DBS and infusion therapies on Parkinson's disease symptoms
- 2) Review the more common side effects of the STN-DBS and infusion therapies when used in Parkinson's disease
- 3) Discuss indication and contraindications for STN-DBS vs Infusion therapies in Parkinson's disease

### 5103 Blue Ribbon Highlights

**11:00 – 12:00**

Location: Seaport Ballroom A-E, 2nd Level, Seaport Tower

Chairs: Charles Adler  
Scottsdale, AZ, USA

Marcelo Merello  
Buenos Aires, Argentina

*This session will provide a critical review of the best poster presentations by a panel of experts, highlighting the relevance, novelty, and quality of both clinical and basic research presented by delegates.*

Presenters:

Christine Klein  
Lübeck, Germany

David Standaert  
Birmingham, AL, USA

Recommended Audience: Basic scientists, Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Review recent developments in the basic science of movement disorders
- 2) Discuss an overview of recent clinical developments
- 3) Define an overall perspective on current topics of interest in movement disorders

### Guided Poster Tours

#### GPT 13: Atypical parkinsonism

**12:00 – 13:30**

Location: Seaport F, 2nd Level, Seaport Tower

#### GPT 14: Surgical therapy of Parkinson's disease

**12:00 – 13:30**

Location: Harbor A, 2nd Level, Harbor Tower

#### GPT 15: Parkinson's disease: Cognitive and behavioral aspects

**12:00 – 13:30**

Location: Harbor B-C, 2nd Level, Harbor Tower

#### GPT 16: Parkinson's disease: Neuropharmacology

**12:00 – 13:30**

Location: Harbor G, 2nd Level, Harbor Tower

## Thursday, June 18, 2015

### Poster Session

**12:00 – 13:30**

Abstract numbers: 1112 – 1473

See page 16 for category locations.

Poster viewing: 9:00 – 16:00

### Corporate Therapeutic Symposia

**13:30 – 14:30**

See pages 126 – 127 for more information.

### 5204 Parallel Session



#### Models to study proteinopathies

**15:00 – 17:00**

Location: Harbor A, 2nd Level, Harbor Tower

Chairs: Kelvin Luk  
*Philadelphia, PA, USA*

Miquel Vila  
*Barcelona, Spain*

15:00 Use of human-derived protein as seeds

Miquel Vila  
*Barcelona, Spain*

15:40 Use of recombinant fibrils as seeds

Kelvin Luk  
*Philadelphia, PA, USA*

16:20 Structural and functional characterization of seeding protein strains

Ronald Melki  
*Gif-sur-Yvette, France*

Recommended Audience: Basic scientists, Clinical academicians

At the conclusion of this session, participants should be better able to:

- 1) Describe the requirements for modeling proteinopathies using human-derived pathologically conformed protein as seeds
- 2) Understand the state of the art in modeling the seeding process
- 3) Define what strategy is useful for the research needs

### 5205 Parallel Session



#### Clinical pathological and genetic overlap between FTD and parkinsonism

**15:00 – 17:00**

Location: Harbor G, 2nd Level, Harbor Tower

Chairs: Glenda Halliday  
*Randwick, NSW, Australia*

Ian MacKenzie  
*Vancouver, BC, Canada*

15:00 The diagnostic difficulty of parkinsonism in frontotemporal dementia syndromes

James Rowe  
*Cambridge, United Kingdom*

15:40 Pathology of parkinsonism in frontotemporal lobar degeneration

Ian MacKenzie  
*Vancouver, BC, Canada*

16:20 New genes involved in overlapping FTD and parkinsonism

Isabelle Le Ber  
*Paris, France*

Recommended Audience: Basic scientists, Clinical academicians, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Identify patients with parkinsonism that have underlying frontotemporal dementia pathologies
- 2) Define the pathologies and molecular signatures associated with parkinsonism in frontotemporal lobar degeneration
- 3) Name the new genes involved in parkinsonism and frontotemporal dementia syndromes

### 5206 Parallel Session



#### Parkinson's disease in underserved areas: Geographical and socioeconomic disparities in movement disorder care

**15:00 – 17:00**

Location: Seaport F, 2nd Level, Seaport Tower

Chairs: Louis Tan  
*Singapore*

Richard Walker  
*North Shields, United Kingdom*

15:00 The Asian Experience

Roland Dominic Jamora  
*Manila, Philippines*

15:40 The African Experience

Richard Walker  
*North Shields, United Kingdom*

16:20 The American Experience

Allison Willis  
*Philadelphia, PA, USA*

Recommended Audience: Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should be better able to:

- 1) Describe the movement disorders in developing countries that may create an impact into the global perspective
- 2) Identify key problem areas in diagnosis and treatment approaches of movement disorders in the developing countries
- 3) Understand how patient care outcomes are addressed and leveled with their socioeconomic implications



## Thursday, June 18, 2015

### 5207 Parallel Session

#### Drug-induced movement disorders

**15:00 – 17:00**

Location: Seaport Ballroom A-E,  
2nd Level, Seaport Tower

- Chairs: Stewart Factor  
*Atlanta, GA, USA*  
Timothy Lynch  
*Dublin, Ireland*
- 15:00 Understanding, recognizing and  
treating the tardive syndromes  
Francisco Cardoso  
*Belo Horizonte, Brazil*
- 15:40 Beyond tardive syndromes:  
Identifying and managing other  
neuroleptic-induced movement  
disorders  
Robert Rodnitzky  
*Iowa City, IA, USA*
- 16:20 Not the usual suspects:  
Movement disorders caused by  
other drugs  
Stewart Factor  
*Atlanta, GA, USA*

Recommended Audience: Clinical academicians,  
Non-physician Health Professionals, Practitioners,  
Students/Residents/Trainees

At the conclusion of this session, participants should  
be better able to:

- 1) Understand the pathophysiology, clinical  
spectrum, and treatment of the tardive syndromes
- 2) Identify and manage acute and chronic  
neuroleptic-induced movement disorders  
including acute dystonic reaction, akathisia,  
parkinsonism and neuroleptic malignant  
syndrome
- 3) Understand how to anticipate, recognize and  
treat movement disorders caused by other drugs  
including antiepileptics, antidepressants, cardiac  
drugs and other agents

### 5208 Parallel Session

#### Optimizing the effect of L-Dopa in Parkinson's disease

**15:00 – 17:00**

Location: Harbor D-F, 2nd Level,  
Harbor Tower

- Chairs: Peter LeWitt  
*West Bloomfield, MI, USA*  
Per Odin  
*Bremerhaven, Germany*
- 15:00 The value of frequent dosing of  
peroral L-dopa  
Fabrizio Stocchi  
*Rome, Italy*
- 15:40 New L-dopa preparations in  
development: IPX066, DM1922,  
XP21279, CVT301, Accordion pills  
Peter LeWitt  
*West Bloomfield, MI, USA*
- 16:20 L-dopa pump infusion: State-of-  
the-art  
Per Odin  
*Bremerhaven, Germany*

Recommended Audience: Basic scientists, Clinical  
academicians, Non-physician Health Professionals,  
Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should  
be better able to:

- 1) Describe possibilities for frequent dosing of  
L-dopa
- 2) Describe new L-dopa formulations in  
development
- 3) Describe pump treatment options for L-dopa, their  
effects and risks

### 5209 Parallel Session

#### Parkinson's subtype: New horizons in pathology to clinic

**15:00 – 17:00**

Location: Seaport G-H, 2nd Level,  
Seaport Tower

- Chairs: Charles Adler  
*Scottsdale, AZ, USA*  
Connie Marras  
*Toronto, ON, Canada*
- 15:00 Motor subtypes and non-motor  
subtypes presenting with non-  
dopaminergic clinical features  
Connie Marras  
*Toronto, ON, Canada*
- 15:40 Non-motor subtypes (mesolimbic  
and mesocortical)  
Paul Krack  
*Grenoble, France*
- 16:20 Neuropathological concepts  
underpinning cognitive and other  
subtyping  
Charles Adler  
*Scottsdale, AZ, USA*

Recommended Audience: Basic scientists, Clinical  
academicians, Non-physician Health Professionals,  
Practitioners, Students/Residents/Trainees

At the conclusion of this session, participants should  
be better able to:

- 1) Understand data and evidence on current basis of  
motor subtyping within Parkinson's and also cases  
that present dominantly with non-dopaminergic  
features (cognitive impairment, pain, apathy and  
aspects of sleep) supporting distinct, subtypes  
within Parkinson's disease and overlap with motor  
subtypes
- 2) Understanding the rationale and emerging  
evidence base of specific non-motor subtypes  
within Parkinson's disease focusing on subcortical  
and mesolimbic subtypes supported by clinical,  
imaging and pharmacological data
- 3) Understand the role of non-dopaminergic  
neuronal dysfunction in early Parkinson's disease  
and the variability of neuropathology based on  
onset pattern of Parkinson's disease



## Thursday, June 18, 2015

5310	Teaching Course	TICKET
	<b>Exercise in Parkinson's disease: Is it worth the sweat?</b> <b>15:00 – 17:00</b> Location: Harbor H-I, 2nd Level, Harbor Tower	
Chairs:	Nienke de Vries <i>Nijmegen, Netherlands</i> Ergun Uc <i>Iowa City, IA, USA</i>	
15:00	Biological effects of exercise in Parkinson's disease: Evidence from animal and human studies Giselle Petzinger <i>Los Angeles, CA, USA</i>	
15:40	Evidenced-based review of exercise in Parkinson's disease Ergun Uc <i>Iowa City, IA, USA</i>	
16:20	Practical implementation of exercise programs in Parkinson's disease Nienke de Vries <i>Nijmegen, Netherlands</i>	
Recommended Audience: Basic scientists, Clinical academicians, Non-physician Health Professionals, Practitioners, Students/Residents/Trainees		
At the conclusion of this session, participants should be better able to:		
<ol style="list-style-type: none"> <li>1) Explain how animal models suggest mechanisms for effects of exercise in Parkinson's disease</li> <li>2) List the current evidence supporting a role for exercise in Parkinson's disease</li> <li>3) Explain possible mechanisms underlying the effect of exercise in Parkinson's disease</li> </ol>		
5311	Teaching Course	TICKET
	<b>Update on pediatric movement disorders</b> <b>15:00 – 17:00</b> Location: Harbor B-C, 2nd Level, Harbor Tower	
Chairs:	Hyder Jinnah <i>Atlanta, GA, USA</i> Nardo Nardocci <i>Milan, Italy</i>	
15:00	Isolated and combined dystonia syndromes in children Nardo Nardocci <i>Milan, Italy</i>	
15:40	Paroxysmal dyskinesias Roberto Erro <i>Naples, Italy</i>	
16:20	Alternating hemiplegia of childhood and rapid onset dystonia-parkinsonism Allison Brashear <i>Winston-Salem, NC, USA</i>	
Recommended Audience: Basic scientists, Clinical academicians, Practitioners, Students/Residents/Trainees		
At the conclusion of this session, participants should be better able to:		
<ol style="list-style-type: none"> <li>1) Review the most recent advances on the diagnosis and treatment of childhood onset dystonias</li> <li>2) Understand the neurogenetics of paroxysmal dyskinesia, in particular phenotypic pleiotropy of PRRT2 and GLUT1 mutations, and their implications for patient management</li> <li>3) Understand the spectrum of clinical manifestations of ATP1A3 mutations, which includes episodic to progressive movement disorders</li> </ol>		



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Singleton, Andrew <i>Bethesda, MD, USA</i> 3204	Tan, Eng-King <i>Singapore</i> 2518, 3204	Volkman, Jens <i>Würzburg, Germany</i> 5101	
Sonies, Barbara <i>Potomac, MD, USA</i> 2206	Tan, Louis <i>Singapore</i> 5206	Walker, Richard <i>North Shields, United Kingdom</i> 5206	
Stamelou, Maria <i>Athens, Greece</i> 4208	Tanner, Caroline <i>San Francisco, CA, USA</i> 2207	Weintraub, Daniel <i>Ardmore, PA, USA</i> 1103	
Standaert, David <i>Birmingham, AL, USA</i> 5103	Thomas, Sue <i>London, United Kingdom</i> 3206	Weissbach, Anne <i>Lübeck, Germany</i> 3207	
Stern, Matthew <i>Philadelphia, PA, USA</i> 5102	Thompson, Philip <i>Adelaide, SA, Australia</i> 1104	Wenning, Gregor <i>Innsbruck, Austria</i> 2204	
Stocchi, Fabrizio <i>Rome, Italy</i> 5208	Tinazzi, Michele <i>Verona, Italy</i> 2413	Williams, David <i>Brighton, VIC, Australia</i> 4101	
Storch, Alexander <i>Dresden, Germany</i> 1101	Tolosa, Eduardo <i>Barcelona, Spain</i> 2102	Williams-Gray, Caroline <i>Cambridge, United Kingdom</i> 2309	



## Guided Poster Tour Abstracts

### GUIDED POSTER TOUR 1 - PARKINSON'S DISEASE: PHENOMENOLOGY

#### Seaport F, 2nd Level, Seaport Tower

12:30 - 14:00

Monday, June 15, 2015

- 1220 Do distribution and co-existent myoclonus and dystonia aid in the identification of SGCE mutations?  
R. Zutt, J.M. Dijk, K. Peall, H. Speelman, Y.E.M. Dreissen, M.F. Contarino, M.A.J. Tijssen (Groningen, Netherlands)
- 1185 Modulation of dystonia during sleep  
E. Antelmi, R. Ferri, K. Bhatia, F. Mignani, C. Scaglione, F. Provini, P. Martinelli, R. Liguori (Bologna, Italy)
- 1196 4-year longitudinal changes in clinical rating, medication and quantitative motor assessment in mild and moderate Parkinson's disease: Results from the MODEP study  
S. Heinzel, F. Bernhard, M. Maechtel, T. Heger, S. Nussbaum, W. Maetzler, D. Berg (Tuebingen, Germany)
- 1202 Impact of different baseline motor features on prognosis in Parkinson's disease  
A.D. Macleod, C.E. Counsell (Aberdeen, United Kingdom)
- 1191 A simple approach to monitoring of Parkinson's disease state using a Smart phone platform  
J.M. Dean, M. Silverman (Boulder, CO, USA)
- 1194 Physical activity correlates with disease severity among new onset Parkinson's disease patients  
P. Gonzalez-Latapi, J.D. Colino, T. Simuni (Boston, MA, USA)
- 1211 Non-motor symptoms profiles of different ethnic groups with Parkinson's disease: A study comparing the UK, Thailand, Nigeria and Kuwait  
A. Sauerbier, O. Jitkrisadukul, R. Bhidayasiri, J.Y. Al-Hashel, W.A. Kamel, A. Kilany, T. Farombi, P. Martinez-Martin, R. Brown, M. Parry, A. Martin, R. Inniss, L. Perkins, D. Trivedi, L. Klingelhöfer, A. Rizos, P. Zis, K. Ray Chaudhuri (London, United Kingdom)
- 1195 New observations in the Fragile-X associated tremor/ataxia syndrome (FXTAS) phenotype  
D.A. Hall, A.Y. Faint, P. Vittal, A. Szewka, B. Bernard, E. Berry-Kravis (Chicago, IL, USA)
- 1208 Clinical features of late-stage early-onset Parkinson's disease: 38 years of follow-up  
B. Pinter, A. Diem-Zangerl, G.K. Wenning, W. Oberger, K. Seppi, W. Poewe (Innsbruck, Austria)
- 1219 Comparing wearable activity sensors and self-report measures of mobility  
L.F. Zhu, P. Boissy, C. Lavigne-Pelletier, M. Jog, R. Edwards, C. Duval, M. Speechley (London, ON, Canada)

### GUIDED POSTER TOUR 2 - SLEEP DISORDERS AND RLS

#### Harbor A, 2nd Level, Harbor Tower

12:30 - 14:00

Monday, June 15, 2015

- 1254 Periodic leg movements of sleep under general anesthesia  
N. Vanegas, M. Hallett, K.A. Zaghoul, C. Lungu (Bethesda, MD, USA)
- 1245 Deep brain stimulation (DBS) of the subthalamic nucleus (STN) improves restless leg syndrome (RLS) in patients with Parkinson's disease (PD)  
O.S. Klepitskaya, Y. Liu, S.H. Sillau, J. Tsai, A.S. Walters (Aurora, CO, USA)
- 1240 The prevalence of RLS and severity of symptoms in patients with Idiopathic Parkinson's disease in the Republic of Macedonia  
A. Doneva, S. Mancevska, V. Donev (Skopje, Macedonia)
- 1242 Decision making in Parkinson's disease with and without REM sleep behavior disorder  
M.L. Fantini, P. Beudin, M. Figorilli, A.R. Marques, T. Vidal, B. Debilly, P. Derost, U. Miguel, M. Puligheddu, F. Durif (Clermont-Ferrand, France)
- 1252 Familial impulse control disorders associated with dopaminergic agonist therapy for RLS  
M. Schonberger, C. Sidiropoulos, P. LeWitt (West Bloomfield, MI, USA)
- 1241 Acute restless legs syndrome and kleptomania after liposuction surgery  
G. Fabiani, H.A.G. Teive (Curitiba, Brazil)
- 1097 Pilot study to evaluate transcranial direct current stimulation (tDCS) during sleep for the treatment of Parkinson's disease  
D.A. Heldman, C.L. Pulliam, L.M. Blassucci, J.P. Giuffrida, C.L. Comella (Cleveland, OH, USA)
- 926 Sleep architecture observed in the patients with SCA 10  
E. London, A.C. Crippa, H.A.G. Teive, A. Moro, M. Moscovich, T. Ashizawa (Curitiba, Brazil)
- 1009 Motor and non-motor features of Parkinson's disease in idiopathic REM sleep behaviour disorder  
M. Rolinski, L. Griffanti, K. Szewczyk-Krolikowski, R.A. Menke, T. Quinnell, Z. Zaiwalla, C.E. Mackay, M.T.M. Hu (Oxford, United Kingdom)

## Guided Poster Tour Abstracts

### GUIDED POSTER TOUR 3 – TREMOR

#### Harbor B-C, 2nd Level, Harbor Tower

12:30 - 14:00

Monday, June 15, 2015

- 1459 Climbing fiber-Purkinje cell synaptic changes correlate with clinical features in essential tremor  
S. H. Kuo, R.J. Louis, C.Y. Lin, A.H. Koeppen, P.L. Faust, E.D. Louis (New York, NY, USA)
- 1470 Elderly onset essential tremor and cognitive impairment  
H.A. Shill, J.G. Hentz, J.N. Caviness, E. Driver-Dunckley, S. Jacobson, C. Belden, M.N. Sabbagh, T.G. Beach, C.H. Adler (Sun City, AZ, USA)
- 1455 The efficacy of electrical muscle stimulation in various tremor syndromes: An open-label, pilot study including 68 patients  
O. Jitkrittadukul, C. Thanawattano, C. Anan, R. Bhidayasiri (Bangkok, Thailand)
- 1444 Rate-controlled syllable repetitions improve comparability of DBS-induced dysarthria between on- and off-state in patients with essential tremor  
J. Becker, D. Mücke, A. Hermes, T.A. Dembek, A.F. Josten, I. Meister, V. Visser-Vandewalle, M. Grice, L. Timmermann, M.T. Barbe (Cologne, Germany)
- 1454 Different features of iron deposition in subcortical nuclei between essential tremor and tremor-dominant Parkinson's disease  
L. Jin, J. Wang, G. Fei, C. Zhong (Shanghai, China)
- 1465 Functional connectivity in the sensorimotor cortex in Parkinson's patients with and without tremor  
S.E. Qasim, C. de Hemptinne, N. Swann, P.A. Starr (San Francisco, CA, USA)
- 1469 Improvement of repeated Archimedes spirals in essential tremor: Evidence for a learning effect?  
N. Schuhmayer, C. Weber, M. Kieler, W. Pirker, E. Auff, D. Haubenberger (Vienna, Austria)
- 1445 Smartphone apps provide a simple, accurate bedside screening tool for orthostatic tremor  
D. Bhatti, R. Thompson, A. Hellman, C. Penke, J.M. Bertoni, D. Torres-Russotto (Omaha, NE, USA)
- 1449 Hypertrophic olivary degeneration does not reduce essential tremor  
A. Elkouzi, J.C. Kattah, R.J. Elble (Springfield, IL, USA)
- 1463 Non-motor symptoms of essential tremor are independent of tremor severity and have an impact on quality of life  
T. Musacchio, V. Purrer, A. Papagianni, A. Fleischer, D. Mackenrodt, C. Malsch, G. Gelbrich, F. Steigerwald, J. Volkmann, S. Klebe (Würzburg, Germany)

### GUIDED POSTER TOUR 4 - PARKINSON'S DISEASE: NON-MOTOR FEATURES

#### Harbor G, 2nd Level, Harbor Tower

12:30 - 14:00

Monday, June 15, 2015

- 489 Depression and nighttime-sleep problems in Parkinson's disease  
K. Zhu, J. Marinus, J.J. van Hilten (Leiden, Netherlands)
- 379 Delineating non-motor symptoms in early Parkinson's disease and first-degree relatives  
F. Baig, M. Lawton, M. Rolinski, C. Ruffmann, K. Nithi, S.G. Evetts, H.R. Fernandes, Y. Ben-Shlomo, M.T.M. Hu (Oxford, United Kingdom)
- 427 The contribution of the insula in Parkinson's disease: A quantitative meta-analysis study  
M. Marion, L. Christopher, P. Boulinguez, B. Ballanger, A.E. Lang, S.S. Cho, A.P. Strafella (Toronto, ON, Canada)
- 487 Visual exploration in Parkinson's disease  
D.F. Ye, N. Vanegas-Arroyave, P. Lauro, M. Hallett, C. Lungu (Bethesda, MD, USA)
- 482 Antipsychotic use in Parkinson's disease is associated with increased mortality  
D. Weintraub, C. Chiang, H.M. Kim, J. Wilkinson, C. Marras, B. Stanislawski, E. Mamikonyan, H.C. Kales (Philadelphia, PA, USA)
- 376 Constipation preceding Parkinson's disease – Systematic review and meta-analysis  
K.L. Adams-Carr, A. Schrag, S. Shribman, J.P. Bestwick, A. Lees, A.J. Noyce (London, United Kingdom)
- 431 Elevated salivary DJ-1 in Parkinson's disease is associated with altered salivary secretion  
J.M. Masters, A.J. Noyce, G. Giovannoni, T.T. Warner, G.B. Proctor (Herts, United Kingdom)
- 419 Clinical analysis of the non-motor symptoms of Parkinson's patients with diabetes  
Y. Liu, C. Liu, J. Zhang, M. Wang, S. Chen, C. Zhao (Jinan, China)
- 446 Emaciation and life prognosis in Parkinson's disease  
K. Park, T. Oeda, A. Umemura, M. Kohsaka, S. Tomita, H. Sugiyama, H. Sawada (Kyoto, Japan)
- 378 Aspiration pneumonia in a hospitalized Parkinson's disease cohort  
L. Almeida, D. Martinez-Ramirez, K.W. Hageland, J.C. Giuni, C. Little, J.P. Chapman, B. Ahmed, E. Monari, M. Troche, M.S. Okun (Gainesville, FL, USA)



## Guided Poster Tour Abstracts

### GUIDED POSTER TOUR 5 - LEWY BODY DEMENTIA & DEMENTIAS

#### Seaport F, 2nd Level, Seaport Tower

12:30 - 14:00

Tuesday, June 16, 2015

- 1274 Characteristic of cognitive and emotional personality disorders in patients with essential tremor  
R.J. Matmurodov, K.K. Khalimova (Tashkent, Uzbekistan)
- 1273 Parkinson's disease and cognitive reserve  
F. Mancini, S. Guzzetti, L.G. Manfredi, A. Caporali, R. Daini, A. Antonini (Milano, Italy)
- 1271 Pallidal deep brain stimulation improves memory in patients with cervical dystonia: Is the effect on the nucleus basalis of Meynert?  
M. Chung, R. Huh, I.U. Song (Incheon, Korea)
- 1272 Age-dependent distribution change of amyloid-beta protein in macaque brains  
K. Kimura, K. Inoue, F. Tanaka, M. Takada (Yokohama, Japan)
- 1279 Learning effect plays a significant role in performance on the Montreal cognitive assessment in patients with Parkinson's disease  
J.P. Squires, E. Nosova, K. Co, A. Book, O. Yu, V. Silva, C. Thompson, V. O'Neill, S. Yardley, S. Burden, M. McKeown, A.J. Stoessl, S.A. Cresswell (Vancouver, BC, Canada)
- 1277 Status of working memory in patients of Parkinson's disease  
A. Pal, M. Behari, R. Sharma (New Delhi, India)
- 1278 Cerebral microbleeds in dementia with Lewy bodies and Alzheimer disease and their influence on cognitive decline  
T. Poliakova, N. Trusova, A. Arablinskiy, O. Levin (Moscow, Russia)
- 1275 Effects of early iron deficiency on catecholaminergic transporters in rat brain  
W. Mohamed (Shebin el Kom, Egypt)
- 18 Attentional modulation of activity in the nucleus basalis of Meynert in patients undergoing deep brain stimulation for Parkinson's disease dementia and Lewy body dementia  
J. Gratwicke, A. Oswal, S. Little, M. Beudel, V. Litvak, L. Zrinzo, M. Hariz, P. Brown, M. Jahanshahi, T. Foltynie (London, United Kingdom)

### GUIDED POSTER TOUR 6 - HUNTINGTON'S DISEASE AND OTHER CHOREIFORM DISORDERS

#### Harbor A, 2nd Level, Harbor Tower

12:30 - 14:00

Tuesday, June 16, 2015

- 1375 First time use of SD-809 in Huntington disease (first-HD)  
S. Frank, Huntington Study Group/First-HD Investigators (Boston, MA, USA)
- 1384 Safety of pridopidine when taken with antidepressants or antipsychotics: Pooled analysis from two Huntington's disease clinical trials  
G.B. Landwehrmeyer, S. Zhao, V. Abler (Ulm, Germany)
- 362 Clinical characteristics and genetic testing of a Huntington mutation negative cohort  
K.J. Peall, H.R. Morris, M. Wardle (Cardiff, United Kingdom)
- 1382 Objective measurement of gait abnormalities in Huntington disease using a shoe-worn inertial sensor  
P. Hogarth, A. Lenahan, A. Portillo, R.K. Ramachandran, K.A. Stenson, A.T.R. Legedza, M.C. Botfield, F.B. Horak, J. McNamers, M. El-Gohary (Portland, OR, USA)
- 1380 Using a brief balance assessment to estimate disease onset in Huntington's disease  
A. Herndon, J. Corey-Bloom, A. Lam, C. Heil, S.K. Nam, P. Gilbert, D. Goble (La Jolla, CA, USA)
- 1395 Abnormal electrophysiological motor responses in Huntington's disease: Evidence of premanifest compensation  
L.M. Turner, R. Croft, A. Churchyard, J.C.L. Looi, D. Apthorp, N. Georgiou-Karistianis (Canberra, Australia)
- 1397 Callosal thickness progressively changes in Huntington disease: 30 month IMAGE-HD data  
F.A. Wilkes, M. Walterfang, C. Adamson, J.C.L. Looi, M.L. Seal, D. Velakoulis, J. Stout, A. Churchyard, P. Chua, G.F. Egan, N. Georgiou-Karistianis (Canberra, Australia)
- 1387 Metabolic brain correlates of apathetic symptoms in pre-manifest Huntington's disease: An 18-FDG PET study  
S. Martinez-Horta, J. Perez-Perez, F. Sampedro-Santalo, R. Fernandez-Bobadilla, M. Carceller, J. Pagonabarraga, A. Campolongo, B. Gomez-Anson, B. Pascual-Sedano, V. Camacho-Marti, D. Lopez-Mora, J. Kulisevsky (Barcelona, Spain)
- 1390 Gait speed modulation in prodromal and early manifest Huntington's disease: Role of internal and external cues  
A.K. Rao, F. Porciuncula, J. Uddin, K.S. Marder (New York, NY, USA)



## Guided Poster Tour Abstracts

### GUIDED POSTER TOUR 7 - RATING SCALES

#### Harbor B-C, 2nd Level, Harbor Tower

12:30 - 14:00

Tuesday, June 16, 2015

- 1088 A multicentre study of the patient's perspective: The first Parkinson's disease pain questionnaire (King's PD pain quest)  
A.M. Rizos, P. Martinez-Martin, S. Pal, C. Carroll, D. Martino, C. Falup-Pecurariu, B. Kessel, A. Sauerbier, A. Martin, M. Parry, R. Inniss, L. Perkins, D. Trivedi, P. Odin, A. Antonini, K. Ray Chaudhuri (London, United Kingdom)
- 1075 Handling missing values in the MDS-UPDRS  
C.G. Goetz, S. Luo, L. Wang, B.C. Tilley, N.R. LaPelle, G.T. Stebbins (Chicago, IL, USA)
- 1082 Automatic spiral analysis for objective assessment of motor symptoms in Parkinson's disease  
M. Memedi, A. Johansson, F. Bergquist, D. Nyholm (Borlänge, Sweden)
- 1089 How to screen for dysphagia in Parkinson's disease? The Munich dysphagia test (MDT-PD) – A patient reported outcome questionnaire  
J.A. Simons, A. Waldmann, U.M. Fietzek (Lübeck, Germany)
- 1073 UPDRS motor subscales provide a measure of key locomotor function  
C. Curtze, J.G. Nutt, P. Carlson-Kuhta, M. Mancini, F.B. Horak (Portland, OR, USA)
- 1086 PDSS-2 cut-off scores for the severity of sleep disturbances in PD Patients  
M.L. Muntean, H. Benes, F. Sixel-Döring, C. Trenkwalder (Kassel, Germany)
- 1076 Predictive validity of facial masking for experienced stigma in Parkinson's disease  
S.D. Gunnery, M. Saint-Hilaire, C.A. Thomas, L. Tickle-Degnen (Medford, MA, USA)
- 1080 Inter-rater reliability of the hemifacial spasm severity scale (HFS-SS)  
E.C. Lim, A.M. Quek, L.L. Yeo, L. Shen, A.W. Chow, R.C. Seet (Singapore)
- 1071 Correlation between the functional independence measure (FIM) and the scale for assessment and rating of ataxia (SARA) for the evaluation of spinocerebellar ataxia  
F.M. Branco Germiniani, T.V. Canelossi Rosa, R. Nickel, P.B.N. Liberalesso, H.A.G. Teive (Curitiba, Brazil)
- 1077 Minimal clinically important difference on the Parkinson's disease sleep scale 2nd version (PDSS-2)  
N. Kovács, Z. Aschermann, P. Ács, G. Deli, J. Janszky, S. Komoly, B. Faludi, K. Horváth (Pécs, Hungary)

### GUIDED POSTER TOUR 8 - GENETICS

#### Harbor G, 2nd Level, Harbor Tower

12:30 - 14:00

Tuesday, June 16, 2015

- 1159 LRRK2 and GBA variants influence rate of motor progression in Parkinson's disease  
M.Y. Davis, C. Johnson, J.B. Leverenz, D. Weintraub, J.Q. Trojanowski, A. Chen-Plotkin, V.M. Van Deerlin, S. Factor, C. Wood-Siverio, J.F. Quinn, K.A. Chung, A.L. Peterson-Hiller, L.S. Rosenthal, T.M. Dawson, M.S. Albert, J.G. Goldman, G.T. Stebbins, B. Bernard, D. Yearout, S. Hu, B.A. Cholerston, T.J. Montine, K.L. Edwards, C.P. Zabetian (Seattle, WA, USA)
- 1162 Novel recruitment strategy to enrich for LRRK2 mutation carriers  
T. Foroud, D. Smith, J. Jackson, J. Verbrugge, C. Halter, L. Wetherill, K. Sims, W. Xin, V. Arnedo, S. Lasch, K. Marek (Indianapolis, IN, USA)
- 1164 Exon dosage analysis of parkin gene in Chinese sporadic Parkinson's disease  
J.-F. Guo, X. Dong, X.X. Yan, B. Tang (Changsha, China)
- 1029 Using a GBA deficient drosophila model to understand pathogenic mechanisms in PD  
M.Y. Davis, K. Trinh, R. Thomas, B. Whittle, T. Montine, L. Pallanck (Seattle, WA, USA)
- 1154 Glucocerebrosidase activity in Parkinson's disease with and without GBA mutations  
R.N. Alcalay, O.A. Levy, C. Waters, S. Fahn, B. Ford, S.H. Kuo, P. Mazzoni, M.W. Pauciulo, W. Nichols, Z. Gan-Or, G.A. Rouleau, W.K. Chung, P. Wolf, P. Oliva, J. Kreutzer, K.S. Marder, X.K. Zhang (New York, NY, USA)
- 1167 The impact of rare variants in FUS and HTR2A in essential tremor  
F. Hopfner, G. Stevanin, S.H. Müller, E. Mundwiller, M. Bungeroth, A. Durr, M. Pendziwiat, M. Anheim, S.A. Schneider, L. Tittmann, S. Klebe, D. Lorenz, G. Deuschl, A. Brice, G. Kühlenbäumer (Kiel, Germany)
- 1234 Dystonia-spasticity in a patient with a novel SLC25A12 mutation  
M. Parnes, L. Robak, J.M. Shulman, A. Stocco, J. Jankovic (Houston, TX, USA)
- 1223 Drug response to zinc and D-penicillamine in ATP7B mutant hepatic cell lines  
G. Chandhok, J. Horvath, A. Aggarwal, M. Bhatt, A. Zibert, H.H.J. Schmidt (Münster, Germany)
- 1060 Leucine-rich repeat kinase 2 (LRRK2) impairs function of the retromer-associated WASH complex  
K. Venderova, D. Kaing, R. Eismati, R. Joseph, L. Radek, H. Yu-Ju, H. Emily, T. Ariel, F. Ryan, F. Derek (Stockton, CA, USA)



## Guided Poster Tour Abstracts

### GUIDED POSTER TOUR 9 - PARKINSON'S DISEASE: CLINICAL TRIALS

#### Seaport F, 2nd Level, Seaport Tower

12:00 - 13:30

Wednesday, June 17, 2015

- 302 Updated long-term safety from ongoing phase 3 trials of levodopa-carbidopa intestinal gel in patients with advanced Parkinson's disease  
R.L. Rodriguez, N. Schmulewitz, D. Stein, W.Z. Robieson, C.M. Hall, S. Eaton, K. Chatamra, J.A. Benesh, A.J. Espay (Gainesville, FL, USA)
- 260 Inhaled levodopa (CVT-301) provides rapid motor improvements after administration to Parkinson's disease patients when OFF  
P.A. LeWitt, M.-H. Saint-Hilaire, D.G. Grosset, R. Hauser, F. Stocchi, M.I. Freed, T. DeFeo-Fraulini, M. Leinonen, K. Kiebertz (West Bloomfield, MI, USA)
- 312 The profile of the hospitalized and re-hospitalized Parkinson's disease patient: 5 year data from the National Parkinson's Foundation  
L. Shahgholi, S. De Jesus, S. Wu, Q. Pei, A. Hassan, P. Schmidt, M. Okun (Gainesville, FL, USA)
- 181 Clinical predictors of functional decline in early treated Parkinson's disease: NET-PD LS1 cohort  
D. Bega, S. Kim, Y. Zhang, J. Elm, J. Schneider, R. Hauser, A. Fraser, T. Simuni, On Behalf of the NET-PD LS1 Investigators (Chicago, IL, USA)
- 297 A randomized controlled pilot study to evaluate the effect of rotigotine on Parkinson's disease-associated pain  
O. Rascol, T. Zesiewicz, K.R. Chaudhuri, M. Asgharnejad, E. Surmann, E. Dohin, S. Nilus, L. Bauer (Toulouse, France)
- 326 Assessing the burden of osteoporosis in a population of patients with idiopathic Parkinson's disease  
M.P. Sritharan, S.J. Jackson (Exeter, United Kingdom)
- 335 Prolonged-release oxycodone/naloxone (OXN PR) is associated with treatment benefits in patients with severe Parkinson's disease (PD)-related pain: Results from a randomised, controlled trial  
C. Trenkwalder, P. Martinez-Martin, O. Rascol, M. Lomax, J. DeCesare, M. Hopp, K.R. Chaudhuri (Kassel, Germany)
- 321 Safety and clinical effects of NTCELL® [immunoprotected (alginate-encapsulated) porcine choroid plexus cells for xenotransplantation] in patients with Parkinson's disease (PD): 26 weeks follow-up  
B.J. Snow, K.M. Taylor, J.A. Stoessi, A. Bok, M. Simpson, D. McAuley, L. Macdonald, K.J. Durbin, J. Lee, H. Lin, V. Sossi, K. Dinelle, J. McKenzie (Auckland, New Zealand)
- 221 Efficacy of opicapone as adjunctive therapy to levodopa in patients with Parkinson's disease and motor fluctuations: Analysis of pooled phase III studies  
J. Ferreira, A. Lees, A. Santos, N. Lopes, R. Costa, C. Oliveira, R. Pinto, T. Nunes, J.F. Rocha, P. Soares-da-Silva (S. Mamede do Coronado, Portugal)
- 196 24 hour levodopa-carbidopa intestinal gel may reduce falls from unresponsive freezing of gait in Parkinson's disease  
F.C.F. Chang, D.S.Y. Tsui, N. Mahant, N. Wolfe, S.D. Kim, A.D. Ha, J.M. Griffith, M. Drury, V.S.C. Fung (Westmead, Australia)

### GUIDED POSTER TOUR 10 - DYSTONIA

#### Harbor A, 2nd Level, Harbor Tower

12:00 - 13:30

Wednesday, June 17, 2015

- 1339 Neurochemical and behavioral dysfunction in a new mouse model of dopa-responsive dystonia  
S.J. Rose, X.Y. Yu, H.A. Jinnah, E.J. Hess (Decatur, GA, USA)
- 1343 Neural correlates of GNAL mutation in laryngeal dystonia  
K. Simonyan, G. Putzel, T. Fuchs, E. Rubien-Thomas, A. Blitzer, S.J. Frucht, L. Ozelius (New York, NY, USA)
- 1348 Embouchure dystonia: Phenomenology, natural history and mimicks  
P. Termsarasab, S.J. Frucht (New York, NY, USA)
- 1302 Primary writing tremor is a dystonic trait: Evidence from a single family  
R. Erro, M. Ciocca, A. Batla, J. Rothwell, K.P. Bhatia (London, United Kingdom)
- 1290 Correlation between Tsui tremor scores and the Toronto western spasmodic torticollis rating scale (TWSTRS): An analysis of data from the ongoing INTEREST IN CD2 study  
C. Colosimo, D. Charles, V.P. Misra, P. Maisonnobe, S. Om (Rome, Italy)
- 1355 Task specific oromandibular dystonia secondary to chewing khat (*cantha edulis*)  
P.M. Wadia, J.N. Khanna (Mumbai, India)
- 1292 Characteristics of dystonia in multiple system atrophy  
E.A. Coon, J.E. Ahlskog, M. Suarez, P.A. Low, W. Singer (Rochester, MN, USA)
- 1325 Sun exposure is an environmental factor for the development of blepharospasm  
A. Molloy, L. Williams, O. Kimmich, J. Butler, I. Beiser, E. McGovern, S. O'Riordan, R.B. Reilly, C. Walsh, M. Hutchinson (Dublin, Ireland)
- 1303 The role of TorsinA in developing neurons  
B. Fabry, K. Bretzel, T. Ott, K. Grundmann-Hauser, O. Rieß (Tübingen, Germany)

## Guided Poster Tour Abstracts

### GUIDED POSTER TOUR 11 - SURGICAL THERAPY OF MOVEMENT DISORDERS

#### Harbor B-C, 2nd Level, Harbor Tower

12:00 - 13:30

Wednesday, June 17, 2015

- 662 Progressive ataxia under thalamic neurostimulation in essential tremor, neurostimulation effect or disease progression?  
M.M. Reich, J. Brumberg, F. Steigerwald, G. Marotta, T. Musacchio, D.A. Kirsch, L. Müller, K. Herrmann, A. Buck, J. Volkmann, I.U. Isaias (Wuerzburg, Germany)
- 647 Impedance fluctuations in patients undergoing thalamic deep brain stimulation for essential tremor and their effect on clinical outcome  
J. Eskenazi, E. Tan, A.N. Mamelak, M. Tagliati (Los Angeles, CA, USA)
- 638 Deep brain stimulation in rare movements disorders  
I. Beaulieu-Boire, C.C. Aquino, A.E. Lang, R.P. Munhoz, Y.Y. Poon, A. Valencia, M. Fallis, S. Kalia, M. Hodaie, E. Moro, A.M. Lozano, A. Fasano (Sherbrooke, QC, Canada)
- 652 Deep brain stimulation for dystonia: A programming algorithm evaluated by long-term results of the German multicentre study for generalized or segmental dystonia  
A.D. Kirsch, A.A. Kühn, J. Müller, J. Volkmann for the Deep-Brain Stimulation for Dystonia Study Group (Würzburg, Germany)
- 651 Functional assessment and quality of life in essential tremor following treatment with bilateral or unilateral deep brain stimulation and unilateral focused ultrasound thalamotomy  
D.S. Huss, R.F. Dallapiazza, B.B. Shah, M.B. Harrison, J.W. Elias (Staunton, VA, USA)
- 646 Update on deep brain stimulation for refractory Tourette syndrome: 10 patients with CM-Pf/Voi stimulation  
R.S. Dowd, M.H. Pourfar, A.Y. Mogilner (New York, NY, USA)
- 655 Therapeutic deep brain ablation via implanted DBS leads: Technique and potential complications  
A. Mantovani, A.R. Bona, M.S. Okun, K.D. Foote (Gainesville, FL, USA)
- 641 The efficacy of VIM and VIM/ZI DBS in treatment of various tremors  
M. Bonello, J. Osman-Farah, P.R. Eldridge, B. Hammersley, L. Lowry, P. Byrne, N.A. Fletcher, S.H. Alusi (Liverpool, United Kingdom)
- 658 Reversal of acquired hepatocerebral degeneration with live donor liver transplant  
A.H. Qavi, S. Hammad, A.I. Rana, M. Salih, N.H. Shah, F.S. Dar, A. Ahmad (Islamabad, Pakistan)
- 644 Target correlated mapping of therapeutic effects in deep brain stimulation using voxel-based estimations of neuroanatomical structures and volumes of tissue activated  
T.A. Dembek, M.T. Barbe, M. Åström, V. Visser-Vandewalle, L. Timmermann (Cologne, Germany)

### GUIDED POSTER TOUR 12 - BASIC SCIENCE

#### Harbor G, 2nd Level, Harbor Tower

12:00 - 13:30

Wednesday, June 17, 2015

- 105 Association between locus coeruleus pathology and gait dysfunction in Parkinson's disease: A clinical-pathological preliminary analysis  
K.A. Mills, Z. Mari, C. Bakker, G.M. Pontone, J.C. Troncoso, L.S. Rosenthal (Baltimore, MD, USA)
- 69 Dopaminergic fibers from the substantia nigra to the olfactory bulb in the rat  
D. Alvarez-Fischer, O. Arias-Carrion, C. Klein, W.H. Oertel, G.U. Hoeglenger (Luebeck, Germany)
- 120 Alpha-synuclein immunohistochemistry studies in gastrointestinal tissue from preclinical Parkinson's disease patients  
M.G. Stokholm, E.H. Danielsen, S.J. Hamilton-Dutoit, P. Borghammer (Aarhus, Denmark)
- 71 Staining for unphosphorylated alpha-synuclein in the colon mucosa. No difference between patients with Parkinson's disease and healthy controls  
L. Antunes, S. Frascuillo, M. Ostaszewski, J. Weber, L. Longhino, P. Antony, A. Baumuratov, P. Derkinderen, R. Balling, N.J. Diederich (Luxembourg-City, Luxembourg)
- 119 Isradipine rescues alpha-synuclein toxicity in a zebrafish model of Parkinson's disease by upregulating autophagy  
M.C. Stahl, S. Prabhudesai, A. Lulla, J. Bronstein (Hershey, PA, USA)
- 113 Mid-life milk consumption and substantia nigra neuron density at death  
G.W. Ross, R.D. Abbott, H. Petrovitch, K.H. Masaki, L.J. Launer, L.R. White, J. Nelson, C.M. Tanner (Honolulu, HI, USA)
- 88 Insights into freezing of gait from wearable sensors  
F.B. Horak, J.G. Nutt, M. Mancini (Portland, OR, USA)
- 100 Gait outcomes characterize people with Parkinson's disease who transition to falling within the first year  
S. Lord, D. Burn, L. Rochester (Newcastle upon Tyne, United Kingdom)
- 507 Efficacy of high-frequency repetitive transcranial magnetic stimulation on depression in Parkinson's disease  
H.-W. Shin, S.J. Chung, Y.H. Sohn (Seoul, Korea)
- 121 Premorbid exercise engagement and motor reserve in Parkinson's disease  
M.K. Sunwoo, J.E. Lee, J.Y. Hong, B.S. Ye, H.S. Lee, J. Oh, J.S. Kim, P.H. Lee, Y.H. Sohn (Seongnam, Korea)



## Guided Poster Tour Abstracts

### GUIDED POSTER TOUR 13 - ATYPICAL PARKINSONISM

**Seaport F, 2nd Level, Seaport Tower**

**12:00 - 13:30**

**Thursday, June 18, 2015**

- 772 Prevalence of depression in atypical Parkinsonian disorders versus Parkinson's disease  
L. Almeida, M.S. Okun, D. Bowers, H. Ward, S. Fayad, C. Jacobson, N. McFarland (Gainesville, FL, USA)
- 833 Benign progressive supranuclear palsy: A clinico-pathological analysis of cases with prolonged survival  
G. Respondek, C. Kurz, M. Stamelou, L.W. Ferguson, A. Rajput, W.Z. Chiu, J.C. Van Swieten, C. Troakes, S. al Sarraj, E. Gelpi, C. Gaig, E. Tolosa, S. Wagenpfeil, A. Giese, T. Arzberger, G. Hoeglinger (Munich, Germany)
- 826 Highly specific radiographic marker predates clinical diagnosis in progressive supranuclear palsy  
E.K. Owens, K.N. Krecke, J.E. Ahlskog, R.D. Fealey, A. Hassan, K.A. Josephs, B.T. Klassen, J.Y. Matsumoto, J.H. Bower (Rochester, MN, USA)
- 814 The contribution of cerebellar cortex to cognitive impairment in multiple system atrophy using a probabilistic MR atlas-based topographic analysis  
J.J. Lee, D.K. Lee, J.H. Ham, J.M. Lee, Y.H. Sohn, P.H. Lee (Seoul, Korea)
- 823 Underlying dopaminergic deficit in suspected drug-induced Parkinsonism is associated with olfactory impairment  
J.F. Morley, G. Cheng, J. Bubroff, J.R. Wilkinson, J.E. Duda (Philadelphia, PA, USA)
- 837 Clinicopathological features and diagnostic criteria for progressive supranuclear palsy with predominant cerebellar ataxia  
T. Shimohata, M. Kanazawa, H. Takahashi, M. Nishizawa (Niigata, Japan)
- 789 Longitudinal follow-up and neurophysiological findings in two Chinese siblings with compound heterozygote mutations in ATP13A2 (PARK9) causing juvenile onset Parkinsonism (Kufor-Rakeb syndrome)  
H.L. Chiang, D.S.Y. Tsui, S.D. Kim, V.S.C. Fung (Sydney, Australia)
- 815 American multiple system atrophy natural history study  
P.A. Low, S.G. Reich, J. Jankovic, C.W. Shults, M.B. Stern, P. Novak, C.M. Tanner, S. Gilman, F.J. Marshall, F. Wooten, B. Racette, T. Chelimsky, W. Singer, S. May, D.M. Sletten, P. Sandroni, J. Mandrekar (Rochester, MN, USA)
- 817 The visual estimation of midbrain to pons ratio combined with cerebrospinal fluid biomarkers improves the diagnostic accuracy of PSP  
N. Magdalinou, H. Ling, A. Noyce, L. Massey, R. Paterson, J. Schott, I. Davagnanam, C. Micallef, N. Fox, T. Warner, H. Zetterberg, A. Lees (London, United Kingdom)

### GUIDED POSTER TOUR 14 - SURGICAL THERAPY OF PARKINSON'S DISEASE

**Harbor A, 2nd Level, Harbor Tower**

**12:00 - 13:30**

**Thursday, June 18, 2015**

- 548 Interventional MRI (iMRI) guided DBS: Factors affecting lead placement accuracy  
R.R. Coleman, J.L. Ostrem, P.A. Starr, A.J. Martin, S.E. Qasim, N. Ziman, P.S. Larson (San Francisco, CA, USA)
- 557 Electrode lead induced white matter changes in patients treated with deep brain stimulation  
R. Erasmí, O. Granert, D. Zorenkov, O. Jansen, D. Falk, G. Deuschl, K. Witt (Kiel, Germany)
- 633 Role of the frequency of STN stimulation on bradykinesia in Parkinsonian patients  
A. Zacharia, I. Sastre, D. Georgiev, M. Hariz, L. Zrinzo, T. Foltynie, M. Jahanshahi, J. Rothwell, P. Limousin (London, United Kingdom)
- 563 Differential effects of subthalamic nucleus stimulation frequency on speech intelligibility and verbal fluency in patients with Parkinson's disease  
T. Grover, D. Georgiev, R. Kaliola, L. Zrinzo, M. Hariz, T. Foltynie, M. Jahanshahi, P. Limousin, J. Candelario, E. Tripoliti (London, United Kingdom)
- 596 The maintenance of motor function with unilateral electrode dysfunction in Parkinson's disease after bilateral subthalamic nucleus deep brain stimulation  
H. Park, B.S. Jeon, H.J. Kim, W.W. Lee, C.W. Shin (Seoul, Korea)
- 582 Parkinson's disease (PD) patient experience with deep brain stimulation (DBS) surgery using asleep interventional MRI (iMRI)-guided versus awake physiology-guided implantation techniques  
S.C. LaHue, J.L. Ostrem, N.B. Galifianakis, M. San Luciano, N. Ziman, S. Wang, C. Racine, P.A. Starr, P.S. Larson, M. Katz (San Francisco, CA, USA)
- 550 Motor cortex stimulation for gait disorders in advanced Parkinson's disease  
E.U. da Silva, L.A. Nilton, Jr., J.C.E. Veiga, J.M.d.A. Silva, H.C. de Souza (Sao Paulo, Brazil)
- 618 Effect of STN deep brain stimulation on autonomic functions in patients with Parkinson's disease  
P. Surathi, A. Lenka, K.R. Jhunjhunwala, A. Zafar, T.N. Sathyaprabha, R. Yadav, M. Nethravathi, D. Srinivas, A. Arivazhagan, P.K. Pal (Bangalore, India)
- 632 Hesitation in deciding-deep brain stimulation of Parkinson's disease  
J.Y. Yun, M.R. Kim, Y.H. Lim, K.R. Kim, S.H. Paek, B.S. Jeon (Seoul, Korea)



## Guided Poster Tour Abstracts

### GUIDED POSTER TOUR 15 - PARKINSON'S DISEASE: COGNITIVE AND BEHAVIORAL ASPECTS

#### Harbor B-C, 2nd Level, Harbor Tower

12:00 - 13:30

Thursday, June 18, 2015

- 888 Pattern of working memory deficit in REM sleep behaviour disorder is the same as in Parkinson's disease  
M. Rolinski, N. Zokaei, C.E. Mackay, M. Husain, M.T.M. Hu (Oxford, United Kingdom)
- 867 Predictive validity of level II PD-MCI criteria for PDD  
J. Hoogland, J.A. Boel, R.M.A. de Bie, J.G. Goldman, B. Schmand, A.I. Tröster, D.J. Burn, I. Litvan, G.J. Geurtsen, The MDS PD-MCI Validation Study Group (Amsterdam, Netherlands)
- 902 Long-term outcomes for Parkinson's disease patients with normal cognition  
D. Weintraub, K. Pigott, J. Rick, S.X. Xie, H. Hurtig, A. Chen-Plotkin, J. Duda, J. Morley, L. Chahine, N. Dahodwala, R. Akhtar, A. Siderowf, J. Trojanowski (Philadelphia, PA, USA)
- 858 Visual hallucinations in Parkinson's disease with mild cognitive impairment do not imply a more severe cognitive deficit but a more severe cerebral hypometabolism  
C. Gasca-Salas, P. Clavero, D. García-García, R. González-Redondo, J. Obeso, M.C. Rodríguez-Oroz (Toronto, ON, Canada)
- 846 Validation of predictors of dementia in Parkinson's disease  
J.B.M. Anang, S.R. Romenets, T. Nomura, R.B. Postuma (Montreal, QC, Canada)
- 865 Substantia nigra hyperechogenicity and cognitive functions: Results from the TREND study  
S. Heinzel, R. Yilmaz, I. Liepelt-Scarfone, B. Roeben, R. Niebler, G.W. Eschweiler, A.J. Fallgatter, F.G. Metzger, W. Maetzler, D. Berg (Tuebingen, Germany)
- 859 Using virtual reality to investigate the deficits in voluntary gait initiation and cessation in patients with Parkinson's disease and freezing of gait  
M.J. Georgiades, M. Gilat, J.M. Shine, S.J.G. Lewis (Sydney, Australia)
- 877 Does prolonged use of anticholinergic medication contribute to cognitive impairment in early Parkinson's disease?  
R.A. Lawson, A.J. Yarnall, G.W. Duncan, D.P. Breen, T.K. Khoo, D. Brooks, R.A. Barker, D. Collerton, J.-P. Taylor, D.J. Burn (Newcastle upon Tyne, United Kingdom)

### GUIDED POSTER TOUR 16 - PARKINSON'S DISEASE: NEUROPHARMACOLOGY

#### Harbor G, 2nd Level, Harbor Tower

12:00 - 13:30

Thursday, June 18, 2015

- 237 F15599, a 5-HT1A biased agonist with preferential affinity for post-synaptic receptors, reduces dyskinesia without impairing the anti-Parkinsonian effect of L-DOPA, in the MPTP-lesioned macaque  
P. Huot, T.H. Johnston, A. Newman-Tancredi, S.H. Fox, J.M. Brotchie (Montreal, Canada)
- 170 Pharmacokinetics, safety and tolerability of sub-lingually administered APL-130277 compared to subcutaneous apomorphine in healthy volunteers  
A. Agro, J. Dubow, L. Toong-Chow, A. Giovino (Toronto, ON, Canada)
- 281 Pharmacokinetic factors and levodopa-induced dyskinesia in Parkinson's disease  
T. Oeda, A. Umemura, S. Tomita, M. Kohsaka, K. Park, Y. Mori, H. Sawada (Kyoto, Japan)
- 322 BDNF rs6265 met allele confers suboptimal response to medication in early Parkinson's disease subjects  
C.E. Sortwell, M.L. Hacker, P.E. Konrad, T.L. Davis, J.S. Neimat, L. Wang, Y. Song, Z.R. Mattingly, A. Cole-Strauss, J.W. Lipton, D. Charles (Grand Rapids, MI, USA)
- 331 Single oral treatment with the 5-HT1A/B agonist, eltoprazine, counteracts L-dopa-induced dyskinesias in Parkinson's disease: A phase I/IIA, double-blind, randomized, placebo-controlled, dose-finding study  
P. Svenningsson, C. Rosenblad, K. af Edholm Arvidsson, K. Wiktorin, C. Keywood, B. Shankar, D.A. Lowe, A. Björklund, H. Widner (Stockholm, Sweden)
- 259 Predictability of response to apomorphine subcutaneous injections: Responder analyses from the AM-IMPAKT trial  
M. Lew, S. Isaacson, F. Pagan, W. Ondo (Los Angeles, CA, USA)
- 241 Analysis of the incidence of supine hypertension with droxidopa  
S. Isaacson, W.B. White, G.J. Rowse, L.A. Hewitt (Boca Raton, FL, USA)
- 207 Efficacy of IPX066, an extended-release formulation of carbidopa-levodopa, in advanced Parkinson's disease patients with troublesome dyskinesia  
R. Dhall, L. Struck, R. Rubens, V. Shah, S. Gupta (Phoenix, AZ, USA)



## Abstracts by Topic

### PARKINSON'S DISEASE: NEUROIMAGING AND NEUROPHYSIOLOGY

- 1 Neurovascular status in idiopathic Parkinson's disease; an MRI study  
S. Al-Bachari, H.C.A. Emsley, R. Vidyasagar, L.M. Parkes (Manchester, United Kingdom)
- 2 Apathy in Parkinson's disease (PD) as a disconnection syndrome – A resting state fMRI study  
S. Appel-Cresswell, A. Liu, S.J. Lin, N. Baradaran, T. Kang, J.Z. Wang, M.J. McKeown (Vancouver, BC, Canada)
- 3 Cortical metabolic alterations underlying cognitive decline in Parkinson's disease  
T. Baba, Y. Hosokai, Y. Nishio, A. Kikuchi, T. Hasegawa, K. Hirayama, K. Suzuki, M. Aoki, Y. Itoyama, S. Takahashi, H. Fukuda, A. Takeda, E. Mori (Sendai, Japan)
- 4 Corpus callosal atrophy in Parkinson's disease  
I.O. Bledsoe, G.T. Stebbins, B.A. Bernard, J.G. Goldman (Chicago, IL, USA)
- 5 The role of the supplementary motor area in freezing of gait – A theta-burst stimulation study in Parkinson's disease  
F. Brugger, R. Wegener, S. Bohlhalter, E. Abela, S. Hägele-Link, J. Walch, G. Kägi (St. Gallen, Switzerland)
- 6 A sensory geste-like movement to stop tremor in Parkinson's disease – A clinical and electrophysiological case report  
F. Brugger, B. Balint, R. Erro, F. Gövert, E. Antelmi, J.C. Rothwell, K.P. Bhatia (London, United Kingdom)
- 7 Disruption of resting state functional connectivity with Parkinson's disease progression  
M.C. Campbell, J.M. Koller, A.Z. Snyder, J.S. Perlmuter (St. Louis, MO, USA)
- 8 Visual motor control in patients with Parkinson's disease  
J. Chen, S.L. Ho, M.C. Lee, S.K. Chang, Y.Y. Pang, L. Li (Hong Kong)
- 9 The impact of amyloid deposition on brain network functional connectivity in Parkinson's disease  
L. Christopher, M. Criaud, A. Kucyi, Y. Koshimori, P. Rusjan, N. Lobaugh, A.E. Lang, S. Houle, A.P. Strafella (Toronto, ON, Canada)
- 10 Gray matter changes in Parkinson's disease with freezing of gait  
M. Delgado-Alvarado, L. García-Penton, H. Jiménez-Urbieto, B. Gago, C. Caballero, M. Carreiras, M.C. Rodríguez-Oroz (San Sebastián, Spain)
- 11 Cerebral mechanisms underlying initiation and propagation of Parkinson's tremor – A dynamic causal modeling study  
M.F. Dirks, H.E. Den Ouden, E. Aarts, M. Timmer, R. Cools, R.A. Esselink, B.R. Bloem, I. Toni, R.C. Helmich (Nijmegen, Netherlands)
- 12 Derivation of a levodopa-related pattern with metabolic imaging in idiopathic Parkinson's disease  
C. Dresel, C. Tang, D. Eidelberg (Manhasset, NY, USA)
- 13 Differential audiovisual processing in Parkinson's disease  
C. Fearon, J. Butler, C. McDonnell, I. Killane, R. Reilly, T. Lynch (Dublin, Ireland)
- 14 Transcranial static magnetic field stimulation (tSMS) decreases cortical excitability in Parkinson's disease  
G. Foffani, M.C. Carrasco-López, J.C. Segundo-Rodríguez, N. López-Artegui, F. Alonso-Frech, M.J. Catalan-Alonso, A. Oliviero (Móstoles, Spain)
- 15 Comparative study of anatomical connectivity of prelemniscal radiations in healthy subjects and Parkinson's disease patients  
M.G. García-Gomar, F. Velasco, L. Concha (Querétaro, Mexico)
- 16 Neural correlates underlying turning during a virtual reality task in patients with Parkinson's disease and freezing of gait  
M. Gilat, J.M. Shine, J.M. Hall, C.C. Walton, S.J.G. Lewis (Sydney, Australia)
- 17 White matter abnormalities as a marker of Parkinson's disease cognitive impairment: A diffusion tensor imaging study  
J.G. Goldman, D. Merkitich, B. Bernard, G.T. Stebbins (Chicago, IL, USA)
- 18 Attentional modulation of activity in the nucleus basalis of Meynert in patients undergoing deep brain stimulation for Parkinson's disease dementia and Lewy body dementia  
J. Gratwicke, A. Oswal, S. Little, M. Beudel, V. Litvak, L. Zrinzo, M. Hariz, P. Brown, M. Jahanshahi, T. Foltynie (London, United Kingdom)
- 19 Structural and functional neuroimaging analysis of Parkinson's disease  
R.P. Guimarães, K. Larcher, L. Campos, L. Piovasana, P.C. Azevedo, Y. Zeighami, A.C.F. D'Abreu, F. Cendes, A. Dagher (Campinas, Brazil)
- 20 Population analysis of beta band local field potential (LFP) oscillations as a physiomarker in Parkinson's disease (PD)  
R. Gupta, S. Stanslaski, T. Denison, P. Stypulkowski (Minneapolis, MN, USA)
- 21 Does side onset influence neural reserve in patients with Parkinson's disease?  
J.H. Ham, Y. Lee, J.J. Lee, P.H. Lee, Y.H. Sohn (Seoul, Korea)
- 22 The changes of the visual evoked magnetic field using the magnetoencephalography and its connectivity using MRI in aging and Parkinson's disease  
M. Hirayama, Y. Fujisawa, S. Goto, J. Uemura, M. Hoshiyama, S. Yamada (Nagoya, Japan)
- 23 Manifestation of Parkinsonian rest tremor is associated with changes in high frequency oscillation power in the subthalamic nucleus  
J. Hirschmann, M. Butz, C.J. Hartmann, N. Hoogenboom, J. Vesper, L. Wojtecki, A. Schnitzler (Düsseldorf, Germany)
- 24 GBA variations accelerate degeneration of the nigrostriatal pathway in Parkinson's disease: An [123I]FP-CIT study  
I. Huertas-Fernandez, S. Jesus, P. Gomez-Garre, F.J. Garcia-Gomez, I. Bernal-Bernal, M. Bonilla-Toribio, M.T. Caceres-Redondo, F. Carrillo, D. Garcia-Solis, P. Mir (Seville, Spain)
- 25 Impact of datscan on clinical decision making: Diagnosis and management of clinically uncertain Parkinsonian syndromes  
J.R. Isaacson, S.H. Isaacson (Boca Raton, FL, USA)
- 26 Cortical excitability changes induced by L-dopa mirror the unbalanced nigro-striatal denervation in Parkinson's disease  
I.U. Isaias, F. Turco, M. Rosanova, G. Marotta, G. Frazzitta, C. Landi, A. Perretti, L. Giusti del Giardino, M. Canesi, M. Massimini, G. Pezzoli, S. Casarotto (Würzburg, Germany)
- 27 Differential diagnosis of Parkinsonism using two PD-related metabolic patterns  
V.A. Jourdain, C.C. Tang, D. Eidelberg (Manhasset, NY, USA)

## Abstracts by Topic

- 28 Levodopa-induced changes in neurovascular reactivity in Parkinson's disease  
V.A. Jourdain, F. Holtbernd, C.C. Tang, V. Dhawan, D. Eidelberg (Manhasset, NY, USA)
- 29 Alternations of human brain connectome in Parkinson's disease using network based statistics (NBS)  
A. Kamalian, M.H. Aarabi (Tehran, Iran)
- 30 Importance of proper window setting on visual assessment of dopamine transporter image  
A. Kim, H.J. Kim, B.S. Jeon (Seoul, Korea)
- 31 Putaminal dopamine turnover in *de novo* Parkinson's disease predicts levodopa-induced motor complications  
M. Löhle, J. Mende, M. Wolz, B. Beuthien-Baumann, L. Oehme, J. van den Hoff, J. Kotzerke, H. Reichmann, A. Storch (Dresden, Germany)
- 32 Understanding the effects of subthalamic nucleus (STN) deep brain stimulation (DBS) with preoperative diffusion tensor imaging (DTI)  
P.M. Lauro, N. Vanegas, Z. Kareem, L.I. Codrin, S.S. Ziad, H.G. Silvina (Bethesda, MD, USA)
- 33 Gender difference in depletion of presynaptic nigrostriatal dopamine in de novo Parkinson's disease  
J.J. Lee, J.S. Oh, J.H. Ham, D.H. Lee, I. Lee, P.H. Lee, J.S. Kim, Y.H. Sohn (Seoul, Korea)
- 34 Evaluation of saccadic eye movements in patients with Parkinson's disease: Effect of levodopa  
A. Lenka, K.R. Jhunjhunwala, R. Kotikalapudi, P.K. Pal (Bangalore, India)
- 35 Resetting tremor by single and paired transcranial magnetic stimulation in Parkinson's disease and essential tremor  
M.K. Lu, S.M. Chiou, U. Ziemann, H.C. Huang, Y.W. Yang, C.H. Tsai (Taichung, Taiwan)
- 36 White matter microstructure damage in tremor-dominant Parkinson's disease patients  
C. Luo, X. Guo, W. Song, H. Shang, Q. Gong (ChengDu, China)
- 37 The trajectory of disturbed resting-state cerebral function in Parkinson's disease at different Hoehn & Yahr stages  
C. Luo, W. Song, X. Guo, H. Shang, Q. Gong (Chengdu, China)
- 38 Difference between brain activations for self- and cue-initiated movements in people with Parkinson's disease  
M.K. Mak, V. Cheung, D. Wang, C. Wong, Z.L. Lu, L. Shi, W. Lou, V. Mok, W.C.W. Chu (Hong Kong, Hong Kong)
- 39 18F-FDG PET / CT imaging in the diagnosis of Parkinson's disease  
Z. Mao, S. Ji, Q. Yang, H. Ye, Z. Xue (Wuhan, China)
- 40 F-DOPA PET reveals a rostro-ventral striatal dopaminergic depletion in Parkinson's disease with impulse control disorders  
A. Mari, M.C. Rodriguez Oroz, C. Juri, R. Gonzalez-Redondo, J. Arbizu, E. Prieto, J.A. Obeso (Pamplona, Spain)
- 41 Multimodal MRI changes in Parkinson's disease over one year  
T.R. Melzer, D.J. Myall, M.R. MacAskill, L. Livingston, T.L. Pitcher, R. Watts, R.J. Keenan, J.C. Dalrymple-Alford, T.J. Anderson (Christchurch, New Zealand)
- 42 Neuroanatomical correlates of cognitive functioning across the Parkinson's disease cognitive spectrum  
D.V. Merkitich, G.T. Stebbins, B. Bernard, J.G. Goldman (Chicago, IL, USA)
- 43 Neural correlates of the effect of cueing on writing skills in Parkinson's disease  
E. Nackaerts, E. Heremans, R.C. Pineda, B.C.M. Smits-Engelsman, S.P. Swinnen, W. Vandenberghe, A. Nieuwboer (Leuven, Belgium)
- 44 Chronic recordings of subthalamic oscillatory activity using an implanted pulse generator in patients with Parkinson's disease  
W.J. Neumann, F. Staub, J. Schanda, A. Horn, G.H. Schneider, P. Brown, A.A. Kühn (Berlin, Germany)
- 45 A new manual ROI improves diagnostic accuracy for cardiac sympathetic neuronal dysfunction in Parkinson's disease  
H. Odagiri, T. Baba, Y. Nishio, O. Iizuka, M. Matsuda, K. Inoue, M. Iwasaki, Y. Taki, E. Mori (Sendai, Japan)
- 46 The effect of deep brain stimulation (DBS) on cortico-subthalamic nucleus coupling in Parkinson's disease (PD)  
A. Oswal, A. Jha, S. Neal, A. Reid, P. Limousin, T. Foltynie, L. Zrinzo, M. Hariz, V. Litvak, P. Brown (London, United Kingdom)
- 47 Multimodal MRI markers discriminate Parkinson's disease from multiple system atrophy patients  
P. Péran, M. Sierra, A. Pavy-Le Traon, O. Rascol (Toulouse, France)
- 48 Phase-amplitude coupling heterogeneity in the Parkinsonian sensorimotor cortex  
E. Peña, L. Rosedahl, T.M. Mohammed, F. Al-Mohammed, L. Soualmi, M.D. Johnson, J.A. Bajwa (St. Paul, MN, USA)
- 49 Aberrant cerebral network topology and mild cognitive impairment in early Parkinson's disease  
J.B. Pereira, D. Aarsland, C. Ginestet, A. Lebedev, L.O. Wahlund, A. Simmons, G. Volpe, E. Westman (Stockholm, Sweden)
- 50 Progressive cerebellar atrophy in patients with tremor-predominant Parkinson's disease  
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P. Barone, C. Cattaneo, E. Bonizzoni, R. La Ferla, M. Sardina (Baronissi (Salerno), Italy)
- 381 Impulse control disorder and rapid eye movement sleep behavior disorder in Parkinson's disease  
S. Bayard, Y. Dauvilliers, H. Yu, M. Croisier Langenier, A. Rossignol, M. Charif, C. Geny, V. Cochen De Cock (Montpellier, France)
- 382 Association of side of onset of motor symptoms to prevalence of various domains of non-motor symptoms (NMS) in Parkinson's disease (PD)  
R.S. Boddeplalli, T.S. Khan (Weston, FL, USA)
- 383 Unmasking the face of Parkinson's disease: Immediate and 3 month followup from a randomized double-blind sham-controlled behavioral intervention  
D. Bowers, C. Sapienza, R. Rodriguez, H. Fernandez, M.S. Okun (Gainesville, FL, USA)
- 384 Rotigotine objectively improves sleep in Parkinson's disease: A pilot study with actigraphic recording  
G. Calandra-Buonaura, P. Guaraldi, A. Doria, S. Nasseti, V. Favoni, S. Cevoli, F. Provini, P. Cortelli (Bologna, Italy)
- 385 Sleep and sleepiness symptoms as predictors of cognitive decline in early Parkinson's disease: Results from the PPMI study  
L.M. Chahine, B. Tran, S. Xie, S. Christi, D. Abi, C. Linder, R. Purri, T. Simuni, G. Murray, W. Daniel (Philadelphia, PA, USA)
- 386 Fatigue in Parkinson's disease: The evidence of regional cerebral glucose metabolism abnormalities  
S.S. Cho, K. Aminian, S. Houle, A.E. Lang, M. Criaud, A.P. Strafella (Toronto, ON, Canada)
- 387 Olfaction and neuropsychiatric symptoms in early Parkinson's disease  
J.K. Choi, J.Y. Hong, M.K. Sunwoo, J.H. Ham, J.J. Lee, P.H. Lee, Y.H. Sohn (Wonju, Korea)
- 388 Comparative patient satisfaction and efficacy of a Parkinson's disease enrichment program (PEP)  
T.K. Choudhury, M.K. York, C. Harris, K. Crist, B. Treece, T. Satterwhite (Houston, TX, USA)
- 389 Does the pattern of striatal dopamine depletion contribute non-motor symptoms in Parkinson's disease?  
S.J. Chung, J.J. Lee, J.H. Ham, P.H. Lee, Y.H. Sohn (Seoul, Korea)
- 390 Supine sleep and obstructive sleep apnea syndrome in Parkinson's disease  
V. Cochen De Cock, N. Benard-Serre, V. Driss, M. Charif, B. Carlander, D. Cugy, S. Bayard (Montpellier, France)
- 391 Excessive daytime sleepiness in Parkinson's disease: Subjective and objective measures  
V. Cochen De Cock, S. Bayard, I. Jaussent, M. Charif, B. Carlander, C. Geni, Y. Dauvilliers (Montpellier, France)
- 392 Pharmacological treatment for apathy in Parkinson's disease: A systematic review  
C.A. Cooper, N. Dahodwala (Philadelphia, PA, USA)
- 393 Subthalamic stimulation lead coordinates correlate with non-motor effects in Parkinson's disease  
H. Dafsari, J.N. Petry-Schmelzer, T. Dembek, A. Rizos, A. Antonini, P. Martinez-Martin, K.R. Chaudhuri, V. Visser-Vandewalle, L. Timmermann, On Behalf of EUROPAR and the IPMDS Non Motor PD Study Group (Cologne, Germany)
- 394 Dopamine dysregulation syndrome in patients with Parkinson's disease in a rural based movement disorders clinic in Western India  
S.D. Desai (Anand, India)
- 395 Compulsive tobacco use in patients with Parkinson's disease on dopamine agonist /levodopa therapy: Is it also an impulse control disorder?  
S.D. Desai (Anand, India)
- 396 The non motor network in early Parkinson's disease: Is there first network tightening followed by network loosening?  
N.J. Diederich, N. Sauvageot, V. Pieri, G. Hipp, M. Vaillant (Luxembourg-City, Luxembourg)
- 397 Does movement impairments cause anxiety in Parkinson's disease? A chicken or egg question  
K.A. Ehgoetz Martens, C.G. Ellard, Q.J. Almeida (Waterloo, ON, Canada)
- 398 Intensive rehabilitation enhances lymphocytes BDNF-TrkB signaling in patients with Parkinson's disease  
C. Fontanesi, S. Kvint, G. Frazzitta, G. Pezzoli, A. Di Rocco, A. Quartarone, H.Y. Wang, M.F. Ghilardi (New York, NY, USA)
- 399 Olfaction and nonmotor symptoms (NMS) in subjects with scans without evidence of dopaminergic deficit (SWEDDs)  
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- 400 Relationship between olfaction, motor and nonmotor symptoms and dopamine transporter binding in de novo PD  
M.E. Fullard, D. Weintraub, J.E. Duda, J.F. Morley (Philadelphia, PA, USA)
- 401 Prevalence and severity of non motor symptoms (NMS) of Parkinson's disease (PD) in the elderly – An Australian perspective  
S. Gangadharan, A. Withanage, C.P. Padmakumar, M. Rees, A. Johnson (Newcastle, Australia)
- 402 The assessment of visuospatial functions in Parkinson's disease patients without dementia  
M. Gultekin, A. Ekinici, M. Mirza (Kayseri, Turkey)
- 403 The assessment of apathy symptoms in Parkinson's disease patients without dementia  
M. Gultekin, A. Ekinici, M. Mirza (Kayseri, Turkey)
- 404 Assessing postural stability in early stages of Parkinson's disease  
H.D. Hambardzumyan, H.M. Manvelyan (Yerevan, Armenia)
- 405 Non-motor symptoms in Parkinson's disease: A correlation with depression and quality of life  
H.D. Hambardzumyan, H.M. Manvelyan (Yerevan, Armenia)



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- 406 Characterize sleep related disorders in subtypes of Parkinson's disease  
S. Hanif, M.S. Bashir, T.M. Muhammad, J.A. Bajwa (Riyadh, Saudi Arabia)
- 407 Use of the SpeechVive device improves communication in people with Parkinson's disease  
J.E. Huber, S. Snyder, C.E. Rountrey, C.L. Ludlow (West Lafayette, IN, USA)
- 408 Zero non-motor symptoms in a martial arts expert  
L.J. Jaffe (San Diego, CA, USA)
- 409 Impulse control disorders and compulsive behaviors in Parkinson's disease and control subjects  
S. Jesus, C. Cortes, I. Huertas-Fernandez, M.T. Caceres-Redondo, F. Carrillo, M. Bernal-Escudero, L. Vargas-Gonzalez, M. Carballo, P. Mir (Seville, Spain)
- 410 An 8-year follow-up on the effect of subthalamic deep brain stimulation on pain in Parkinson's disease  
Y.J. Jung, H.J. Kim, B.S. Jeon, H. Park, W.W. Lee, S.H. Paek (Seoul, Korea)
- 411 Evaluation of cardiovascular autonomic dysfunction in Parkinson's disease by cardiovascular autonomic indexes  
Y.J. Kang, T.K. Lee, J.H. Park, K.B. Sung (Bucheon-si, Korea)
- 412 Increased energy expenditure may be reversed by dopaminergic medications in patients with Parkinson's disease  
K. Kashiwara, A. Hongo, H. Kagayama, K. Hasegawa (Okayama, Japan)
- 413 Prevalence, severity and treatment rate of major non-motor Parkinson's disease symptoms according to social media platform PatientsLikeMe  
A. Killoran (Morgantown, WV, USA)
- 414 Sleep assessment in Parkinson's disease – The use of Parkinson's KinetiGraph  
L. Klingelhofer, M. Horne, A. Rizo, A. Sauerbier, S. McGregor, D. Trivedi, L. Perkins, K. Ray Chaudhuri (Dresden, Germany)
- 415 The Biodex system: Sensitive for fall detection in Parkinsonism  
E. Lapointe, E. Lafleur Prudhomme, M. Panisset (Sherbrooke, QC, Canada)
- 416 REM sleep disorders in early onset Parkinsonism: Non-motor symptoms and the functional predictors perspective in advanced age  
L.A. Leandro, H.G. Teive (Curitiba, Brazil)
- 417 Swallowing, voice and freezing of gait in patients with Parkinson's disease – Correlation between each other and contribution to quality of life  
S.Y. Lee, S.M. Cheon, J.W. Kim (Busan, Korea)
- 418 The role of catastrophizing and non-motor symptoms in quality of life of Parkinson's disease patients  
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- 419 Clinical analysis of the non-motor symptoms of Parkinson's patients with diabetes  
Y. Liu, C. Liu, J. Zhang, M. Wang, S. Chen, C. Zhao (Jinan, China)
- 420 Prevalence of non-motor fluctuations in Parkinson's disease  
R. Llorens-Arenas, M. Rodriguez-Violante, A. Cervantes-Arriaga, D. Piña-Fuentes, M.I. Lopez-Belmonte, P. Escobar-Martinez (Mexico City, Mexico)
- 421 Fatigue and cardiac sympathetic denervation in Parkinson's disease  
C.C. Luca, D. Spengler, F. Nahab, A. Serafini, M. Georgiou, C. Singer (Miami, FL, USA)
- 422 Efficacy and safety profile of prolonged release oxycodone in combination with naloxone (OXN PR) in Parkinson's disease patients with chronic pain  
G. Madeo, T. Schirinzi, M. Pierantozzi, A. Stefani, S. Natoli, A. Pisani (Rome, Italy)
- 423 Odour identification testing is a quick and accurate diagnostic tool for Parkinson's disease  
P. Mähknecht, K. Seppi, B. Pinter, E. Reiter, C. Müller, A. Djamshidian, M. Nocker, G.K. Wenning, F. Krismer, J. Willeit, S. Kiechl, W. Poewe, G. Göbel (Innsbruck, Austria)
- 424 Clinical features and varieties of non motor fluctuations in Parkinson's disease  
N. Mansurova, A. Prokhorova (Tashkent, Uzbekistan)
- 425 Changes in retinal morphology and visual field in early Parkinson's disease  
C.J. Mao, L. Ling Li, X.Y. Ji, J. Jing Wei, J. Jing Chen, S. Sha-Sha Guo, Y. Yi Chen, S.J. Li, C.F. Liu (Suzhou, China)
- 426 The clinical analysis of sleep disorders in patients with Parkinson's disease and the study of them by polysomnogram  
Z. Mao, S. Ji, Q. Yang, H. Ye, Z. Xue (Wuhan, China)
- 427 The contribution of the insula in Parkinson's disease: A quantitative meta-analysis study  
M. Marion, L. Christopher, P. Boulinguez, B. Ballanger, A.E. Lang, S.S. Cho, A.P. Strafella (Toronto, ON, Canada)
- 428 Heart rate variability by passive leg raising test in patients with Parkinson's disease and multiple system atrophy in early stages  
V.A. Martínez Villota, J.D. Triana, W. William Fernández Escobar (Pasto, Colombia)
- 429 Combining antipsychotics and antidepressants increase falls in Parkinson's disease  
D. Martinez-Ramirez, J.C. Giugni, L. Almeida, B. Ahmed, V. Rundle-Gonzalez, A.R. Bona, E. Monari, C.J. Hass, M.S. Okun (Gainesville, FL, USA)
- 430 Fatigue is associated with performance on a demanding finger motor task in Parkinson's disease  
D. Martino, T. Tamburini, P. Zis, E. Pelosin, A. Sauerbier, G. Abbruzzese, K. Ray-Chaudhuri, L. Avanzino (London, United Kingdom)
- 431 Elevated salivary DJ-1 in Parkinson's disease is associated with altered salivary secretion  
J.M. Masters, A.J. Noyce, G. Giovannoni, T.T. Warner, G.B. Proctor (Herts, United Kingdom)
- 432 The effect of sleep and wakefulness disorders on cognitive function in Parkinson's disease  
R.J. Matmurodov, O.E.U. Turgunkhujaev, K.M. Khalimova, U.S. Ergashev (Tashkent, Uzbekistan)

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- 433 Quality of life in PD correlates with arising from chair, gait and postural stability  
A. Mentreddi, N. Patel, I. Bernstein, K. Pravin, S.M. McClintock, C.M. Cullum, M.M. Husain, R.B. Dewey (Dallas, TX, USA)
- 434 Inner retinal layer thickness of the fovea depends on dopaminergic medications in Parkinson's disease  
S. Miri, S. Glazman, Y. Ding, S. Slotnick, E.M. Shrier, A. Joh, I. Bodis-Wollner (Brooklyn, NY, USA)
- 435 The effect of istradefylline for anhedonia in Parkinson's disease  
H. Nagayama, M. Mishina, K. Kimura (Bunkyo-Ku, Japan)
- 436 Pattern of non motor symptoms (NMS) among subtypes of Parkinson's disease in Arab ancestry  
S. Nahrir, M.N. AlMotiri, Z.G. AlJohani, G.A. Alhifithi, T.M. Alayan, J.A. Bajwa (Riyadh, Saudi Arabia)
- 437 Parkinson's disease duration: Non motor symptoms: Arab ancestry "The new dimension"  
S. Nahrir, Z.G. AlJohani, G.A. Alhifithi, M.N. AlMotiri, T.M. Alayan, J.A. Bajwa (Riyadh, Saudi Arabia)
- 438 Early onset Parkinson's disease vs. late onset Parkinson's disease – Is there any difference in non motor symptoms among Arab ancestry?  
S. Nahrir, G.A. Alhifithi, M.N. AlMotiri, Z.G. AlJohani, T.M. Alayan, J.A. Bajwa (Riyadh, Saudi Arabia)
- 439 Does impaired peripheral vasoconstrictor response predict orthostatic hypotension in Parkinson's disease?  
T. Nakamura, M. Suzuki, A. Okada, J. Suzuki, M. Hirayama, G. Sobue (Nagoya City, Japan)
- 440 Olfactory dysfunction in Parkinson's disease could be associated with central cholinergic system  
E. Oh, J.G. Lim, J. Park, J. Youn, J.S. Kim, W. Jang (Daejeon, Korea)
- 441 Opicapone and non-motor symptoms in Parkinson's disease: Results from a double-blind, randomized, placebo-controlled study and open-label extension  
C. Oliveira, A. Lees, J. Ferreira, N. Lopes, R. Costa, R. Pinto, T. Nunes, J.F. Rocha, P. Soares-da-Silva (S. Mamede do Coronado, Portugal)
- 442 Heart rate variability during sleep stages to assess autonomic function in patients with Parkinson's disease: A preliminary polysomnographic study  
D.B. Oropeza-Canto, M. Velázquez-Vaquero, R. Flores-Morales, A. Espinosa-Cerón (Puebla, Mexico)
- 443 Prevalence of non-motor symptoms in Parkinson's disease versus age-matched healthy controls: A systematic review with meta-analysis  
G. Pagano, E.E. Tan, M. Tagliati (Campobasso, Italy)
- 444 Course of cognitive and neuropsychiatric features in patients with Parkinson's disease  
H.K. Park, J.E. Kim (Goyang, Korea)
- 445 Orthostatic dizziness in Parkinson's disease is attributed to impaired cerebral autoregulation: A transcranial doppler study  
J. Park, W. Jang, J.S. Kim, J. Youn, E. Oh (Busan, Korea)
- 446 Emaciation and life prognosis in Parkinson's disease  
K. Park, T. Oeda, A. Umemura, M. Kohsaka, S. Tomita, H. Sugiyama, H. Sawada (Kyoto, Japan)
- 447 E-DUO Study: Use of levodopa-carbidopa intestinal gel in Spanish advanced Parkinson's disease patients. Non-motor symptoms and clinical global impression subanalyses  
J.C. Parra, D. Santos, M.J. Catalán, I. Regidor (Madrid, Spain)
- 448 An observational study of pattern of admission in Parkinson's disease  
B.S. Paul, G. Paul, G. Singh, S. Kaushal, U. Verma (Ludhiana, India)
- 449 Real time imaging of stomach motility in patients with REM-sleep behavior disorder and de novo Parkinson's disease  
E.K. Paule, T. Hasemann, A. Hermsen, E. Sittig-Wiegand, D. Vadasz, K. Eggert, S. Knake, W.H. Oertel (Mainz, Germany)
- 450 Effect of acute non-oral dopaminergic (apomorphine and levodopa) treatment on non-motor symptoms in Parkinson's disease  
L. Perkins, M. Politis, F. Niccolini, A. Sauerbier, R. Inniss, A. Martin, D. Trivedi, K. Ray-Chaudhuri (London, United Kingdom)
- 451 Dysarthria in Parkinson's disease: Lusophony vs. francophony comparison (FraLusoPark)  
S. Pinto, I. Guimarães, R. Rothe-Neves, J. Sadat, R. Cardoso, A.T. Britto, F. Viallet, J. Ferreira, F. Cardoso (Aix-en-Provence, France)
- 452 REM sleep behavior disorder and neuropathology in Parkinson's disease  
R.B. Postuma, C.H. Adler, J.G. Hentz, H.A. Shill, E. Driver-Dunckley, M.N. Sabbagh, S.A. Jacobson, C.M. Belden, L.I. Sue, B.N. Dugger, G. Serrano, T.G. Beach (Montreal, QC, Canada)
- 453 Non-motor symptom burden in Parkinson's disease: A longitudinal study  
K.M. Prakash, N.V. Nadkarni, W.K. Lye, L.M. Chew, M.H. Yong, E.K. Tan (Singapore)
- 454 Prevalence of wearing off symptoms among Parkinson's disease patients at a tertiary hospital  
P.A.A. Quitasol, C.L. Go (Manila, Philippines)
- 455 Impaired contrast sensitivity is associated with more severe cognitive impairment and nigrostriatal denervation in Parkinson's disease  
A.J. Ridder, M.L.T.M. Muller, V. Kotagal, K.A. Frey, R.L. Albin, N.I. Bohnen (Ann Arbor, MI, USA)
- 456 Role of premotor symptoms on non-motor symptoms burden and quality of life  
M. Rodriguez-Violante, A. Cervantes-Arriaga, I. Estrada-Bellmann, R. Leal-Ortega, R. Millán-Cepeda, H. Morales-Briceño, G. Neri-Nani, R. Llorens-Arenas, H. Calderon-Fajardo, C. Zuñiga-Ramirez, A. Jorge de Sarachaga (Mexico City, Mexico)
- 457 Motor and non-motor features of Parkinson's disease in idiopathic REM sleep behaviour disorder  
M. Rolinski, M. Lawton, S. Evetts, F. Baig, C. Ruffmann, C.E. Mackay, T. Quinnell, Z. Zaiwalla, Y. Ben-Shlomo, M.T.M. Hu (Oxford, United Kingdom)



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- 458 Symptom severity and pain intensity may be risks for post STN DBS impulsivity in Parkinson's disease  
A. Rothstein, B. Avery, A. Boyanpally, J. Hesse, R. Coghill, A. Laxton, S. Tatter, M. Siddiqui, I. Haq (Winston Salem, NC, USA)
- 459 Comparing speech function in persons with Parkinson's disease in clinical and home environments  
C.E. Rountrey, N.M. Borras, C.L. Ludlow (Harrisonburg, VA, USA)
- 460 Parkinson's disease: Markers of lower body mass index (BMI)  
J.J.E. Rovers, S.S. Wu, B.R. Bloem, M.S. Okun, B. Post (Nijmegen, Netherlands)
- 461 An evaluation of non-motor symptoms in Parkinson's disease patients using 2 rating scales  
A. Sánchez-Jordán, D. Padilla-Carmona, U. Rodríguez-Ortiz, M.C. Boll (Mexico City, Mexico)
- 462 Orthostatic hypotension increases the risk of falls in idiopathic Parkinson's disease patients  
M. Sarchioto, M. Zibetti, S. Maule, V. Milazzo, E. Montanaro, A. Romagnolo, S. Angrisano, F. De Matteis, C.A. Artusi, A. Bernardini, L. Lopiano (Turin, Italy)
- 463 REM density in patients with early or late stage Parkinson's disease. A polysomnography-based case-control study  
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- 464 Skin biopsy is useful for diagnostic tool of Lewy body disease  
R. Sengoku, H. Sumikura, Y. Saito, Y. Nishina, S. Miyagawa, T. Komatsu, M. Ikemura, Y. Saito, K. Kanemaru, S. Murayama (Tokyo, Japan)
- 465 Characterizing apathy and possible neural correlates in Parkinson's disease  
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- 466 Mood fluctuations in Parkinson's disease: Toward a better understanding  
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- 467 Different cardiovascular modulation in Parkinson's disease patients with tremor dominant subtype compared to those with akinetic rigid dominant subtype  
P. Solla, C. Cadeddu, A. Cannas, D. Fonti, G. Orofino, M. Deidda, L. Cugusi, M. Meloni, G. Mercuro, F. Marrosu (Cagliari, Italy)
- 468 Apathy in movement disorders: A cross-sectional study  
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- 469 Olfactory performance and resting state functional connectivity in non-demented drug naïve patients with Parkinson's disease  
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- 470 Sleep disturbances in Parkinson's disease and related disorders: Using Parkinson's disease sleep scale-2  
K. Suzuki, A. Numao, Y. Watanabe, H. Fujita, M. Miyamoto, T. Miyamoto, S. Suzuki, H. Sakuta, T. Kadowaki, K. Hirata (Mibu, Japan)
- 471 The impact of diabetes mellitus on non-motor symptoms in patients with Parkinson's disease  
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- 472 Parkinson's sleep disorder  
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- 473 Hyposmia as a predictor of non-motor features in patients with de novo Parkinson's disease  
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- 474 Transcranial magnetic stimulation increases overall cognition in patients with Parkinson's disease  
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- 475 Effect of saccadic movement impairment cognition in Parkinson's disease  
O.E.U. Turgunkhujaev, R.J. Matmurodov (Tashkent, Uzbekistan)
- 476 Effect of single levodopa/carbidopa intake on heart rate variability in Parkinson's disease  
A.F. Vasilenko, M.V. Shestakova (Chelyabinsk, Russia)
- 477 A comprehensive approach to Parkinson's disease  
C.P. Vaughan, A.E. Vandenberg, F.C. Goldstein, L.M. Trotti, A.P. Hermida, M.L. Weeks, S.A. Factor (Atlanta, GA, USA)
- 478 Increased odds of bladder and bowel symptoms in early Parkinson's disease compared to healthy controls  
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- 479 Patients with REM behavior disorder demonstrate degraded contrast sensitivity visual acuity while patients with restless legs syndrome do not  
P.H. Vogt, E.M. Keasler, M.J. Khayata, W.H. Whitfield, J.M. Sanchez, G. Barr, D. Huang, C. Maitland (Tallahassee, FL, USA)
- 480 Frequency and predictors of fatigue in Parkinson's disease in a population-based cohort  
E. Warrlich, E.J. Vollstedt, S. Tunc, C. Bibergeil, C. Kritzing, J. Graf, V. Tadic, C. Klein, M. Kasten (Lübeck, Germany)
- 481 Olfactory function in Parkinson's disease and related disorders  
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- 482 Antipsychotic use in Parkinson's disease is associated with increased mortality  
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- 483 Deep brain stimulation (DBS) in the external globus pallidus (GPe) promotes sleep in a rodent model  
J. Wu, M. Qiu, M. Chen, D. Nelson, J. Lu (Minneapolis, MN, USA)
- 484 Demographics and motor features on risk of Parkinson's disease dementia: A meta-analysis  
Y. Xu, H. Shang (Chengdu, China)
- 485 Is palmomental reflex an important clinical marker of REM sleep behaviour disorder in patients with Parkinson's disease?  
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- 486 Parkinson's disease clinical study of sexual dysfunction  
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- 487 Visual exploration in Parkinson's disease  
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- 488 Chronotype and sleep quality in Parkinson's disease  
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- 489 Depression and nighttime-sleep problems in Parkinson's disease  
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- 491 Intracranial EEG reveals differences in auditory change detection of thalamic and basal ganglia regions  
A.K. Beck, G. Lütjens, K. Schwabe, R. Dengler, J.K. Krauss, P. Sandmann (Hannover, Germany)
- 492 Prevalence of quantitative sensory abnormalities and correlation with autonomic disturbances in patients with idiopathic Parkinson's disease and Parkinson's plus syndromes  
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- 493 Deep brain stimulation (DBS) rescue of gait freezing by patterned stimulation in select Parkinson's disease (PD) patients  
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- 494 Exercise intervention modulate corticostriatal glutamatergic neurotransmission by increased D2DR and NMDAR1 expression of striatum in PD model of rats  
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- 495 Impedance variability of the different deep brain stimulation neural targets  
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- 496 Effects of texting while walking (dual tasking) on objective gait parameters  
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- 497 Gait cycle related modulation of electrophysiological activity in the human subthalamic nucleus of patients with Parkinson's disease  
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- 498 Rubber hand illusion induced changes in sensorimotor integration in Parkinson's disease  
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- 499 Transcranial magnetic stimulation as an early marker to differentiate between early Alzheimer's disease and frontotemporal dementia and its further utility for early diagnosis and prognostication in corticobasal ganglia degeneration- A pilot study  
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- 500 Physiological changes in Parkinson's symptoms by slow wave potential  
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- 501 Propensity for heterosynaptic motor cortex plasticity in the de novo state predicts early motor complications of L-DOPA treatment in Parkinson's disease  
A. Kishore, T. Popa, P. James, L. Yahia-Cherif, S. Pradeep, S. Krishnan, S. Meunier (Trivandrum, India)
- 502 Timing accuracy of voluntary rhythmic hand movement in essential tremor and Parkinson's disease  
F. Luft, S. Sharifi, W. Mugge, A.C. Schouten, L.J. Bour, A.F. van Rootselaar, C. Heida (Enschede, Netherlands)
- 503 Intraoperative electrocorticography activity in the sensorimotor cortex differentiates generalized dystonia, segmental dystonia, and Parkinson's disease  
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- 504 A.P.A.: How aging, Parkinson's disease and anticipatory postural adjustments correlate  
A. Plate, K. Klein, A. Singh, O. Pelykh, A. Klein, J. Illmberger, K. Boetzel (Munich, Germany)
- 505 Developing a technique-specific nomogram for temporal discrimination threshold testing  
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- 506 PARK 2 gene mutation and pramipexole use during pregnancy: Report of two cases  
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- 507 Efficacy of high-frequency repetitive transcranial magnetic stimulation on depression in Parkinson's disease  
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- 508 LTD-like effect in human motor cortex with low frequency and very short duration of paired associative stimulation  
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- 509 Orbicularis oculi muscle activity during swallowing in blepharospasm and Meigs' syndrome patients  
F. Tokucoglu, N. Gurgor, N. Razizadeh, S. Arici, C. Ertekin (Izmir, Turkey)
- 510 Comparison of GPI local field potential characteristics in patients with Parkinson's disease, craniocervical dystonia, and generalized dystonia  
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- 511 Phase reorganization of thalamic oscillatory activity contributes to the generation of the somatosensory evoked potentials in Vim thalamus in Parkinson's disease and essential tremor patients  
K. Watanabe, S. Sato, M. Futaba, Y. Okamura, M. Taniguchi (Tokyo, Japan)
- 512 Sensorimotor integration in dopa-responsive dystonia in different dopaminergic states  
A. Weissbach, T. Bäumer, N. Brüggemann, V. Tadic, C. Klein, A. Münchau (Lübeck, Germany)
- 513 Modulation of short-latency afferent inhibition (SAI) in multisystem atrophy by low frequency (1-Hz) repetitive transcranial magnetic stimulation (rTMS) of the cerebellum  
F.G. Yildiz Sarikaya, E. Saka, B. Elibol, C.M. Temucin (Ankara, Turkey)
- 514 Temporal patterning of spike-LFP synchronization in the internal globus pallidus in Parkinson's disease  
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- 515 Long-term efficacy of incobotulinumA toxin in treatment of resistant dysphagia due to severe spasticity of upper oesophageal sphincter. A case report  
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- 516 Botulinum toxin treatment: Experience in a public hospital from Buenos Aires, Argentina  
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- 517 Botulinum toxin type A therapy for cervical dystonia - An update of a Cochrane systematic review and meta-analysis  
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- 518 A retrospective analysis of 73 patients switched from onabotulinumtoxinA to incobotulinumtoxinA  
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- 519 Real-world onabotulinumtoxinA treatment patterns in movement disorder patients in a prospective, observational cohort study: MOBILITY®  
M. Jog, M. Bhogal, G. Trentin (London, ON, Canada)
- 520 An experience of changing from onabotulinumtoxin-a to abobotulinumtoxin-a in 64 patients with focal hyperkinesias  
M. Kuzu, S.I. Gul, S. Tezcan, C.M. Akbostanci (Ankara, Turkey)
- 521 Randomized double-blind placebo-controlled cross-over study of incobotulinum toxin A for troublesome drooling in Parkinson's disease (PD)  
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- 522 Botulinum toxins type A and B for cervical dystonia, blepharospasm and hemifacial spasm - An update of Cochrane movement disorders group systematic reviews  
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- 523 Safety and efficacy of botulinum toxin injections for lower limb spasticity management in children  
M. Venkatesh, D. Ghosh (Strongsville, OH, USA)
- 524 Clinical utility of apraclonidine in ptosis  
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- 525 Neural and physiological changes following intensive voice therapy in children with motor speech disorders secondary to cerebral palsy  
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- 526 Technology-enhanced maintenance practice following intensive voice therapy (LSVT LOUD) in children with cerebral palsy and dysarthria  
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- 527 Successful treatment of juvenile Parkinsonism with bilateral subthalamic deep brain stimulation in a 14-year-old girl  
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- 528 Is there a genetic predisposition to functional/psychogenic movement disorder?  
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- 529 What do we know about PANS..?  
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- 530 BCAP31 mutation causing congenital dystonia and central hypomyelination discovered using exome sequencing  
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- 531 Intense imagery movements (IIM): Neuropsychological case series of a newly identified subgroup of motor stereotypies  
M.L. Woods, S.J. Robinson, T.J. Hedderly (London, United Kingdom)

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- 532 A historical review of Wilson's disease  
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- 533 Catatonia: Historical perspective  
R. Fekete (Valhalla, NY, USA)
- 534 XIX-XX Century art and dystonia  
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- 535 Need for improved bone mineral density screening in Parkinsonism  
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- 536 Predictors of functional and quality of life outcomes in Parkinson's patients after deep brain stimulation  
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- 537 Factors associated with postoperative confusion following deep brain stimulation surgery for Parkinson's disease  
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- 538 Postoperative deep brain stimulation (DBS) impedance variability in Parkinson's disease (PD) patients implanted with Vercise system  
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- 539 Usability and technical options of rechargeable pulse generators  
F. Alesch, A. Amon (Vienna, Austria)
- 540 Effects of STN-DBS on diphasic dyskinesia patients with Parkinson's disease  
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- 541 Long-term outcomes of subthalamic deep brain stimulation in monogenic Parkinson's disease  
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- 542 Parkinsonism-hyperpyrexia syndrome due to deep brain stimulation withdrawal: Case report  
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- 543 Subthalamic nucleus deep brain stimulation (STN-DBS) reduces freezing of gait in Parkinson's disease in the VANTAGE prospective, multi-center trial  
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- 544 Placement accuracy of deep brain stimulation electrodes implanted by frameless system - Nexframe©  
J. Bardon, D. Krahulik, P. Otruba, M. Nevrlý, M. Vaverka, P. Kanovsky (Olomouc, Czech Republic)
- 545 Effects of low and high frequency STN DBS on beta oscillations and movement using synchronized neural and kinematic recordings in freely moving Parkinson's disease subjects  
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- 546 Unilateral subthalamic nucleus deep brain stimulation for on-state freezing of gait in Parkinson's disease  
P.R. Chand, R.D. Bucholz (St. Louis, MO, USA)
- 547 Benefits of subthalamic stimulation for elderly Parkinsonian patients over age 70 years  
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- 548 Interventional MRI (iMRI) guided DBS: Factors affecting lead placement accuracy  
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- 549 Subthalamic deep brain stimulation modulates small fiber-dependent sensory threshold in Parkinson's disease  
R.G. Cury, R. Galhardoni, E.T. Fonoff, M.G. dos Santos Ghilardi, M. Myczkowski, M.A. Marcolin, E.R. Barbosa, M.J. Teixeira, D. Ciampi de Andrade (São Paulo, Brazil)
- 550 Motor cortex stimulation for gait disorders in advanced Parkinson's disease  
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- 551 Interest of microrecording for STN DBS  
T. Danaila, G. Polo, P. Mertens, E. Broussolle, S. Thobois (Bron, France)
- 552 Defining neural connectivity variables mediating successful clinical outcomes in deep brain stimulation for movement disorders  
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- 553 To test the effect of deep brain stimulation (DBS) frequencies on gait abnormalities in Parkinson's disease (PD)  
A. Deep, R. Dhall, A. Lieberman, N. Krishnamurthi (Phoenix, AZ, USA)
- 554 Vercise DBS registry: Outcomes of a prospective, multi-center international registry for Parkinson's disease  
G. Deuschl, R. Jain, S. Lin, N. Van Dyck, A. Kuhn, G.H. Schneider, C. van Riesen, H. Mehdorn, A. Schnitzler, L. Timmerman, V. Visser-Vandewalle, E. Suarez San Martin, I. Regidor, P. Eldridge, M. Cavallo, M. Sensi, J. Vesper (Kiel, Germany)
- 555 Effects of STN versus GPi deep brain stimulation on impulse control disorders  
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- 556 The effects of subthalamic nucleus deep brain stimulation on axial motor impairment, cranio-cervical dystonia, stuttering in Parkinson's disease: Case report  
H. Ekmekçi, H. Kaptan (Konya, Turkey)
- 557 Electrode lead induced white matter changes in patients treated with deep brain stimulation  
R. Erasmi, O. Granert, D. Zorenkov, O. Jansen, D. Falk, G. Deuschl, K. Witt (Kiel, Germany)
- 558 Patient expectations and outcome after DBS: 24-month results  
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- 559 A stimulating idea: Treating mixed essential tremor and Parkinson's disease tremor with a novel DBS approach  
R.A. Falconer, S.L. Rogers, C. Kalhorn, F. Pagan (Washington, DC, USA)
- 560 The neuroprotective potential of subthalamic nucleus deep brain stimulation in an  $\alpha$ -synuclein overexpression rat model of Parkinson's disease  
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- 561 Implementation of the 3D-atlas of the human brain for high precision robot-guided and frame-based stereotactic implantation of intracerebral deep brain electrodes  
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- 562 Unilateral forel H1 stimulation for Parkinson's disease: A possible option for axial motor symptoms  
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- 563 Differential effects of subthalamic nucleus stimulation frequency on speech intelligibility and verbal fluency in patients with Parkinson's disease  
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- 564 Deep brain stimulation in early stage Parkinson's disease may reduce the relative risk of worsening of both motor symptoms and complications of therapy  
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- 565 Programming strategies for tremor resistant to standard DBS settings: Constant current vs interleaving  
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- 566 Computer-guided deep brain stimulation programming using automated motion sensor-based functional mapping  
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- 567 Wearable sensors for quantifying deep brain stimulation washout effects on gait in Parkinson's disease  
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- 568 Unilateral microelectrode mapping to guide bilateral deep brain stimulation electrode implantation: A retrospective study of DBS programming outcomes  
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- 569 Impact of advancing age on outcomes of deep brain stimulation for Parkinson's disease  
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- 570 Interdisciplinary deep brain stimulation screening and the relationship to unintended hospitalizations and quality of life  
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- 571 A probabilistic atlas defining an optimal deep brain stimulation site in Parkinson's disease based on long-term clinical outcome  
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- 572 DBS experience at a tertiary care referral center  
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- 573 Optical neuromodulation of nigrostriatal pathway  
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- 574 Effect of bilateral STN DBS on impulse control disorders in patients with idiopathic Parkinson's disease- A case control study  
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- 575 Pallidal stimulation is effective for complex cranio-cervical dystonia and an unappreciated adverse effect as tensor sensation  
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- 576 Patient-centered outcomes of deep brain stimulation in Parkinson's disease  
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- 577 Estimating the proportion of essential tremor and Parkinson's disease patients referred for deep brain stimulation: Five-year data from Columbia University Medical Center (2009-2014)  
M. Kestenbaum, E.D. Louis (New York, NY, USA)
- 578 The effect of subthalamic nucleus deep brain stimulation on REM sleep behavior disorder  
B. Kocer, S.S. Comoglu, H. Guven, A.S. Eren, S. Ferik (Ankara, Turkey)
- 579 Deep brain stimulation can preserve working abilities in Parkinson's disease  
N. Kovács, I. Balás, S. Komoly, T. Dóczi, J. Janszky, Z. Aschermann, A. Makkos, E. Bosnyák, G. Deli (Pécs, Hungary)
- 580 The sequence of electrode placement affects outcomes after subthalamic nucleus deep brain stimulation for Parkinson's disease  
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- 581 The impact of the cause of death on neuropathological changes due to deep brain stimulation  
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- 582 Parkinson's disease (PD) patient experience with deep brain stimulation (DBS) surgery using asleep interventional MRI (iMRI)-guided versus awake physiology-guided implantation techniques  
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- 583 Effects of randomized subthalamic nucleus deep brain stimulation on gait in patients with Parkinson's disease  
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- 584 Intraoperative MRI for deep brain stimulation lead placement in Parkinson's disease: One year motor and quality of life outcomes  
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- 585 The research on deep brain stimulation to improve non-motor symptoms of Parkinson's disease  
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- 586 Short-term follow-up of bilateral subthalamic nucleus DBS in advanced PD: Gait and balance outcomes  
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- 587 Postoperative apathy can neutralize benefits in quality of life after subthalamic stimulation for Parkinson's disease  
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- 588 Intraoperative objective assessment and quantification of rigidity, akinesia, and tremor for optimized target-selection during DBS-implantation in Parkinson's disease  
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- 589 Neurologists' or patients' choice: Reasons Parkinson's disease (PD) patients do not undergo deep brain stimulation (DBS) surgery  
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- 590 Bilateral subthalamic nucleus deep brain stimulation in elderly patients with Parkinson's disease  
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- 591 Beta-band activity changes during sleep in the subthalamic nucleus of patients with Parkinson's disease  
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- 592 Personality and quality of life assessments before and after deep brain stimulation surgery in patients with Parkinson's disease  
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- 593 Susceptibility weighted magnetic resonance imaging for targeting of the subthalamic nucleus in Parkinson's disease  
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- 595 Intraoperative electrocorticography as a tool for the understanding of movement disorders: Principals and experience in 190 patients  
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- 597 Restoration of audio-spinal reflex reflects gait improvement in patients with subthalamic nucleus stimulation  
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- 598 Hemorrhage risk associated with multiple simultaneous microelectrode recording for deep brain stimulation  
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- 599 Stuttering after deep brain stimulation in Parkinson's disease: A case series  
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- 600 Deep brain stimulation (DBS) in Parkinson's disease (PD): Single-center experience from 2000 to 2013  
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- 601 Impact of bilateral subthalamic nuclei deep brain stimulation on gait in idiopathic Parkinson's disease patients  
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- 602 Does the use of intraoperative microelectrode recording influence the final location of lead implant in the globus pallidus interna for deep brain stimulation?  
S. Reddy, A.J. Fenoy, E. Furr-Stimming, W.G. Ondo, M.C. Schiess, R. Mehanna (Houston, TX, USA)
- 603 Unilateral STN DBS treats bilateral OFF dystonia in PD  
M. Rezak, A.P. Monette, M.T. McGraw, T. Masnyk, M.J. Nolt (Winfield, IL, USA)
- 604 Quality of life of patients with Parkinson's disease: Development of utility values by mapping PDQ-39 to EQ-5D using data from the EARLYSTIM study  
C. Rinciog, S. Walleiser Autiero, I. Durand Zaleski, L. Timmermann, J.L. Hueto, M. Schüpbach (Herts, United Kingdom)
- 605 Comparison of therapeutic and adverse effects of pallidal and subthalamic deep brain stimulation in Parkinson's disease  
H.S. Ryu, J. Kim, Y.J. Kim, K. Kim, M.S. Kim, S. You, M.J. Kim, S.J. Chung (Seoul, Korea)
- 606 Early subthalamic neurostimulation improves quality of life of elderly patients with Parkinson's disease  
H. Salimi Dafsari, P. Reker, P. Reddy, M. Silverdale, M. Pilleri, P. Martinez-Martin, A. Rizos, K. Ashkan, M. Samuel, J. Evans, V. Visser-Vandewalle, A. Antonini, K.R. Chaudhuri, L. Timmermann, On Behalf of EUROPAR and the IPMDS Non Motor PD Study Group (Cologne, Germany)
- 607 Gait and balance in Parkinson's disease (PD) following bilateral subthalamic nucleus (STN) and globus pallidus interna (GPi) stimulation: 36 month follow-up of CSP#468 cohort  
A.I. Sarwar, K. Carlson, P. Luo, K.A. Follett, M. Stern, F.M. Weaver, D.J. Reda, E.C. Lai, For the CSP 468 Study (Houston, TX, USA)
- 608 MRI guided focused ultrasound VIM thalamotomy for Parkinson's disease-First case series  
I. Schlesinger, A. Eran, A. Sinai, I. Erikh, M. Nassar, D. Goldsher, M. Zaaroor (Haifa, Israel)
- 609 Changes in subthalamic nucleus local field potentials following administration of levodopa in patients with Parkinson's disease correlate with clinical improvement as measured by objective sensor data  
A.N. Sen, G. Meloni, I. Telkes, A. Abosch, N.F. Ince (Houston, TX, USA)



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- 610 New frontiers in focused ultrasound treatment in Parkinson's disease: A potential paradigm for staged lesioning of the subthalamic nucleus  
B.B. Shah, D.S. Huss, M.B. Harrison, G.F. Wooten, S. Sperling, W.J. Elias (Charlottesville, VA, USA)
- 611 Motion perception during subthalamic nucleus deep brain stimulation: Current spread to vestibulothalamic tract  
A.G. Shaikh, K. Mewes, K. Wilson, M.R. DeLong, A.G. Machado (Cleveland, OH, USA)
- 612 Deep brain stimulation for Parkinson's disease in Kazakhstan  
C. Shashkin, S. Akshulakov, Z. Komarov (Astana, Kazakhstan)
- 613 Intraoperative MRI for deep brain stimulation lead placement in Parkinson's disease: One year motor and neuropsychological outcomes  
C. Sidiropoulos, P. LeWitt, A. Mahajan, M. Schonberger, A. Ellenbogen, D. Taylor, J. Wall, J.M. Schwab (West Bloomfield, MI, USA)
- 614 Incidence of dyskinesia improvement following subthalamic DBS with and without medication reduction  
L. Solis-Cohen, D.K. Simon, D. Tarsy, E. Papavassiliou, R. Alterman, L.C. Shih (Boston, MA, USA)
- 615 Spinal cord stimulation improves gait performance in advanced Parkinson's disease patients with chronic stn-dbs: Pilot study  
C.P. Souza, C.O. Souza, W.L. Contreras, R.G. Cury, M.G.S. Ghillard, M.J. Teixeira, E.R. Barbosa, E.T. Fonoff (Ribeirao Preto, Brazil)
- 616 Beta-band power: A suitable physiomarker for closed-loop deep brain stimulation in Parkinson's disease?  
F. Steigerwald, G. Arnulfo, I.U. Isaias, A. Canessa, M. Reich, R. Reese, S. Johannes, C. Matthies, J. Volkmann (Würzburg, Germany)
- 617 Deep brain stimulation and outcome: Hints out of the smoke screen?  
M.H. Strothjohann (Bad Camberg, Germany)
- 618 Effect of STN deep brain stimulation on autonomic functions in patients with Parkinson's disease  
P. Surathi, A. Lenka, K.R. Jhunjhunwala, A. Zafar, T.N. Sathyaprabha, R. Yadav, M. Nethravathi, D. Srinivas, A. Arivazhagan, P.K. Pal (Bangalore, India)
- 619 VANTAGE trial: Two year outcomes of a prospective, multi-center trial evaluating deep brain stimulation with a new multiple-source, constant-current rechargeable system (Vercise) in Parkinson's disease  
L. Timmerman, R. Jain, L. Chen, T. Brücke, F. Seijo, E. Suarez San Martin, C. Haegelen, M. Verin, M. Maarouf, M.T. Barbe, S. Gill, A. Whone, M. Porta, D. Servello, F. Alesch (Cologne, Germany)
- 620 Cost-effectiveness of deep brain stimulation for Parkinson's disease with a multi-source, constant-current rechargeable system: Results from the two-year follow-up of the VANTAGE trial  
L. Timmermann, F. Alesch, T. Brücke, F. Seijo, E. Suarez San Martin, C. Haegelen, M. Verin, M. Maarouf, M.T. Barbe, S. Gill, A. Whone, M. Porta, D. Servello, R. Jain, L. Chen, N. Mekel-Bobrov (Cologne, Germany)
- 621 Attenuation of STN beta oscillations persists immediately and 60 minutes after turning OFF chronic STN DBS  
M.H. Trager, E. Quinn, Z. Blumenfeld, A. Velisar, M. Koop, L. Shreve, C. Kilbane, T. Prieto, J. Henderson, H. Bronte-Stewart (Stanford, CA, USA)
- 622 Subthalamic deep brain stimulation can improve constipation and other bowel dysfunction in Parkinson's disease  
T. Uchiyama, T. Yamamoto, Y. Watanabe, K. Hashimoto, T. Kadowaki, Y. Higuchi, T. Shingo, C. Shibata-Yamaguchi, K. Kaga, T. Yamanishi, R. Sakakibara, S. Kuwabara, K. Hirata (Tochigi, Japan)
- 623 A review of initial consultations for deep brain stimulation: The NYU experience  
R.K. Unia, A. Mogilner, M. Pourfar (New York, NY, USA)
- 624 Peripheral nerve grafts reduce medication requirements and reduce motor scores in Parkinson's disease patients with deep brain stimulation therapy  
C.G. van Horne, G. Quintero, J. Gurwell, G. Gerhardt, J. Slevin (Lexington, KY, USA)
- 625 Deep brain stimulation at the sub thalamic nucleus did not cause cognitive impairment in elderly patients with idiopathic Parkinson's disease six months after the operation  
I. Valentzas, H. Seferis, P. Afentouli (Marousi Athens, Greece)
- 626 Advanced target identification in STN-DBS with beta power of combined local field potentials and spiking activity  
R. Verhagen, D.G.M. Zwartjes, T. Heida, E.C. Wiegers, M.F. Contarino, R.M.A. de Bie, P. van den Munckhof, P.R. Schuurman, P.H. Veltink, L.J. Bour (Amsterdam, Netherlands)
- 627 STN model based on intraoperative microelectrode recordings assists in postoperative management of DBS settings and clinical research  
R. Verhagen, P.R. Schuurman, P. van den Munckhof, M.F. Contarino, R.M.A. de Bie, L.J. Bour (Amsterdam, Netherlands)
- 628 Deep brain stimulation of the subthalamic nucleus preferentially alters the translational profile of striatopallidal neurons in an animal model of Parkinson's disease  
N.P. Visanji, I.K. Sarvestani, M.C. Creed, Z.S. Shoaie, J. Nobrega, C. Hamani, L.N. Hazrati (Toronto, ON, Canada)
- 629 Coordinated reset deep brain stimulation produces long-lasting, dose-dependent improvement in motor symptoms in the Parkinsonian non-human primate  
J. Wang, S. Nebeck, A. Muralidharan, J.L. Vitek, K.B. Baker (Minneapolis, MN, USA)
- 630 Respiratory dyskinesia in a Parkinson's patient is successfully treated with STN DBS  
T. Xie, R. Guan, J. Staisch, D. Casaubon, V.L. Towle, P.C. Warnke (Chicago, IL, USA)
- 631 The number of microelectrode passes during DBS surgery: Can it really influence surgical outcomes?  
X.X. Yu, H. Abboud, G. Genc, N. Thompson, S. Oravittanakul, F. Alsallom, D. Floden, A. Machado, M. Gostkowski, H.H. Fernandez (Cleveland, OH, USA)
- 632 Hesitation in deciding-deep brain stimulation of Parkinson's disease  
J.Y. Yun, M.R. Kim, Y.H. Lim, K.R. Kim, S.H. Paek, B.S. Jeon (Seoul, Korea)

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- 633 Role of the frequency of STN stimulation on bradykinesia in Parkinsonian patients  
A. Zacharia, I. Sastre, D. Georgiev, M. Hariz, L. Zrinzo, T. Foltynie, M. Jahanshahi, J. Rothwell, P. Limousin (London, United Kingdom)

### SURGICAL THERAPY: OTHER MOVEMENT DISORDERS

- 634 Long-term clinical effects of cZI compared to VIM DBS on essential tremor patients  
B. Ahmed, D.M. Ramirez, L. Almeida, J.C. Giugni, E. Monari, K.D. Foote, M.S. Okun (Gainesville, FL, USA)
- 635 Improvement in disabling action tremor associated with cerebellar multiple system atrophy by thalamic DBS: A case report  
P. Anprasertporn, N. Hidarilak, B.L. Guthrie, H.C. Walker (Birmingham, AL, USA)
- 636 Surgical treatment of post-traumatic midbrain resting-kinetic tremor with stereotactic lesions with M.E.R. of the zona incerta  
A.R.C. Azevedo, W.O. Contreras, P.R. Reis, R.G. Cury, F.E.F. Silva, J. Navarro, E.T. Fonoff (São Paulo, Brazil)
- 637 Effects of VIM-DBS on the speech motor system in ET patients: An electromagnetic articulograph study  
M.T. Barbe, D. Mücke, A. Hermes, J. Becker, T.A. Dembek, A. Josten, I.G. Meister, V. Visser-Vandewalle, M. Grice, L. Timmermann (Cologne, Germany)
- 638 Deep brain stimulation in rare movements disorders  
I. Beaulieu-Boire, C.C. Aquino, A.E. Lang, R.P. Munhoz, Y.Y. Poon, A. Valencia, M. Fallis, S. Kalia, M. Hodaie, E. Moro, A.M. Lozano, A. Fasano (Sherbrooke, QC, Canada)
- 639 Results from first year experience of dedicated pediatric DBS dystonia program at Barrow Neurological Institute at Phoenix Children's Hospital  
R.D. Bhardwaj, S. Flecky, N. Remec, J. Samanta (Phoenix, AZ, USA)
- 640 Delayed scalp erosion after DBS surgery: Incidence, treatment, outcomes, and prevention  
A.R. Bona, A. Mantovani, S. Vaziri, R. Walz, M.S. Okun, K.D. Foote (Gainesville, FL, USA)
- 641 The efficacy of VIM and VIM/ZI DBS in treatment of various tremors  
M. Bonello, J. Osman-Farah, P.R. Eldridge, B. Hammersley, L. Lowry, P. Byrne, N.A. Fletcher, S.H. Alusi (Liverpool, United Kingdom)
- 642 Biochemical mechanisms of pallidal deep brain stimulation in X-linked dystonia Parkinsonism  
N. Brüggemann, A. Moser, A. Domingo, C.K. Moll, D. Rasche, C. Mohr, R. Rosales, P. Capetian, R.D. Jamora, L.V. Lee, A. Münchau, C.C. Diesta, V. Tadic, C. Klein, V. Tronnier (Luebeck, Germany)
- 643 Deep brain stimulation artifact in cervical electromyography  
M.V. Della Coletta, A.R. Marcião (Manaus, Brazil)
- 644 Target correlated mapping of therapeutic effects in deep brain stimulation using voxel-based estimations of neuroanatomical structures and volumes of tissue activated  
T.A. Dembek, M.T. Barbe, M. Åström, V. Visser-Vandewalle, L. Timmermann (Cologne, Germany)
- 645 Neuropsychological outcome of bilateral pallidal stimulation in cervical dystonia: One-year follow-up results from a prospective multicenter trial  
L. Dinkelbach, J. Mueller, M. Delazer, S. Elben, A. Wolters, E. Karner, W. Poewe, A. Schnitzler, J. Volkmann, M. Suedmeyer (Duesseldorf, Germany)
- 646 Update on deep brain stimulation for refractory Tourette syndrome: 10 patients with CM-Pf/Voi stimulation  
R.S. Dowd, M.H. Pourfar, A.Y. Mogilner (New York, NY, USA)
- 647 Impedance fluctuations in patients undergoing thalamic deep brain stimulation for essential tremor and their effect on clinical outcome  
J. Eskenazi, E. Tan, A.N. Mamelak, M. Tagliati (Los Angeles, CA, USA)
- 648 Panic disorder following implantation of deep brain stimulation (DBS) leads in the ventral intermediate nucleus of the thalamus (VIM)  
S.M. Fayad, U. Akbar, P. Zeilman, M.S. Okun, H.E. Ward (Gainesville, FL, USA)
- 649 Deep brain stimulation (DBS) interleave contact configuration with implementation of dual frequency stimulation fields improves control in essential tremor (ET) and reduces adverse effects  
E.M. Feinstein, D.L. Caputo, D.P. Schneider, R.J. DiPaola, S.F. Danish, E.L. Hargreaves (New Brunswick, NJ, USA)
- 650 Dorsal lead migration in a dystonia patient following deep brain stimulation  
W. Hu, A.R. Bona, D. Martinez-Ramirez, A. Wagle Shukla, K.D. Foote, M.S. Okun (Gainesville, FL, USA)
- 651 Functional assessment and quality of life in essential tremor following treatment with bilateral or unilateral deep brain stimulation and unilateral focused ultrasound thalamotomy  
D.S. Huss, R.F. Dallapiazza, B.B. Shah, M.B. Harrison, J.W. Elias (Staunton, VA, USA)
- 652 Deep brain stimulation for dystonia: A programming algorithm evaluated by long-term results of the German multicentre study for generalized or segmental dystonia  
A.D. Kirsch, A.A. Kühn, J. Müller, J. Volkmann for the Deep-Brain Stimulation for Dystonia Study Group (Würzburg, Germany)
- 653 Long term effective thalamic deep brain stimulation (DBS) for neuropathic tremor in patients with hereditary motor-sensory polyneuropathy  
C.M. Lidia, A.O. Iciar, V. Marta, D.Á. Marta, R. Ignacio (Madrid, Spain)
- 654 Deep brain stimulation in the nucleus ventralis oralis anterior for post anoxic dystonia, case report and review of the literature?  
M. Mansour, Y.M. Mansour, J. Vaidyanathan (Abu Dhabi, United Arab Emirates)
- 655 Therapeutic deep brain ablation via implanted DBS leads: Technique and potential complications  
A. Mantovani, A.R. Bona, M.S. Okun, K.D. Foote (Gainesville, FL, USA)
- 656 Two patients with dystonia treated with internal globus pallidus deep brain stimulation (GPi-DBS) using a multiple independent source current-controlled system, a case report  
O. Morsi, J. Jimenez, B. Cuartero, J. Zammaro, R. Sanchez, M. Felipe, B. Segura, J.J. Martin (Murcia, Spain)



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- 657 Combined anterior and posterior lumbar rhizotomy for treatment of mixed dystonia and spasticity in children with cerebral palsy  
M.A. Nada, W.A. Abdel Ghany (Cairo, Egypt)
- 658 Reversal of acquired hepatocerebral degeneration with live donor liver transplant  
A.H. Qavi, S. Hammad, A.I. Rana, M. Salih, N.H. Shah, F.S. Dar, A. Ahmad (Islamabad, Pakistan)
- 659 Does the use of intraoperative microelectrode recording influence the final location of lead implant in the ventral intermediate nucleus for deep brain stimulation?  
S.T. Reddy, A.J. Fenoy, E. Furr-Stimming, W.G. Ondo, M.C. Schiess, R. Mehanna (Houston, TX, USA)
- 660 Does the use of intraoperative microelectrode recording influence the final location of lead implant in the sub-thalamic nucleus for deep brain stimulation?  
S.T. Reddy, A.J. Fenoy, E. Furr-Stimming, W.G. Ondo, M.C. Schiess, R. Mehanna (Houston, TX, USA)
- 661 Intraoperative thresholds for capsular stimulation are predictive of the chronic therapeutic window in pallidal deep brain stimulation for dystonia  
R. Reese, D. Falk, H.M. Mehdorn, G. Deuschl, J. Volkmann (Würzburg, Germany)
- 662 Progressive ataxia under thalamic neurostimulation in essential tremor, neurostimulation effect or disease progression?  
M.M. Reich, J. Brumberg, F. Steigerwald, G. Marotta, T. Musacchio, D.A. Kirsch, L. Müller, K. Herrmann, A. Buck, J. Volkmann, I.U. Isaias (Würzburg, Germany)
- 663 Force platform analysis after deep brain stimulation of pedunculopontine nucleus in progressive supranuclear palsy: Report of one case  
C.O. Souza, R. Brant, A.L. Pardini, D. Boari, L.A. Teixeira, M.J. Teixeira, E.R. Barbosa, E.T. Fonoff (São Paulo, Brazil)
- 664 Coaxial deep brain stimulation of ventral thalamic nuclei and posterior subthalamic area for movement disorders  
H. Toda, H. Saiki, R. Okumura, S. Matsumoto, K. Iwasaki (Osaka, Japan)
- 665 Subthalamic stimulation for tremor  
A.T. Tran, G. Moguel-Cobos, R. Dhall, A. Lieberman (Phoenix, AZ, USA)
- 666 STN DBS in dystonia modulates sensorimotor integration and plasticity but not motor cortex excitability  
A. Wagle Shukla, J. Ostrem, D. Vaillancourt, K. Foote, J. Shuster, M. Okun (Gainesville, USA)
- 667 Combined deep brain stimulation in the internal globus pallidus (GPi) and pallidothalamic tract (PTT) in a patient suffering from a nigrostriatal lesion due to subarachnoid haemorrhage  
N.A. Wegener, S. Haegeler-Link, K. Georg, P. Anita, B. Thomas, B. Ronald (St. Gallen, Switzerland)
- 669 The effect of motor imagery on stepping characteristics and motor control of gait in persons with Parkinson's disease  
P.E. Atwood, W.J. Farrington, A.C. Brandt, A. Smiley-Oyen, K.A. Lowry (Des Moines, IA, USA)
- 670 Antibody spectrum in stiff person syndrome and related disorders  
B. Balint, I.M. Blöcker, M. Unger, W. Stöcker, C. Probst, L. Komorowski, H.M. Meinck (London, United Kingdom)
- 671 NMDAR-antibodies in atypical corticobasal syndrome – New phenotype or (contributing) epiphenomenon?  
B. Balint, R. Erro, M. Stamelou, F. Brugger, E. Antelmi, A. Batla, C. Ganos, A. Vincent, K. Bhatia (London, United Kingdom)
- 672 Development and evaluation of a patient decision aid, should you have botulinum toxin injections or surgery for hemifacial spasm  
C.T. Barrett, D.A. Grimes, V. Parker (Ottawa, ON, Canada)
- 673 Effect of progressive aerobic and large-amplitude training (PWR!Moves) on advanced Parkinson's disease - A case study  
J. Bazan-Wigle, K. Moynahan, B. Farley (Tucson, AZ, USA)
- 674 Ultrastructural distribution and features of dopaminergic and cholinergic innervations of the primate subthalamic nucleus  
H. Belaid, L. Parolari, D. Tande, M.P. Muriel, D. Chauvet, B. Lau, C. Francois, C. Karachi (Paris, France)
- 675 Using a wearable sensor to evaluate activity and motor response fluctuations in patients with Parkinson's disease (PD): Preliminary findings  
H. Bernad-Elazari, A. Weiss, S. Oren, Y. Cohen, A. Mirelman, N. Giladi, J. Hausdorff (Tel Aviv, Israel)
- 676 Optimizing CNS-delivery by lactyl stearate-coupled liposomes  
V. Bhargava, M. Bhargava, S. Bhargava, N. Kapoor, G. Agarwal, (Kanpur, India)
- 677 The figure-of-8 walk test: A clinical measure of motor skill in walking for persons with Parkinson's disease  
A.C. Brandt, P.E. Atwood, W.J. Farrington, J. Van Swearingen, K.A. Lowry (Des Moines, IA, USA)
- 678 Auditory cues on postural control in Parkinson's disease: A pilot study  
W. Buatoed, T. Fujinami, S. Hidaka, N. Kashyap (Nomi, Japan)
- 679 Walking speed and switching attention in individuals with Parkinson's disease  
M.C. Caciula, M. Horvat, R. Croce (Statesboro, GA, USA)
- 680 Movement disorders after stroke  
A. Chahidi, M. Chraa, N. Kissani (Beni Mellal, Morocco)
- 681 Mirror movement among patients with Parkinson's disease - An under-appreciated clinical sign  
P. Chatterjee, S. Choudhury, D. Naskar, S. Anand, B. Mondal, M.U. Kulsum, H. Kumar (Kolkata, India)

## OTHER (NON-CATEGORY SPECIFIC)

- 668 The Parkinson's disease and movement disorders program at King Fahad Medical City  
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- 682 Hypoglycemia induced acute bilateral basal ganglia lesions presenting as generalized dyskinesia in a patient with diabetic uremia  
P.Y. Chen, S.H. Yan, S.C. Lai, C.S. Lu, T.H. Yeh (Taipei, Taiwan)
- 683 Cytoarchitecture of the human nitroergic neurons in basal nuclei  
B.L. Dos Santos, E.A. Del Bel, J.E. Pittella, V. Tumas (Ribeirão Preto, Brazil)
- 684 Is change in physical performance in persons with Parkinson's disease meaningful following LSVT® BIG: A retrospective study  
W.J. Farrington, T. Miller, G. McGaughy, K. Mercuris, K. Lowry (Des Moines, IA, USA)
- 685 Clinical subtypes of Parkinson's disease and disease progression: Data-driven comparison of new phenotypes with other cluster solutions  
S.M. Fereshtehnejad, S.R. Romenets, J. Anang, V. Latreille, J.F. Gagnon, R.B. Postuma (Stockholm, Sweden)
- 686 Continuous stimulation of the subthalamic nucleus improves skilled forelimb grasping after photothrombotic infarction in Wistar rats  
F. Fluri, J. Volkmann, C. Kleinschmitz (Würzburg, Germany)
- 687 Characterization of movement disorder phenomenology in genetically proven frontotemporal lobar degeneration: A systematic review and meta-analysis  
C. Gasca-Salas, B.B. Shah, M. Masellis, E. Khoo, D. Fisman, A.E. Lang, G. Kleiner-Fisman (Toronto, ON, Canada)
- 688 Assessment of Parkinsonian motor symptoms using a continuously worn smartwatch: Preliminary experience  
E. Gazit, H. Bernad-Elazari, S.T. Moore, C. Cho, K. Kubota, L. Vincent, S. Cohen, L. Reitblat, N. Fixler, A. Mirelman, N. Giladi, J.M. Hausdorff (Tel Aviv, Israel)
- 689 Clinical and dynamic balance measures can predict postural instability in Parkinson's disease patients  
L.T.B. Gobbi, P.H.S. Pelicioni, M.P. Pereira, J. Lahr, L.C. Morais, N.M. Rinaldi (Rio Claro, Brazil)
- 690 Initial treatment choice is associated with medical resource use in people aged 35 to 64 years with Parkinson's disease  
E. Grubb, M. Treglia, M. Lage (Overland Park, KS, USA)
- 691 Smartphone-PD: Preliminary results of an mHealth application to track and quantify characteristics of Parkinson's disease in real-time  
D.A. Harris, S.O. Abiola, K.M. Biglan, E.R. Dorsey, M.A. Little, S. Saria, A. Zhan (Rochester, NY, USA)
- 692 Iron deposition and oxidative stress in the brain of the Zitter rat  
T. Kadowaki, H. Lassmann, S. Ueda, C. Schuh, K. Hirata (Mibu, Japan)
- 693 Ethical and legal concerns for a highly vulnerable population of 70+ cases of PD and dementia: A qualitative study in Indian context  
M. Kakoti, D. Misra (New Delhi, India)
- 694 The Parkinsonian toxin 1-methyl-4-phenylpyridinium (MPP+), and proteins  $\alpha$ -synuclein and glia maturation factor (GMF) activate mast cells and release proinflammatory mediators  
D. Kempuraj, T. Ramasamy, S. Zaheer, D.A. Santillan, M.K. Santillan, A. Zaheer (Iowa City, IA, USA)
- 695 Finally it's time for a perspective: Barriers and facilitators in physical rehabilitation for Parkinson's disease from the Arabian Peninsula  
H. Khalil, J.A. Bajwa (Irbid, Jordan)
- 696 The effects of 12-week exercise therapy program on the gait characteristics in people with Parkinson's disease  
C.H. Kim, M.Y. Kim, B.O. Lim (Inchon, Korea)
- 697 Preliminary results for a national case study of virtual care visits for Parkinson's disease  
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- 698 Validation of a smartphone application measuring bradykinesia in Parkinson's disease  
W. Lee, A. Evans, D.R. Williams (Melbourne, Australia)
- 699 Improving of balance in patients affected by Parkinson's disease by decreasing rigidity  
A.P.C. Loureiro, V. Bauer, C.d.C. Loureiro (Curitiba, Brazil)
- 700 Speech intelligibility perception of advanced Parkinson's disease patients compared to early Parkinson's disease patients and first degree relatives  
Y. Manor, D. Shpunt, M. Chermon, L. Fregel, A. Ezra, A. Migirov, J. Zitser, T. Gurevich (Tel Aviv, Israel)
- 701 Acoustic analysis of voice and speech of advanced Parkinson's disease patients compared to early Parkinson's disease patients and first degree relatives  
Y. Manor, D. Shpunt, I. Ben Asher, A. Tsvion, N. Horev, A. Ezra, A. Megirov, A. Hilel, T. Gurevich (Tel Aviv, Israel)
- 702 The self-perception of multiple system atrophy patients of swallowing disorders and drooling and its relation to quality of life and disease severity  
Y. Manor, D. Shpunt, Y. Zlotnik, A. Megirov, L. Brounshtai, T. Voller-Kohaner, T. Lupo, T. Gurevich (Tel Aviv, Israel)
- 703 3D sensors, a new paradigm for assessing Parkinson's disease  
A. Mario, B. Jorge, M. Daniel, V. Pedro (Havana, Cuba)
- 704 Variability in Parkinson's disease quality improvement measure documentation in a specialty center  
J.P. Martello, M. Armstrong (Baltimore, MD, USA)
- 705 Decreased FOG following multi-system behavioral intervention-A case report  
C.E. McLean (Hermosa Beach, CA, USA)
- 706 One year dynamics of spatiotemporal gait parameters and ADL performance in patients with Parkinson's disease  
K. Medijainen, M. Pääsuke, P. Taba (Tartu, Estonia)



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- 707 Intraoperative microstimulation predicts outcome of post-operative macrostimulation in STN DBS for PD  
R. Mehanna, A.G. Machado, F. Alsaloum, S.E. Cooper (Houston, TX, USA)
- 708 Parkinson's disease: A regression based approach to motor symptom progression  
A. Mendes, A. Gonçalves, N. Vila-Chã, M. Calejo, I. Moreira, J. Fernandes, J. Damásio, A.B. Lima, S. Cavaco (Porto, Portugal)
- 709 Fluorodeoxyglucose positron emission tomography (FDG-PET) in prion disease  
K. Mente, J. O'Donnell, P. Gambetti, S.E. Jones, B.S. Appleby (Cleveland, OH, USA)
- 710 Mimicking progressive supranuclear palsy and causing Tako-Tsubo syndrome: A case report on IgLON5-encephalopathy  
M.T. Montojo, V. Piren, F. Benkhadra, A. Codreanu, G. Wirtz, P. Kerschen, N.J. Diederich (Mostoles, Spain)
- 711 e-Motion: A reliability assessment for a prototype software to complement the clinical evaluation of patients with Parkinson's disease  
B.E. Muñoz, A. Navarro, Y.J. Ariza, J.D. Arango, J.L. Orozco (Cali, Colombia)
- 712 A powered orthosis improves the magnitude and consistency of gait initiation in Parkinson's disease with freezing of gait  
M.N. Petrucci, C.D. MacKinnon, E.T. Hsiao-Weckler (Urbana, IL, USA)
- 713 Withdrawn by Author
- 714 The mitochondrial serine protease HtrA2 degrades disease-associated prion protein  
M.M. Rahman, S. Akhter, S.T. Hong (Jessore, Bangladesh)
- 715 Functional (psychogenic) neurological symptoms in patients with postural tachycardia syndrome (PoTS)  
L. Ricciardi, A.P. Owens, G. Ferrazzano, V. Iodice, C.J. Mathias, M.J. Edwards (London, United Kingdom)
- 716 Unilateral decreased palpebral fissure in patients with Parkinson's disease: A new sign to consider  
M. Sanchez Abraham, O.S. Gershanik, S.S. Garcia, G. Mizraji, A. Chade, G. Gomez Arevalo (Buenos Aires, Argentina)
- 717 Parkinsonism and dystonia: Predominant features in a case of ADEM  
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- 736 Non-supportive touch improves static balance in active and inactive individuals with Parkinson's disease  
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- 738 Infantile systemic hyalinosis presenting as neurological hypertonic movement disorder  
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- 770 Autophagy is involved in age-related sensitivity to Parkinsonian pathogenesis  
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- 780 Region-specific alterations of matrix metalloproteinase activity in multiple system atrophy  
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- 798 Usefulness of cardiac <sup>123</sup>I-MIBG uptake, olfactory function and substantia nigra hyperechogenicity in distinguishing between Parkinson's disease and Parkinsonian syndrome  
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- 799 Relationship between serum uric acid concentration and disease progression in multiple system atrophy  
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- 800 A case of vascular Parkinsonism simultaneous with progressive supranuclear palsy (PSP)  
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- 801 Lose-dose lithium therapy improved "off" time without worsened dyskinesias in a patient with Parkinson's disease  
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- 842 Pick's disease presenting with corticobasal syndrome: A review of Parkinsonian features in 23 patients  
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- 843 Did Charcot have vascular Parkinsonism?  
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- 847 Urinary dysfunction in progressive supranuclear palsy in comparison to Parkinson's disease and multiple system atrophy  
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- 848 Demographic factors in pre- and post-surgical DBS neuropsychological evaluation  
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- 849 Is it possible to improve cognitive functions through complex gait training in patients with Parkinson's disease?  
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- 850 Progression of mobility impairment and motor related quality of life in individuals with Parkinson's disease: Results from NPF-QII  
J. Ben, A. Stone, M.S. Okun, J. Nocera, P. Schmidt, S.S. Wu, Q. Pei, C.J. Hass, NPF QII Investigators (Gainesville, FL, USA)
- 851 PD-MCI: Application of the level I criteria and prediction of PDD  
J.A. Boel, J. Hoogland, R.M.A. de Bie, J.G. Goldman, B. Schmand, A.I. Tröster, D.J. Burn, I. Litvan, G.J. Geurtsen, The MDS PD-MCI Validation Study Group (Amsterdam, Netherlands)
- 852 High-frequency exercise improves executive function in individuals with Parkinson's disease  
M.C. Caciula, M. Horvat, R. Croce (Statesboro, GA, USA)
- 853 Subcortical functioning and its relationship to "risk detection" in patients with Parkinson's disease on different cognitive impairment  
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- 854 Association of serum uric acid level with cognitive function among patients with multiple system atrophy  
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- 855 Increasing arm motion when walking enhances lower limb coordination in individuals with Parkinson's disease  
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- 856 Language-mediated eye movements in Parkinson's disease  
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- 859 Using virtual reality to investigate the deficits in voluntary gait initiation and cessation in patients with Parkinson's disease and freezing of gait  
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- 860 Dissociable roles of beta and theta rhythms in the subthalamic nucleus in response inhibition  
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- 861 Are emotional factors associated with cognitive outcome following DBS?  
C. Ghilain, S.A. Anderson, N. Sun-Suslow, C. Bermudez, M. Forte, I. Babakhanyan, B. Gallo, C. Luca, J. Jagid, C. Singer, B.E. Levin (Miami, FL, USA)
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- 863 Deficits in communication between attentional networks in patients with visual hallucinations in Parkinson's disease  
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- 865 Substantia nigra hyperechogenicity and cognitive functions: Results from the TREND study  
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- 866 Impact of STN-DBS on cognitive functions in Parkinson's disease patients: Long-term follow-up study  
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- 867 Predictive validity of level II PD-MCI criteria for PDD  
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- 868 The effect of dopaminergic medication on perceptual decision-making in Parkinson's disease as a function of task difficulty and speed-accuracy instructions  
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- 869 Deep brain stimulation of the subthalamic nucleus is associated with lower response thresholds when patients with Parkinson's disease act under speed pressure  
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- 870 Relationship between neuropsychological function and speech in individuals with Parkinson's disease  
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- 871 Leptin and insulin; biomarkers for cognitive impairment in Parkinson's disease? ICICLE-PD 36 month interim analysis  
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- 872 Can we improve attention in Parkinson's disease? A pilot study  
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- 873 Cognitive impairment in Parkinson's disease with SWEDDs  
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- 874 Cerebral hypometabolism based on a cutoff point on the mini-mental status examination for cognitive impairment in de novo PD  
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- 875 Withdrawn by Author



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- 877 Does prolonged use of anticholinergic medication contribute to cognitive impairment in early Parkinson's disease?  
R.A. Lawson, A.J. Yarnall, G.W. Duncan, D.P. Breen, T.K. Khoo, D. Brooks, R.A. Barker, D. Collerton, J.P. Taylor, D.J. Burn (Newcastle upon Tyne, United Kingdom)
- 878 Cognitive change in Parkinson's disease and progression of frontal-striatal deficits  
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- 879 Plasma epidermal growth factor as a cognitive biomarker in Parkinson's disease and Alzheimer's disease  
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- 880 Daily living functionality and cognitive functions in Parkinson's disease: Functional diversity across cortical and subcortical systems  
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- 881 Gait predicts decline in attention over three years in an incident cohort of Parkinson's disease  
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- 882 Executive dysfunction in a sample of patients with Parkinson's disease in Cali – Colombia  
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- 883 Individualised medicine using an abbreviated cognitive screen for dementia prediction in Parkinson's disease  
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- 885 Cognitive effects of atomoxetine in the chronic low-dose (CLD) 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP)-treated macaque model of Parkinson's disease  
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- 886 Gray and white matter predictors of cognitive frontal-striatal deficits in Parkinson's disease  
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- 887 Improving dementia diagnosis in Parkinson's disease  
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- 888 Pattern of working memory deficit in REM sleep behaviour disorder is the same as in Parkinson's disease  
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- 889 Cognition in Parkinson's disease and essential tremor: A population-based comparative study  
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- 890 Usefulness of MoCA in cognitive function evaluation of Parkinson's disease patients  
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- 891 Effort to reduce postural sway decreases both cognitive performance and postural stability in individuals with Parkinson's disease  
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- 892 Cognition and depression in Mexican early-onset Parkinson's disease patients  
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- 895 Visual exploration during gait in Parkinson's disease and association with cognitive characteristics  
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- 897 Temporal lobe and frontal-subcortical dissociations in non-demented Parkinson's disease with verbal memory impairment  
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- 898 Linguistic ability in patients with Parkinson's disease: Can it predict future memory deficits?  
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- 899 Improving cognitive functioning and quality of life through Dance for PD: A pilot intervention trial  
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- 900 Is exercise more important for cognition and mood in Parkinson's disease patients than normal elderly?  
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- 901 Cognitively protective effects on PD model rats by electrical acupuncture treatment  
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- 902 Long-term outcomes for Parkinson's disease patients with normal cognition  
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- 903 Frequency of subthalamic nucleus (STN) stimulation in Parkinson's disease (PD) modifies response accuracy in a decision making task  
K. Witt, T. Sauer, G. Deuschl (Kiel, Germany)
- 904 Characterizing neuropsychological impairment in Parkinson's disease  
D.T. Woods, A.C. Kneebone (Sydney, Australia)
- 905 The analysis of cognitive impairment associated with Parkinson's disease (PD-CI)  
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- 908 Frontal gait disorders: DTI corpus callosal integrity correlates with stride width and cognitive function  
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- 909 Detection of alpha-synuclein seeding activity using a novel assay  
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P. Braga-Neto, J.L. Pedrosa, M.R. Laureano, A. Gadelha, C.d.S. Noto, G.E.J. de Garrido, O.G.P. Barsottini (São Paulo, Brazil)
- 914 The use of adjustments to facilitate writing in patients diagnosed with spinocerebellar ataxia  
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- 915 Reliability and discriminant validity of ataxia rating scales in early onset ataxia  
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- 917 Impaired brain GABA in spinocerebellar ataxia type 7: A magnetic resonance spectroscopy study  
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- 919 Mutation screening of AFG3L2 in Indian cerebellar ataxia patients: an early onset cerebellar ataxia with digenic mutations in AAAproteases identified through whole exome sequencing  
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- 920 Neurotechnology biomarkers in Friedreich's ataxia  
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- 921 The splenium of the corpus callosum sign in fragile X associated tremor ataxia syndrome (FXTAS)  
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- 922 Neuropathology of Parkinsonism in spinocerebellar ataxia type 6: A case report  
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- 923 Atypical spinal cord atrophy in Friedreich ataxia  
P. Khemani, Z. Yetkin (Dallas, TX, USA)
- 924 Clinical evaluation in children with ataxia in a children rehabilitation centre  
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- 929 Analysis of gait parameter in spino-cerebellar ataxia patients using electronic walkway: With and without cognitive load  
B. Mondal, S. Choudhury, P. Chatterjee, M.U. Kulsum, S.S. Anand, H. Kumar (Kolkata, India)
- 930 Idiopathic very late-onset cerebellar ataxia: A Brazilian case series  
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- 931 Comparison of non-motors symptoms in patients with spinocerebellar ataxia type 10 and type 3  
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- 932 HMG-CoA reductase inhibitors – induced cerebellar ataxia. A Brazilian case series  
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- 933 Cerebellar features in spastic paraplegia: A cohort analysis  
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- 934 Nicotinamide given once daily is more effective than twice daily at increasing frataxin expression in Friedreich's ataxia  
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- 935 49 year old male with rapidly progressive cerebellar ataxia secondary to non-paraneoplastic voltage-gated calcium channel antibodies (VGCC): Case report  
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- 936 A family affected by SCA27 caused by interstitial chromosome 13q33.1 deletion  
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- 937 A new SCA19/SCA22 family with the T377M variant in the KCND3 gene  
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- 938 Adult-onset cerebellar ataxia as a presentation of Langerhans cell histiocytosis  
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- 939 Quantitative gait and balance testing for NPH  
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- 940 Withdrawn by Author
- 941 Exome sequencing as a diagnostic tool for hereditary ataxias: Our experience in a neurogenetic center from Buenos Aires-Argentina  
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- 942 Sensor-based gait assessment in ataxia: disturbance of armswing and trunk motility does not run in parallel with impaired stepping  
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- 943 Strabismus and eye movement deficits in Machado-Joseph disease  
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- 944 A unique combination of spinocerebellar ataxia type 2 and 3 mutations in a patient  
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- 945 India share the common mitochondrial lineage with Caucasians with increased load of mitochondrial variations in Friedreich's ataxia (FRDA) patients  
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- 946 Autosomal recessive cerebellar ataxias in India: Genetic heterogeneity and mutation spectrum revealed by whole exome sequencing  
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- 947 Case of spinocerebellar ataxia type-12 associated with only 43 CAG repeats in PPP2R2B gene  
A. Takkar, M. Faruq, S. Shakya, A. Garg, A.K. Srivastava (New Delhi, India)
- 948 Sympathetically induced sudomotor and cold pressor test in patients of spinocerebellar ataxia 2: A preliminary study  
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- 949 Distal hereditary motor neuropathy with HSF1 chaperone mutation, presenting with peripheral motor neuropathy, associated to Parkinsonism, and cerebellar ataxia. Case report  
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- 950 Estimation of skeletal muscle mass in patients with spinocerebellar ataxia  
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- 951 Anthropometric profile of patients with spinocerebellar ataxia  
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- 952 Deep brain stimulation of the dentate nucleus improves cerebellar ataxia: A double-blind n=1 study  
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- 953 SCA2 presenting as a focal dystonia  
H.M. Wied, J.J. Gaul, L.E. Doyle, S.G. Reich (Baltimore, MD, USA)
- 954 Withdrawn by Author
- 955 Recurrent episodic isolated nystagmus associated with GAD antibody positivity  
Z. Xu, P.X. Koh, N.K. Loh, T. Umapathi, J.Y.H. Chia (Singapore, Singapore)

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- 956 Clinical characteristics of patients with paraneoplastic cerebellar degeneration  
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- 957 Neurotological findings prevalent in ataxias hereditary  
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- 958 Vestibular disease in patients with Friedreich ataxia  
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- 959 Vestibular rehabilitation with virtual reality in spinocerebellar ataxia  
B.S. Zeigelboim, H.A.G. Teive, R.C. Cardoso, G. Santos, M.I. Severiano, P.B.N. Liberalesso, J.H. Faryniuk, V.R. Fonseca (Curitiba, Brazil)

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- 960 First Middle East camp for Parkinson's disease, movement disorders and neuromodulation: Review of outcomes and implications for future directions  
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- 961 Movement disorders and the media  
B.R. Barton, K. Kompolti (Chicago, IL, USA)
- 962 How can we better educate study participants for an improved informed consent? Taking a look at Parkinson's disease transplant trials  
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- 963 Evidence-based, patient-centered physiotherapy for people with Parkinson's: A pilot implementation of the Dutch ParkinsonNet concept in Germany  
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- 964 The contributions of continuing education in dysphagia for pediatric nursing care in a teaching hospital  
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- 965 Efficacy of an education and exercise group on understanding of Parkinson's and uptake of exercise in people with Parkinson's disease  
F.A. Lindop, R.H. Skelly (Derby, United Kingdom)
- 966 Medication errors prolong length of stay in hospitalized Parkinson's disease patients  
D. Martinez-Ramirez, J.C. Giugni, C. Little, J.P. Chapman, B. Ahmed, E. Monari, M.S. Okun (Gainesville, FL, USA)
- 967 Knowledge and awareness regarding Parkinson's disease in general population – Truth and prejudice  
I. Telarovic, S. Telarovic (Zagreb, Croatia)

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- 968 Parkinson's progression markers initiative (PPMI) prodromal cohort of REM behavior disorder (RBD) with DAT deficit  
Parkinson's Progression Markers Initiative (PPMI) RBD Investigators (New Haven, CT, USA)

- 969 Rat brain basal ganglia imaged with optical coherence tomography: Feasibility and future perspectives  
J.S. dos Angeles, W.O.C. Lopez, R.C.R. Martinez, P.R. Reis, C.K. Takimura, M.J. Teixeira, P.A. Lemos Neto, E.T. Fonoff (Sao Paulo, Brazil)
- 970 Arterial spin labelling (ASL) reveals an abnormal cerebral perfusion pattern in Parkinson's disease  
K. Abe, T. Hayashi, M. Yamamoto, N. Akiyama, M. Fujita (Nishinomiya, Japan)
- 971 Brain amyloid- $\beta$  content is associated with cognitive decline in Parkinson's disease: A cross sectional study using [F18] FDDNP PET and CSF A $\beta$  levels  
F. Antonelli, M.T. Buongiorno, Y. Compta, Y. Fernandez, J. Pavia, F. Lomena, J. Garcia, I. Ramirez, A. Camara, M. Fernandez, M. Soler, X. Perez, J. Barrio, M.J. Marti (Barcelona, Spain)
- 972 Brain connectivity changes associated with t-DCS and cognitive training plus cognitive training in Parkinson's disease with mild cognitive impairment  
R. Biundo, L. Weis, E. Fiorenzato, G. Gentile, M. Giglio, M. Campo, R. Schifano, A. Antonini (Venice-Lido, Italy)
- 973 Substantia nigra echogenicity and odor discrimination in REM-sleep behavior disorder and Parkinson's disease  
J. Carlos, V. Pablo, U.S. Reinaldo, N. Cristobal, S. Julia, G. Jaime (Santiago, Chile)
- 974 Comparison between odor discrimination, substantia nigra echogenicity and nigrostriatal dopaminergic activity measured by 18F-PR04 PET in Parkinson's disease  
J. Carlos, V. Pablo, C. Pedro, K. Vasko, P. Rosana, A. Horacio (Santiago, Chile)
- 975 Functional connectivity in Parkinson's disease is differentially impacted by alpha-synuclein and amyloid  
D.O. Claassen, S. Rane (Nashville, TN, USA)
- 976 White matter microstructure in idiopathic craniocervical dystonia  
A. D'Abreu, G.L. Pinheiro, R.P. Guimarães, B.M. Campos, F. Cendes (Campinas, Brazil)
- 977 Pattern of regional cortical thickness in patients with Parkinson's disease and impulse control disorders  
R. De Micco, G. Santangelo, C. Vitale, A. Tessitore, M. Amboni, D. Corbo, A. Giordano, P. Barone, G. Tedeschi (Naples, Italy)
- 978 Lead location for subthalamic nucleus deep brain stimulation using a 3d visualization tool  
M. Del Álamo, I. Avilés, F. Estella, L. Cabañas, I. Regidor (Madrid, Spain)
- 979 MRI findings in a rare case of sporadic Creutzfeldt-Jacob disease presenting as progressive supranuclear palsy  
A. Duffy, B. Koo, K. Park, M. Bobinski, L. Zhang (Sacramento, CA, USA)
- 980 Comparison of baseline 123-I Ioflupane SPECT striatal binding ratios with diffusion tensor images from the Parkinson's progression marker initiative  
C.L. Gallagher, J. Sojkova, B.B. Bendlin, O. Okonkwo, A. Alexander, I.W. Wu, N. Schuff (Madison, WI, USA)
- 981 HemiParkinsonism leading to the discovery of a large epidermoid tumor  
R. Garcia-Santibanez, H. Sarva, A. Khorsandi, R.K. Shrivastava, W.L. Severt, D. MacGowan (New York, NY, USA)



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- 982 Longitudinal evaluation of brain atrophy in Parkinson's disease and Parkinson's plus syndromes  
C. Guevara (Providencia, Chile)
- 983 Metabolic changes associated with slow dopaminergic depletion: A longitudinal PET study in the MPTP primate model of Parkinson's disease  
L.F. Hernandez, F. Molinet-Dronda, J. Blesa, C. Juri, M. Collantes, E. Iglesias, I. Peñuelas, J.A. Obeso (Pamplona, Spain)
- 984 Assessment of outcomes in Parkinson's disease subjects randomized to SPECT imaging of the dopamine transporter  
P.T. Hickey, M. Kuchibhatla, B.L. Scott, L. Gauger, M.A. Stacy (Durham, NC, USA)
- 985 The decreasing of dopamine-transporter uptake on the right ipsilateral side of tremor in a patient with Parkinson's disease  
E. Hoshiyama, T. Kadowaki, A. Nakamura, K. Suzuki, K. Hashimoto, K. Hirata (Tochigi, Japan)
- 986 The role of DaT scan in drug induced Parkinsonism  
R. Irons, B.M. Joanna, C.K. Apurba (Reading, United Kingdom)
- 987 Longitudinal imaging and phenoconversion in the PARS prodromal cohort  
D. Jennings, M. Stern, A. Siderow, S. Eberly, D. Oakes, K. Marek, PARS Investigators (New Haven, CT, USA)
- 988 Quantitative assessment of iron deposition in Parkinson's disease using enhanced T2 star weighted angiography (ESWAN)  
Q.S. Ji, S. Zhang, J.Z. Mao, Y.H. Han, M.Q. Yang, Z.W. Zhu, Q.S. Zhu, Z. Xue (Wuhan, China)
- 989 Longitudinal [<sup>11</sup>C]BF-227 PET study in MSA-C patients  
A. Kikuchi, N. Okamura, M. Tashiro, S. Furumoto, T. Hasegawa, S. Watanuki, K. Hiraoka, Y. Funaki, T. Baba, M. Kobayashi, N. Sugeno, M. Konno, E. Miura, R. Oshima, S. Yoshida, R. Iwata, S. Takahashi, H. Fukuda, Y. Itoyama, H. Arai, Y. Kudo, K. Yanai, M. Aoki, A. Takeda (Sendai, Japan)
- 990 Cognitive impairment and its structural correlates in the Parkinsonian subtype of multiple system atrophy  
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- 991 Diagnosis of Parkinsonism with 3T MR image of nigrosome-1: Correlation between susceptibility-weighted imaging and <sup>123</sup>I-FP-CIT-SPECT findings  
K.J. Kim, J.M. Kim (Seongnam, Korea)
- 992 Diagnosis of Parkinsonism by 7 Tesla MRI  
J.M. Kim, K.J. Kim, Y.J. Bae, E. Kim, S.Y. Kang, E.S. Oh, H.J. Jeong, S.E. Kim, Z.H. Cho, B.S. Jeon (Seongnam, Korea)
- 993 A functional neuroradiological study in an adult case of beta-propeller protein-associated neurodegeneration  
S. Kumada, I. Hayakawa, Y. Nakata, E. Yoshida-Kasai, S. Uchino, Y. Hachiya, E. Kurihara, F. Yokochi (Tokyo, Japan)
- 994 The usefulness of magnetic resonance imaging on Parkinsonian multiple system atrophy before the occurrence of autonomic dysfunction  
W.W. Lee, J. Shin, H.J. Kim, H. Park, C.W. Shin, B.S. Jeon (Seoul, Korea)
- 995 Longitudinal assessment of subcortical volume and iron content in two variants of multiple system atrophy  
J.H. Lee, T.H. Kim, T.H. Kim (Yangsan-si, Gyeongsangnamdo, Korea)
- 996 DaTscan: Correlation of clinical phenotype and scan concordance: A retrospective study  
K.H. Longfellow, G. Hu, S. Minoshima, S. Elman, D. Lewis (Seattle, WA, USA)
- 997 The role of the frontal lobe in complex walking tasks in healthy older adults and patients with Parkinson's disease: An fNIRS study  
I. Maidan, H. Bernad-Elazari, F. Nieuwhof, M. Reelick, N. Giladi, J. Deutsch, J. Hausdorff, A. Mirelman (Tel Aviv, Israel)
- 998 Midbrain MR planimetry in neurodegenerative Parkinsonism: Comparison between 1.5 and 3 Tesla MRI  
S. Mangesius, A. Hussl, B. Heim, C. Müller, B. Pinter, E. Reiter, M. Schocke, W. Poewe, K. Seppi (Innsbruck, Austria)
- 999 Automatic and non-automatic gait: Identifying two different networks using functional MRI  
V. Marchal, J. Sellers, C. Gallea, E. Bertasi, R. Valabregue, P. Leboucher, B. Lau, M.L. Welter, E. Bardin, C. Karachi (Paris, France)
- 1000 Mechanisms underlying impaired self-agency in functional movement disorders: A resting state fMRI study  
C.W. Maurer, S. Horowitz, K. LaFaver, M. Hallett (Bethesda, MD, USA)
- 1001 Longitudinal functional MRI studies of Parkinson's disease patients with and without mild cognitive impairment  
O. Monchi, M. Al-Azzawi, A. Nagano-Saito, B. Mejia-Constain, C. Degroot, A. Hanganu, A.L. Lafontaine (Calgary, AB, Canada)
- 1002 Anatomical differences in white matter integrity between idiopathic normal pressure hydrocephalus and secondary obstructive hydrocephalus: Diffusion tensor study  
N. Nishida, H. Toda, R. Okumura, H. Hashikata, N. Ikeda, Y. Kang, M. Ishikawa, K. Iwasaki (Osaka, Japan)
- 1003 GABA (gamma-aminobutyric acid) in essential tremor: An MR spectroscopy study  
P. Panyakaew, H.J. Cho, S. Horovits, M. Hallett (Bethesda, MD, USA)
- 1004 First Latin American experience in the assessment of striatal dopaminergic uptake in patients with Parkinson's disease by means of co-registered 18F-DOPA PET/CT and MRI images  
M.C. Peralta, D. Menna, M. Aguilar, H. Corradini, A. Perez, A. Valda, F. Biafore, J.A. Gili, M.J. Bastianello (Caba, Argentina)
- 1006 Transcranial sonography of the substantia nigra in Parkinson's disease (PD) and controls: Distinguishing PD and controls by two different measurement strategies  
M. Pondal, A.E. Lang, C. Marras (Toronto, ON, Canada)
- 1007 Neural substrates for head movements in cervical dystonia: A functional magnetic resonance imaging study  
C.N. Prudente, R. Stilla, S. Singh, C. Bueteifisch, X. Hu, E.J. Hess, K. Sathian, H.A. Jinnah (Atlanta, GA, USA)
- 1008 Region-of-interest analysis of multimodal MR imaging at 3 Tesla differentiating between Parkinson's disease (PD) and atypical Parkinsonian syndromes (APS)  
E. Reiter, C. Mueller, B. Pinter, R. Esterhammer, W. Poewe, C. Scherfler, K. Seppi, M. Schocke (Innsbruck, Austria)



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- 1009 Motor and non-motor features of Parkinson's disease in idiopathic REM sleep behaviour disorder  
M. Rolinski, L. Griffanti, K. Szewczyk-Krolkowski, R.A. Menke, T. Quinnell, Z. Zaiwalla, C.E. Mackay, M.T.M. Hu (Oxford, United Kingdom)
- 1010 Dopamine transporter scan (DaTscan) and clinical global impression of severity of Parkinson's disease: Data from a non motor natural history study  
A. Sauerbier, P. Martinez-Martin, M. Politis, A. Rizos, N. Troja, N. Mulholland, G. Vivian, B. Cocoran, D. Trivedi, L. Perkins, R. Inniss, M. Parry, A. Martin, R. Brown, K. Ray Chaudhuri (London, United Kingdom)
- 1011 Imaging neurodegeneration in movement disorders: A VBM study  
M. Saxena, B. Rana, A. Juneja, S.S. Kumaran, R. Agrawal, M. Behari (New Delhi, India)
- 1012 Resting state fMRI differentiates essential tremor patients from controls  
Q. Shen, P. Pattany, S. Sargolzaei, A. Sarou, B. Fortes, H. Islam, P. Kundu, A. Avila, F.B. Nahab (La Jolla, CA, USA)
- 1013 Unilateral blepharospasm associated with invasive lacrimal gland tumor  
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- 1014 Altered response to reward in non-manifesting carriers of the G2019S LRRK2 mutation  
A. Thaler, A. Mirelman, R.C. Helmich, B.F.L. Van Nuenen, T. Gurevich, A. Orr-Urtreger, K. Marder, S. Bressman, B.R. Bloem, T. Hendler, N. Giladi (Tel-Aviv, Israel)
- 1015 The dynamic change in substantia nigra hyperechogenicity in Parkinson's disease is associated with age and disease duration  
T. Toomsoo, A.H. Pool, I. Liepelt-Scarfone, L. Kadastik-Eerme, T. Asser, D. Berg, P. Taba (Tallinn, Estonia)
- 1016 Brain microstructural grey and white matter alterations in patients with cortico-basal syndrome  
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- 1017 Structural assessment in craniocervical dystonia: global and differential analyses  
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- 1018 Amyloid- $\beta$  imaging in Parkinson's disease: Comparison of analytic techniques  
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- 1020 Case of a man with early Parkinson's disease with a history of essential tremor running in the family  
G. Avagyan, A. Sahakyan, I. Gabrielyan, S. Khachatryan, K. Harutyunyan, H. Manvelyan, A. Voskanyan, A. Nazaryan (Yerevan, Armenia)
- 1021 TOMM40 SNPs and multiple types of dementia  
L. Bekris, D. Tsuang, J. Leverenz, C.E. Yu, O. Lopez, R. Hamilton, D. Bennett, J. Schneider, A. Buchman, E. Larson, P. Crane, J. Kaye, P. Kramer, R. Woltjer, J. Trojanowski, D. Weintraub, A. Chen-Plotkin, D. Irwin, J. Rick, G. Schellenberg, S. Watson, W. Kukull, P. Nelson, G. Jicha, J. Neltner, D. Galasko, E. Masliah, J. Quinn, K. Chung, D. Yearout, I. Mata, K. Edwards, T. Montine, C. Zabetian (Cleveland, OH, USA)
- 1022 Expanding the phenotype of *PLA2G6* related Parkinson's subtypes  
S. Bohlega, B. Tawil, L. Al-Jomaa, A. Magrashi, T. Alkhairallah, N. Al Tassan (Riyadh, Saudi Arabia)
- 1023 Clinical and genetic analysis of a large pedigree with Parkinson's disease from an isolated Trentino valley  
L. Borellini, M.C. Malaguti, E. Monfrini, V. Melzi, R. Di Giacopo, G. Franco, I. Trezzi, D. Ottaviani, M. Pellegrini, S. Ferrari, G.P. Comi, A. Di Fonzo (Milan, Italy)
- 1024 Investigating prodromal markers of Parkinson's disease in adults with hemizygous 22q11.2 deletions  
N.J. Butcher, C. Marras, M. Pondal, P. Rusjan, L. Christopher, A.P. Strafella, A.E. Lang, A.S. Bassett (Toronto, ON, Canada)
- 1025 Genetic variants of SNCA are associated with the susceptibility of Parkinson's disease but not for amyotrophic lateral sclerosis and multiple system atrophy in a Chinese population  
Y. Chen, Q. Wei, R. Ou, B. Cao, X. Chen, B. Zhao, K. Chen, W. Song, H. Shang (Chengdu, China)
- 1026 Mitochondria-related genes and the risk of Parkinson's disease and Alzheimer's disease: Gene-gene interaction analysis  
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- 1027 Polymorphisms of dopamine receptor genes are associated to increased risk of visual hallucinations in Italian Parkinson's disease patients  
C. Comi, M. Ferrari, F. Marino, G. Riboldazzi, S. Rosa, R. Cantello, G. Bono, M. Cosentino (Novara, Italy)
- 1028 Effect of catecho-O-methyltransferase (COMT) genotype on the response to bilateral subthalamic deep brain stimulation (DBS-STN) in Parkinson's disease (PD)  
F. Cormier-Dequaire, S. Bureau, K. Tahiri, G. Mangone, J. Kraemmer, A. Welaratne, C. Karachi, A. Birce, M.L. Welter, J.C. Corvol (Paris, France)
- 1029 Using a GBA deficient drosophila model to understand pathogenic mechanisms in PD  
M.Y. Davis, K. Trinh, R. Thomas, B. Whittley, T. Montine, L. Pallanck (Seattle, WA, USA)
- 1030 DNA methylation as an epigenetic biomarker for Parkinson's and Alzheimer's diseases  
E. Driver-Dunckley, B. Meechoovet, R. Caselli, C. Adler, T. Beach, T. Dunckley (Scottsdale, AZ, USA)

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- 1019 Comprehensive evaluation of immune mediated inflammation biomarker and IL-10 promoter DNA polymorphisms in sporadic PD patients  
K.K. Alagamuthu, A. Meyyazhagan, M.A. Shafi Ahammed Khan, P. Krishnan, S. Keshavaroa, B. Vellingiri (Coimbatore, India)



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- 1031 Substantia nigra hyperechogenicity in LRRK2 G2019S mutation carriers  
A. Drobnis, J. Hagenah, R.A. Ortega, A. Glickman, C. Wang, A. Deik, J. Soto-Valencia, B. Johannes, M. Barrett, D. Raymond, L.J. Ozelius, K. Marder, N. Giladi, S.B. Bressman, R. Saunders-Pullman (New York, NY, USA)
- 1032 Withdrawn by Author
- 1033 Genetic loci of Parkinson's disease in rapid eye movement sleep behavior disorder  
Z. Gan-Or, S.L. Girard, A. Noreau, C.S. Leblond, J.F. Gagnon, I. Arnulf, Y. Dauvilliers, A. Desautels, V. Cochen De Cock, B. Frauscher, C. Monaca, B. Hogl, P.A. Dion, R.B. Postuma, J.Y. Montplaisir, G.A. Rouleau (Montreal, QC, Canada)
- 1034 Postural control alterations in healthy LRRK2 G2019S mutation carriers  
N. Giladi, Y. Beck, K. Brockmann, D. Berg, B.J. Warø, J. Aasly, C. Pont Sunyer, D. Vilas, A.K. Rao, K.S. Marder, R. Saunders-Pullman, S.B. Bressman, A. Orr-Urtreger, J.M. Hausdorff, A. Mirelman (Tel Aviv-Yafo, Israel)
- 1035 The SNP rs11868035 may not confer genetic risk toward Parkinson's disease in central China  
C. Han, J. Huang, N. Xiong, L. Liu, G. Zhang, H. Jiang, J. Yang, J. Li, X. Xu, Y. Shen, T. Wang (Wuhan, China)
- 1036 CSF derived exosomal microRNA profile in patients with Parkinson's disease  
T. Hasegawa, N. Sugeno, A. Kikuchi, R. Oshima, S. Yoshida, A. Takeda, M. Aoki (Sendai, Japan)
- 1037 Association between PARK16 variants and Parkinson's disease in central China: A case-control study  
H. Jiang, J. Huang, N. Xiong, L. Liu, G. Zhang, C. Han, J. Yang, X. Xu, J. Li, Y. Shen, T. Wang (Wuhan, China)
- 1038 The tyrosine hydroxylase Val81Met polymorphism is associated with motor symptom severity in de novo patients with Parkinson's disease  
J. Kraemmer, F. Cormier-Dequaire, A. Brice, J.C. Corvol, PPMI Genetic Working Group (Paris, France)
- 1039 Whole-exome sequencing for mutation discovery in an African-American pedigree with Parkinson's disease  
M.S. LeDoux, S.R. Vemula, J. Xiao, O.A. Ross, Z.W. Wszolek (Memphis, TN, USA)
- 1040 Genetic variation and cognitive impairment in Parkinson's disease patients from Uruguay  
A. Lescano, V. Raggio, E. Dieguez, B. Aguiar, L. Bocos, N. González, F. Saldaña, J. Sburlati, J.M. Carrasco, F. Brunet, I. Amorin, R. Aljanati, M. Martinovic, L. Roche, R. Buzó, S. Dansilio, M. Inca-Martinez, B.A. Cholerton, C.P. Zabetian, I. F. Mata (Montevideo, Uruguay)
- 1041 Leucine-rich repeat kinase 2 (LRRK2) interacts with vacuolar protein sorting 35 (Vps35) to regulate autophagy  
R. Linhart, Y.J. Ho, D. Kaing, E. Hou, D. Sohal, R. Eismati, J. Rosales, R. Fedrizzi, A. Tsang, D. Fong, A. Dawson, K. Venderova (Stockton, CA, USA)
- 1042 Genetic variation in GAPDH confers susceptibility to sporadic Parkinson's disease in central Chinese population  
L. Liu, J. Huang, N. Xiong, G. Zhang, X. Xu, C. Han, J. Li, H. Jiang, J. Yang, Y. Shen, T. Wang (Wuhan, China)
- 1043 Olfaction in *Parkin* compound and single heterozygotes in young onset United Kingdom PD patients  
N. Malek, K.A. Grosset, M.A. Lawton, C.R. Smith, N. Bajaj, R.A. Barker, Y. Ben-Shlomo, C. Bresner, D.J. Burn, T. Foltynie, H.R. Morris, N. Williams, N.W. Wood, D.G. Grosset, On Behalf of PROBaND Collaborators (Glasgow, United Kingdom)
- 1044 Tracking Parkinson's: A United Kingdom cohort study in Parkinson's disease  
N. Malek, K.A. Grosset, M.A. Lawton, N. Bajaj, R.A. Barker, Y. Ben-Shlomo, D.J. Burn, T. Foltynie, H.R. Morris, N.M. Williams, N.W. Wood, D.G. Grosset, On Behalf of the PROBaND Collaborators (Glasgow, United Kingdom)
- 1045 Association of GBA mutations with tau pathology in dementia with Lewy bodies  
K.S. Marder, L.N. Clark, R.N. Alcalay, J.P. Vonsattel, L.S. Honig (New York, NY, USA)
- 1046 A missense mutation in *RAB39b* causes X-linked dominant Parkinson's disease  
I.F. Mata, Y. Jang, C.H. Kim, D. Hanna, M.O. Dorschner, J. Witt, A. Samii, K.A. Chung, D.R. Shprecher, A.J. Espay, F.J. Revilla, S.A. Factor, O. Klepitskaya, D.S. Higgings, I. Litvan, J.B. Leverenz, J.W. Roberts, P. Agarwal, D. Yearout, M. Inca-Martinez, E. Martinez, T.R. Thompson, B.A. Cholerton, S.C. Hu, K.L. Edwards, K.S. Kim, C.P. Zabetian (Seattle, WA, USA)
- 1047 A pilot study in chromosomal alteration and association study of HTRA2 gene mutations in Parkinson's patients (PD)  
A. Meyyazhagan, M. Subramaniam, B. Subramanian, P. Krishnan, G. Changrathil, S. Keshavarao, B. Vellingiri (Coimbatore, India)
- 1048 Four copies of SNCA responsible of autosomal dominant Parkinson's disease in two Italian siblings  
N. Modugno, R. Ferese, R. Campopiano, S. Zampatti, E. Giardina, M. Santilli, A. Nardone, D. Postorivo, S. Ruggieri, F. Fornai, G. Novelli, S. Gambardella (Pozzilli, Italy)
- 1049 Identification of neurotransmitter levels and vitamin D receptor gene (VDR) polymorphism in sporadic Parkinson's disease in South India  
S. Mohana Devi, M. Arun, S. Sureshkumar, I. Mahalaxmi, I.H. Kim, V. Balachandar (Cheonan, Korea)
- 1050 Parkinson's disease variant database  
K. Nuytemans, L. Wang, G.W. Beecham, C. Van Broeckhoven, J.M. Vance (Miami, FL, USA)
- 1051 Noncoding variants contributing to the PARK10 locus  
K. Nuytemans, G.W. Beecham, W.K. Scott, E.R. Martin, L. Wang, J.M. Vance (Miami, FL, USA)
- 1052 Development of biomarker battery to discriminate *LRRK2* mutation carriers  
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- 1055 Screening of spontaneous genomic alterations and P53 gene polymorphism in new onset of Parkinson's disease  
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- 1056 Cognitive deficit and neuropsychiatric features in early Parkinsonism due to homozygous PINK1 mutation: A case report  
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- 1060 Leucine-rich repeat kinase 2 (LRRK2) impairs function of the retromer-associated WASH complex  
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- 1061 Parkinsonism with early disautonomic symptoms and normal MIBG scintigraphy related to LRRK2 mutation  
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- 1100 Dalfampridine extended release in patients with Parkinson's disease related gait dysfunction: A randomized double blind trial  
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- 1102 Mapping the availability, price and affordability of drugs used to treat Parkinson's disease in Kenya  
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- 1103 Zonisamide improves Parkinsonism in patients with DLB: A double-blind randomized placebo-controlled study  
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- 1105 Helicobacter pylori infection in Parkinson's disease patients detected by <sup>14</sup>C-urea breath test, a new nuclear medicine test  
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- 1106 Treatment of secondary freezing of gait with rivastigmine  
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- 1125 Accuracy of death certification in the Denbighshire cohort at 16 years  
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- 1138 Parkinson's and pesticides: A study on gene-environment interactions in Egypt  
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- 1153 Phosphorylated pS1292 LRRK2 to total LRRK2 concentration ratio in urine exosomes distinguishes LRRK2-PD and idiopathic PD  
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- 1158 No association of GPNMB rs156429 polymorphism with Parkinson's disease, amyotrophic lateral sclerosis and multiple system atrophy in Chinese population  
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- 1159 LRRK2 and GBA variants influence rate of motor progression in Parkinson's disease  
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- 1160 Novel GNAL variant in a Brazilian patient with sporadic dystonia  
P.M. de Carvalho Aguiar, C. Oliveira dos Santos, F.P. da Silva- Junior, S.C. Azevedo Silva, E.R. Barbosa, V. Borges, M.S.G. Rocha, H.B. Ferraz (São Paulo, Brazil)
- 1161 Novel compound heterozygous mutations in PRKRA cause pure dystonia  
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- 1162 Novel recruitment strategy to enrich for LRRK2 mutation carriers  
T. Foroud, D. Smith, J. Jackson, J. Verbrugge, C. Halter, L. Wetherill, K. Sims, W. Xin, V. Arnedo, S. Lasch, K. Marek (Indianapolis, IN, USA)
- 1163 Association study of GWAS top hits in late-onset Alzheimer's disease with the susceptibility to Parkinson's disease in a Chinese population  
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- 1164 Exon dosage analysis of parkin gene in Chinese sporadic Parkinson's disease  
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- 1165 Secondary paroxysmal kinesigenic dyskinesia associated with CLCN2 gene mutation  
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- 1166 A novel mutation for McLeod neuroacanthocytosis  
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- 1167 The impact of rare variants in FUS and HTR2A in essential tremor  
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- 1168 Association of MAPT single nucleotide polymorphism with corticobasal syndrome  
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- 1169 Systematic mutational analysis of glucocerebrosidase gene in a Parkinson's disease population from Southern Spain  
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- 1170 Phenotypic and molecular characterisation of autosomal recessive spastic paraplegias  
E. Kara, J. Hardy, H. Houlden, For the Institute of Neurology HSP Collaboration (London, United Kingdom)
- 1171 Dopamine receptor (DRD3 rs6280) polymorphism and the risk of impulse control disorders in an Indian Parkinson's disease cohort  
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- 1172 C9orf72 mutation in a patient with a movement disorder presentation  
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- 1173 *SPG11* mutations cause autosomal recessive axonal Charcot-Marie-Tooth disease  
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- 1174 Exome sequencing in 25 index cases of congenital mirror movements  
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- 1176 Methodology for assessment of genetic-environmental interaction in epigenesis of early onset Parkinson's disease in Arab ancestry  
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- 1177 The Contursi family 20 years later: Intrafamilial variability in a kindred with A53T mutation of SCNA gene  
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- 1178 Exome association study and 2nd SNP-GWAS of Japanese Parkinson's disease  
W. Satake, Y. Ando, M. Suzuki, H. Tomiyama, Y. Nagai, K. Kashiwara, S. Murayama, H. Mochizuki, K. Nakashima, K. Hasegawa, A. Takeda, K. Wada, S. Tsuji, M. Yamamoto, M. Murata, N. Hattori, T. Toda (Kobe, Japan)
- 1179 Association analysis of the GRN rs5848 and MAPT rs242557 polymorphisms in Chinese patients with PD, ALS and MSA  
H. Shang, Y. Chen, B. Cao, X. Chen, B. Zhao, Q. Wei, R. Ou, X. Guo (Chengdu, China)
- 1180 A novel tau mutation, p.K317N, and globular glial tauopathy  
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- 1181 Juvenile Parkinsonism and epilepsy due to homozygous mutations in *DNAJC6*  
P. Termsarasab, T.S. Pearson (New York, NY, USA)
- 1182 Gene expression in rat brain by GSM900 MHz  
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- 1183 C9orf 72 repeat expansions in a Canadian provincial cohort  
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- 1184 Interaction between SNCA, LRRK2 and GAK increases susceptibility to Parkinson's disease in a Chinese population  
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- 1192 The utilization of smartphone devices to enhance clinical interventions  
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- 1193 Withdrawn by Author
- 1194 Physical activity correlates with disease severity among new onset Parkinson's disease patients  
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- 1195 New observations in the Fragile-X associated tremor/ataxia syndrome (FXTAS) phenotype  
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- 1196 4-year longitudinal changes in clinical rating, medication and quantitative motor assessment in mild and moderate Parkinson's disease: Results from the MODEP study  
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- 1197 Primary familial brain calcification (PFBC) with known gene mutations – A systematic review  
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- 1198 Movement disorder emergencies – Experience of tertiary care Neuropsychiatry Center in North India  
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- 1199 Dysphagia in PD: Response to continuous dopaminergic stimulation  
A. López, J.P. Cabello, R. Ibáñez, J. Olmedo, J. Vaamonde (Ciudad Real, Spain)
- 1200 Two patients with radiographic NPH and idiopathic Parkinson's disease  
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- 1201 Psychogenic movement disorders in veterans: Phenomenology and psychiatric comorbidity  
J.D. Mack, J. Quinn, S. O'Connor, B. Lobb, C. Murchison (Portland, OR, USA)
- 1202 Impact of different baseline motor features on prognosis in Parkinson's disease  
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- 1203 Voluntary control of facial musculature in Parkinson's disease  
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- 1204 The "Whack-a-Mole" sign in functional movement disorders  
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- 1205 Postural movement strategy for maintaining balance in early Parkinson's disease with mild postural instability  
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- 1206 Velopharyngeal dystonia: An unusual focal task-specific dystonia  
A. Patel, L. Sulica, S. Frucht (New York, NY, USA)
- 1207 Learning more from finger tapping in Parkinson's disease: Up and down from dyskinesia to bradykinesia  
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- 1185 Modulation of dystonia during sleep  
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- 1186 Implementing a Delphi panel to improve understanding of patient characteristics of advanced Parkinson's disease  
A. Antonini, P. Odin, L. Kleinman, A. Skalicky, T. Marshall, K. Sail, K. Onuk (Venice, Italy)
- 1187 Levodopa responsive Parkinsonism in a subject affected by facioscapulohumeral muscular dystrophy 1  
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- 1188 Assessment of dose failure and delayed-ON with the time-to-ON questionnaire (TOQ) and Parkinson's KinetiGraph in PD patients with motor fluctuations  
S. Brillman, S.H. Isaacson (Boca Raton, FL, USA)
- 1189 Hyperkinetic prehension in patients with Parkinson's disease and levodopa-induced dyskinesias  
M.A. Burack, C. Geraci, J. Mink (Rochester, NY, USA)
- 1190 A posturography analysis while dual task differentiates Parkinson's disease patients from healthy controls  
B. De la Casa-Fages, F. Alonso-Frech, F. Grandas (Madrid, Spain)
- 1191 A simple approach to monitoring of Parkinson's disease state using a Smart phone platform  
J.M. Dean, M. Silverman (Boulder, CO, USA)



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B. Pinter, A. Diem-Zangerl, G.K. Wenning, W. Oberger, K. Seppi, W. Poewe (Innsbruck, Austria)
- 1209 Falls in ambulatory non-demented patients with Parkinson's disease  
O. Rascol, S. Perez-Lloret, P. Damier, A. Delval, P. Derkinderen, A. Destée, W.G. Meissner, F. Tison, L. Negre-Pages (Toulouse, France)
- 1210 Movement quantification for evaluation of gait in Parkinson's disease using a RGB-D camera system  
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- 1211 Non-motor symptoms profiles of different ethnic groups with Parkinson's disease: A study comparing the UK, Thailand, Nigeria and Kuwait  
A. Sauerbier, O. Jitkrisadikul, R. Bhidayasiri, J.Y. Al-Hashel, W.A. Kamel, A. Kilany, T. Farombi, P. Martinez-Martin, R. Brown, M. Parry, A. Martin, R. Inniss, L. Perkins, D. Trivedi, L. Klingelhöfer, A. Rizzo, P. Zis, K. Ray Chaudhuri (London, United Kingdom)
- 1212 Unawareness of hyposmia in elderly people with and without Parkinson's disease  
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- 1213 Variability of motor symptoms assessments in Parkinson's disease and levodopa's effect  
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- 1215 Clinical characteristics of Parkinson's disease with and without family history of essential tremor  
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- 1216 Stiff-limb syndrome affecting the arm; case report  
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- 1217 Identification of freezing of gait in Parkinson's disease using waist mounted accelerometry  
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- 1218 Improving mobility assessment of Parkinson's patients using the WiMuGPS system  
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- 1219 Comparing wearable activity sensors and self-report measures of mobility  
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- 1220 Do distribution and co-existent myoclonus and dystonia aid in the identification of SGCE mutations?  
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- 1222 Dystonic symptoms in child with GNAO1 mutation respond to bilateral GPi deep brain stimulation  
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- 1223 Drug response to zinc and D-penicillamine in ATP7B mutant hepatic cell lines  
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- 1224 Rapidly progressive Parkinsonism in a patient with incontinencia pigmenti  
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- 1227 Dystonia and seizures as first manifestations of primary hypoparathyroidism in children: Report of two cases  
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- 1242 Decision making in Parkinson's disease with and without REM sleep behavior disorder  
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- 1244 Reflection impulsivity in patients with restless legs syndrome  
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- 1246 Optic nerve head, retinal nerve fiber layer and macular thickness measurements in patients with restless legs syndrome  
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- 1252 Familial impulse control disorders associated with dopaminergic agonist therapy for RLS  
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- 1253 Effects of comorbidities on the risk of restless leg syndrome  
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- 1254 Periodic leg movements of sleep under general anesthesia  
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- 1257 Differential responsiveness of attention, OCD, and tics to medications for Tourette syndrome  
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- 1258 Involuntary movements in adult patients with attention hyperactivity deficit disorder ( ADHD)  
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- 1259 Premonitory urge to tic in Tourette's is associated with interoceptive awareness  
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- 1260 The somatotopy of tic inhibition: Where and how much?  
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- 1261 Sensory phenomena in tic disorders: Dimensions and clinical associations  
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- 1262 Hand stereotypies in Wilson's disease  
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- 1270 Parkinson's disease study with virtual week manipulated for emotional valence  
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- 1277 Status of working memory in patients of Parkinson's disease  
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- 1394 A genetically-proven case of Huntington's disease in the Philippines  
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- 1395 Abnormal electrophysiological motor responses in Huntington's disease: Evidence of premanifest compensation  
L.M. Turner, R. Croft, A. Churchyard, J.C.L. Looi, D. Apthorp, N. Georgiou-Karistianis (Canberra, Australia)
- 1396 Dopamine D2 receptor and phosphodiesterase 10A loss in Huntington's disease measured with high-resolution PET and partial volume effect correction  
C. Fitzer-Attas, A. Varrone, P. Fazio, M. Schain, L. Mrzljak, J. Bronzova, B. Landwehrmeyer, N. Al-Tawil, S. Martinsson, C. Halldin, C. Sampaio, EHDN Recruiting sites (Stockholm, Sweden)
- 1397 Callosal thickness progressively changes in Huntington disease: 30 month IMAGE-HD data  
F.A. Wilkes, M. Walterfang, C. Adamson, J.C.L. Looi, M.L. Seal, D. Velakoulis, J. Stout, A. Churchyard, P. Chua, G.F. Egan, N. Georgiou-Karistianis (Canberra, Australia)



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### QUALITY OF LIFE/CAREGIVER BURDEN IN MOVEMENT DISORDERS

- 1398 Impact of cognitive dysfunction on dysphagia and dysarthria in Parkinson's disease: A study in Uruguay  
B. Aguiar, J. Higgle, R. Aljanti, M. Martinovic, R. Buzo, V. Raggio, A. Ojeda, G. Montado, V. Pomar, G. Nogueira, L. Aguerre, E. Cortinas, F. Martinez (Montevideo, Uruguay)
- 1399 Socioeconomical analysis in a population of Parkinson's disease patients in a public hospital of Argentina  
M.L. Assante, S.A. Rodríguez-Quiroga, M.J. Casen, C. Christie, M. Mancuso, V. Díaz Aragunde, T. Arakaki, N.S. Garretto (Ciudad Autónoma de Buenos Aires, Argentina)
- 1400 Quality of life's evaluations in Parkinson's disease: Self and caregiver agreement  
Y. Balash, A.D. Korczyn, J. Knaani, T. Gurevich (Tel Aviv, Israel)
- 1401 Parkinson's and parenting: The impact on children, teens and young adults  
E.S. Book (Vancouver, BC, Canada)
- 1402 Quality of life, motor symptoms and subthalamic deep brain stimulation in Parkinson's disease. How do they interact with each other?  
J.F. Daneault, C. Duval, A.F. Sadikot (Montreal, QC, Canada)
- 1403 Rehospitalization in Parkinson's disease patients  
S. De Jesus, L. Shahgholi, S.S. Wu, Q. Pei, A. Hassan, P. Schmidt, M. Okun (Gainesville, FL, USA)
- 1404 Measuring community mobility of people with Parkinson's disease and their spouse using WIMuGPS  
C. Duval, L. Zhu, P. Boissy, C. Lavigne-Pelletier, M. Jog, R. Edwards, M. Speechley (Montréal, QC, Canada)
- 1405 Improvement of individual quality of life in caregivers and patients under L-dopa/carbidopa duodenal infusion therapy  
C. Ehlers, H. Honig, P. Odin (Bremen, Germany)
- 1406 Anxiety and depressive symptoms are independent predictors of physical health related quality of life in a Brazilian sample of Parkinson's disease patients evaluated for deep brain stimulation  
F.C. Freitas, A.P. Diaz, M.E.R.O. Thais, F.Z.S. Areas, P.E.L. Vieira, R. Guarnieri, R.D.S. Prediger, M.N. Linhares, R. Walz (Florianópolis, Brazil)
- 1407 Burden in caregivers of patients with Parkinson's disease  
D. Grün, V. Pieri, M. Vaillant, N.J. Diederich (Luxembourg, Luxembourg)
- 1408 Factors influencing the poor quality of life in patients with Parkinson's disease  
M.I. Khalil, M.R. Rahman, M. Hakim, N.C. Kundu, P.C. Das, M.M. Islam (Dhaka, Bangladesh)
- 1409 Translation into Polish and validation of two quality of life assessment modules for patients with Parkinson's disease-QLSM-MD and QLSM-DBS  
A.T. Krygowska-Wajs, K.A. Tomaszewski, A. Gorecka-Mazur, W. Pietraszko, K. Potasz (Cracow, Poland)
- 1410 Quality of life predictors in Parkinson's disease at the Lagos University Teaching Hospital  
T.A. Lawal, N.U. Okubadejo, O.O. Ojo, M.A. Danesi (Lagos, Nigeria)
- 1411 Mood disorders and health-related quality of life in Parkinson's disease  
T. Maeda, T. Shinoda, D. Takano, T. Yamazaki, Y. Fujimaki, Y. Satoh, K. Nagata (Akita, Japan)
- 1412 Collaboration and consultation, improving quality of care and life for people with Parkinson's  
V. McConvey, B. Wotherspoon, T. Osborn, N. Graham (Cheltenham, Australia)
- 1413 Evaluating mortality in hospitalised patients with Parkinson's disease  
M. Modi, K. Dean, A. Chatterjee (Reading, United Kingdom)
- 1414 End-of-life treatment preferences in Parkinson's disease  
H.L. Ng, W. Li, A.N. Piano, S. Abdul Karim, W. Li, K.Y. Tay, W.L. Au, L.C.S. Tan (Singapore)
- 1415 Evaluating a new multidisciplinary movement disorders clinic  
J.S. Riley, A.K. Chatterjee, S.E. Williams, A. Plowman, J. Caffrey (Reading, United Kingdom)
- 1416 Economic burden of Parkinson's disease (PD) on caregivers  
K. Sail, J. Signorovitch, R. Sorg, F. Mu, T. Marshall (North Chicago, IL, USA)
- 1417 Health care disease burden severity among caregivers of Parkinson's disease patients in an Arab cohort  
Y.A. Seddeq, N.H. Al-Shammari, T.M. Mohammad, M.S. Bashir, J.A. Bajwa (Riyadh, Saudi Arabia)
- 1418 Gender differences in health care disease burden severity among caregivers of Parkinson's disease patients in an Arab cohort  
Y.A. Seddeq, N.H. Al-Shammari, T.M. Mohammad, M.S. Bashir, J.A. Bajwa (Riyadh, Saudi Arabia)
- 1419 Parkinson's disease impact on quality of life of individuals in mild and moderate stages  
R.C.P. Silva e Moreira, M.B. Zonta, H.A.G. Teive (Curitiba, Brazil)
- 1420 The quality of life in Korean hemifacial spasm patients  
S.K. Song, J.H. Kang (Jeju, Korea)
- 1421 Advance care planning: Perspectives of people living with Parkinson's disease (PD)  
M.P. Sritharan (Bristol, United Kingdom)
- 1422 Interdisciplinary home visits to improve outcomes for advanced Parkinson's disease patients  
B. Stone, A.C. Lemen, M.M. Sweeney, J. Fleisher, G. Dacpano, M. Harris, R.M. Gilbert, M.J. Nirenberg, A. Di Rocco (New York, NY, USA)
- 1423 Translation of the 39-item Parkinson's disease questionnaire to Filipino  
C.T.R. Suratos, G.M. Saranza, R.D.G. Jamora, D.G. Sumalapao (Manila, Philippines)
- 1424 The effects of movement disorders affecting cervico-facial region on quality of life  
F. Tokucoglu, B. Selbes, M.M. Ozelik, N. Tuncay (Izmir, Turkey)
- 1425 Life sustaining treatment orders, location of death, and co-morbid conditions for Oregon decedents with Parkinson's disease  
K.K. Tuck, D.M. Zive, T.A. Schmidt, J. Nutt, J. Carter, E.K. Fromme (Portland, OR, USA)



## Abstracts by Topic

1426 Withdrawn by Author

1427 A systematic review of self-management of Parkinson's disease, as a chronic disease

S.A. Wherry, C. Das, P. Dugdale, C. Lueck (ACT, Australia)

1428 Evaluation of sarcopenia in Parkinson's disease

O. Yilmaz Kusbeci, B. Donmez Colakoglu, I. Inci, E. Duran, R. Cakmur (Izmir, Turkey)

### SPASTICITY

1429 Usefulness of communication calendar for botulinum toxin therapy of spasticity in an outpatient setting

F. Adib Saberi, H. Pickenbrock, D. Dressler (Hamburg, Germany)

1430 Systematic literature review of abobotulinumtoxinA in clinical trials for lower limb spasticity

J.J. Chen, K. Dashtipour, H. Walker, M.Y. Lee (Fullerton, CA, USA)

1431 Botulinum toxin injection to the upper limb indirectly improves gait in patients with post-stroke spasticity

O.S. Cohen, E. Shprits, S. Hassin-Baer, Y. Dotan-Marom, G. Yahalom, O. Marzeliak, L. Ephraty, H. Strauss, E. Stein, H. Baransi, R. Inzelberg, M. Plotnik (Ramat-Gan, Israel)

1432 Prevalence and treatment of spasticity among veterans living in a long-term care facility

A.D. Currie, M. Turchan, T.S. Hudson, J.D. Roach, L.E. Heusinkveld, F.T. Phibbs, C.M. Tolleson, A.L. Molinari, C.E. Gill, D. Charles (Nashville, TN, USA)

1433 Safety profile of repeat onabotulinumtoxinA doses of 400U for the treatment of upper limb spasticity

L. James, R. Dimitrova, G. Pan, C. Asare, C. Thompson (Irvine, CA, USA)

1434 Comparative clinical study of A1 and A2 subtypes of botulinum toxin preparations for post-stroke spasticity: Proof-of-concept randomized controlled phase 2/3 trial

R. Kaji, A. Miyashiro, T. Furumoto, N. Sato, W. Sako, S. Kaji (Tokushima, Japan)

1435 Long-term treatment of spasticity with onabotulinumtoxinA in intellectually and developmentally disabled adults

A.L. Molinari, M. Turchan, A.D. Currie, C.E. Gill, H.M. Taylor, D. Charles (Nashville, TN, USA)

1436 Phenotypical variability in a family with PLA2G6 p.R747W mutation

J.K. Park, T.O. Son, Y.E. Huh, H.T. Kim, J.W. Cho (Seoul, Korea)

1437 Is onabotulinum toxin effective in long-term spasticity?

I. Reuter, S. Mehnert (Giessen, Germany)

1438 Rationale and design of a randomised, double-blind, placebo-controlled study to assess the impact of early use of abobotulinumtoxinA (Dysport®) on spasticity progression in adults with post-stroke upper limb spasticity in Asia (ONTIME study)

R.L. Rosales, J. Balcaitene, P. Maisonobe, K.H. Kong, K.J. Goh, W. Kumthornthip (Manila, Philippines)

1439 Brachial plexus botulinum toxin a injection - Case report

Z. Sycz (Wroclaw, Poland)

1440 Hereditary spastic paraplegia: Characterization of an Albertan cohort

A. Venkitachalam, E. McKenzie, S. Ashtiani, C. Huculak, L. McLaren, O. Suchowersky (Edmonton, AB, Canada)

1441 OnabotulinumtoxinA improves pain in post-stroke spasticity patients: Findings from a randomized controlled trial

J. Wissel, V. Ganapathy, J. Ma, A.B. Ward, J. Borg, P. Ertzgaard, A. Fulford-Smith, P. Gillard (Berlin, Germany)

### TREMOR

1442 Fahn-Tolosa-Marin scale, digitizing tablet and accelerometry have comparable minimum detectable change

E. Akano, T. Zesiewicz, R. Elble (Springfield, IL, USA)

1443 A simultaneous case of Parkinson's disease (PD) and essential tremor (ET)

H. Amirjanyan, K. Harutyunyan, I. Gabrielyan, H. Manvelyan (Nor Hachen, Armenia)

1444 Rate-controlled syllable repetitions improve comparability of DBS-induced dysarthria between on- and off-state in patients with essential tremor

J. Becker, D. Mücke, A. Hermes, T.A. Dembek, A.F. Josten, I. Meister, V. Visser-Vandewalle, M. Grice, L. Timmermann, M.T. Barbe (Cologne, Germany)

1445 Smartphone apps provide a simple, accurate bedside screening tool for orthostatic tremor

D. Bhatti, R. Thompson, A. Hellman, C. Penke, J.M. Bertoni, D. Torres-Russotto (Omaha, NE, USA)

1446 EEG analysis in 30 patients with orthostatic tremor

D. Bhatti, N. Murr, A. Hellman, R. Iske, J.M. Bertoni, D. Torres-Russotto (Omaha, NE, USA)

1447 Frequency of tremor in postural orthostatic tachycardia syndrome

A. Deb, A. Hohler (Boston, MA, USA)

1448 Fahn-Tolosa-Marin tremor scale and digitizing tablet have comparable minimum detectable change

R. Elble, T. Zesiewicz (Springfield, IL, USA)

1449 Hypertrophic olivary degeneration does not reduce essential tremor

A. Elkouzi, J.C. Kattah, R.J. Elble (Springfield, IL, USA)

1450 The long-term outcome of orthostatic tremor

C. Ganos, L. Maugeat, E. Apartis, C. Gasca-Salas, M.T. Cáceres-Redondo, R. Erro, I. Navalpotro, A. Batla, E. Antelmi, B. Degos, E. Roze, M.L. Welter, T. Mestre, F.J. Palomar, C. Cordivari, P. Mir, A.E. Lang, S.H. Fox, K.P. Bhatia, M. Vidailhet (London, United Kingdom)

1451 Hereditary geniospasm in a Central American family

E. Habberfeld, L. Timothy (Philadelphia, PA, USA)

1452 A case of misdiagnosed essential tremor (ET)

K. Harutyunyan, I. Gabrielyan, H. Amirjanyan, S. Khachaturyan, A. Voskanyan, G. Avagyan, H. Manvelyan (Yerevan, Armenia)

1453 Electromyographic assessment of essential and Parkinsonian hand tremor

E. Ivanova, P. Fedin, A. Broutian, I. Ivanova-Smolenskaya, S. Illarioshkin (Moscow, Russia)



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- 1454 Different features of iron deposition in subcortical nuclei between essential tremor and tremor-dominant Parkinson's disease  
L. Jin, J. Wang, G. Fei, C. Zhong (Shanghai, China)
- 1455 The efficacy of electrical muscle stimulation in various tremor syndromes: An open-label, pilot study including 68 patients  
O. Jitkrisadakul, C. Thanawattano, C. Anan, R. Bhidayasiri (Bangkok, Thailand)
- 1456 Evaluation of retinal nerve fiber layer in essential tremor and Parkinson's disease with optical coherence tomography  
H. Kaleagasi, H. Fidanci, U. Adiguzel, O. Dogu (Mersin, Turkey)
- 1457 Case report: Replacement therapy of head shaking syndrome by transcranial magnetic stimulation  
B.B. Khodaie, M.M. Ahmadi, M.M. Lotfinia, A.A.A. Lotfinia (Tehran, Iran)
- 1458 The involvement of dopamine receptors in the regulation of harmaline-induced tremor measured by force plate actimeters  
B. Kosmowska, U. Glowacka, J. Wardas, K. Ossowska (Kraków, Poland)
- 1459 Climbing fiber-Purkinje cell synaptic changes correlate with clinical features in essential tremor  
S.H. Kuo, R.J. Louis, C.Y. Lin, A.H. Koeppen, P.L. Faust, E.D. Louis (New York, NY, USA)
- 1460 Essential tremor in patients with Parkinson's disease  
K. Kurako, S. McMahan, N. Galvez-Jimenez (Weston, USA)
- 1461 Upper limb kinematics guides longitudinal, incobotulinumtoxinA therapy of Parkinson's disease tremor  
J. Lee, O. Samotus, F. Rahimi, M. Jog (London, ON, Canada)
- 1462 Gait variability changes after unilateral VIM DBS in essential tremor patients are correlated with changes in midline and upper extremity tremor  
H. Morita, M. Higuchi, L.A. Zukowski, R. Roemmich, K.D. Foote, C.J. Hass, M.S. Okun (Gainesville, FL, USA)
- 1463 Non-motor symptoms of essential tremor are independent of tremor severity and have an impact on quality of life  
T. Musacchio, V. Purrer, A. Papagianni, A. Fleischer, D. Mackenrodt, C. Malsch, G. Gelbrich, F. Steigerwald, J. Volkmann, S. Klebe (Würzburg, Germany)
- 1464 Possibility of differential diagnosis between functional and organic tremor  
N.M. Pavlyshyna, O.M. Stoyanov (Odessa, Ukraine)
- 1465 Functional connectivity in the sensorimotor cortex in Parkinson's patients with and without tremor  
S.E. Qasim, C. de Hemptinne, N. Swann, P.A. Starr (San Francisco, CA, USA)
- 1466 Head tremor in essential tremor: "Yes-yes", "no-no", or round and round?  
D. Robakis, L.D. Elan (New York, NY, USA)
- 1467 Unilateral palatal tremor in a patient with brainstem vasculitis  
F.A.S. Sallem, S.C.B. Casagrande (São Paulo, Brazil)
- 1468 Longitudinal kinematic characterization of upper limb essential tremor to effectively guide incobotulinumtoxinA treatment  
O. Samotus, J. Lee, F. Rahimi, M. Jog (London, ON, Canada)
- 1469 Improvement of repeated Archimedes spirals in essential tremor: Evidence for a learning effect?  
N. Schuhmayer, C. Weber, M. Kieler, W. Pirker, E. Auff, D. Haubenberger (Vienna, Austria)
- 1470 Elderly onset essential tremor and cognitive impairment  
H.A. Shill, J.G. Hentz, J.N. Caviness, E. Driver-Dunkley, S. Jacobson, C. Belden, M.N. Sabbagh, T.G. Beach, C.H. Adler (Sun City, AZ, USA)
- 1471 A patient with bilateral cerebellar tremors secondary to a unilateral brainstem lesion  
A.T. Tran, G. Moguel-Cobos, N. Salins, A. Deep, A. Lieberman (Phoenix, AZ, USA)
- 1472 Induced jaw and hand tremor and their relationship with motor asymmetry in Parkinson's disease  
E. Wang, C. Considine, L. Verhagen (Chicago, IL, USA)
- 1473 Saccade-related modulation of beta oscillation in the human thalamus  
A. Yugeta, W.D. Hutchison, R. Chen (Tokyo, Japan)



## Late-Breaking Abstracts

- LBA 01 - Occurrence of Impulsive Compulsive Behaviours in Patients with Parkinson's Disease Treated with Apomorphine
- LBA 02 - A panel of 16 biomarkers from multiple modalities separates Parkinson's disease patients with and without dementia
- LBA 03 - Deep brain stimulation of the globus pallidus pars interna or subthalamic nucleus for Parkinson's disease: 3-year follow-up of a randomized controlled trial
- LBA 04 - Clinical outcomes in Parkinson's disease for asleep deep brain stimulation with electrodes placed using intraoperative imaging versus awake deep brain stimulation with microelectrode recording
- LBA 05 - Genome-wide expression profiling identifies potential molecular pathways involved in X-linked dystonia-parkinsonism (XDP, DYT3)
- LBA 06 - Neuronal Plasmalemmal Disruptions Induce Alterations in Dopaminergic Neurons and Alpha-Synuclein Expression Following Traumatic Brain Injury in Swine
- LBA 07 - Marked parasympathetic denervation in the gut of de novo Parkinson's disease - A [<sup>11</sup>C]donepezil PET study
- LBA 08 - Stable levodopa plasma levels with ND0612 (levodopa/carbidopa for subcutaneous infusion) in Parkinson's disease (PD) patients with motor fluctuations
- LBA 09 - Alpha-synuclein genetic variability: A biomarker for dementia in Parkinson's disease
- LBA 10 - The ReSPonD trial: Rivastigmine to stabilise gait in Parkinson's Disease. A phase II, randomised, double blind, placebo-controlled trial to evaluate the effect of rivastigmine on gait in patients with Parkinson's disease who have fallen
- LBA 11 - A non-human primate model of Parkinson's disease based on viral vector mediated overexpression of alpha-synuclein
- LBA 12 - Functional NIRS-mediated neurofeedback for cerebellar ataxia: potential therapy for augmenting rehabilitative intervention
- LBA 13 - Loss of phosphodiesterase 10A signaling is associated with progression and severity in patients with Parkinson's disease
- LBA 14 - PREDICT-PD: Identifying Risk of Parkinson's disease in the Community
- LBA 15 - Initiating regular exercise behaviors is associated with slower decline in quality of life in Parkinson's disease (National Parkinson Foundation Quality Improvement Initiative data)
- LBA 16 - Veering in Hemi-Parkinson's Disease: Primacy of Visual over Motor Contributions
- LBA 17 - Motor speech impairment indicates prodromal neurodegeneration in REM sleep behaviour disorder
- LBA 18 - Evaluation of dual-phase 123I-FP-CIT SPECT imaging in parkinsonism
- LBA 19 - Results From a Randomized, Double-Blind, Placebo-Controlled, Single Ascending-Dose Study in Healthy Subjects With PRX002, an Anti-Alpha-Synuclein Monoclonal Antibody
- LBA 20 - Tau-PET Imaging in Progressive Supranuclear Palsy Using [<sup>18</sup>F] AV-1451
- LBA 21 - Incident impulse control disorder behaviors and serial dopamine transporter imaging in early Parkinson disease
- LBA 22 - Comparison of the effects on cognition and behavior in patients with Parkinson's disease treated with subthalamic stimulation or with continuous levodopa duodenal infusion
- LBA 23 - Cognitive impairment as a feature of prodromal Parkinson's disease: evidence from the PARS study
- LBA 24 - ApoE genotype mediates recurrent falls risk in early Parkinson's disease
- LBA 25 - Submandibular Gland Needle Biopsy for the Diagnosis of Early Parkinson's Disease



## MDS Study Group Abstracts

SG 01 - The Movement Disorders Society-Endorsed PSP Study Group

SG 02 - A non-interventional study to assess the presence of impulsive-compulsive behaviors in an outpatient population with Parkinson's disease

SG 03 - Diagnostic discriminating power of cortical and subcortical MR indices in Multiple System Atrophy: A cross-sectional MODIMSA multicenter study

SG 04 - Early subthalamic neurostimulation improves quality of life of elderly patients with Parkinson's disease

SG 05 - Subthalamic stimulation lead coordinates correlate with non-motor effects in Parkinson's disease

SG 06 - A multicentre study of the patient's perspective: The first Parkinson's disease pain questionnaire (King's PD pain quest)

SG 07 - Non-motor symptoms profiles of different ethnic groups with Parkinson's disease: A study comparing the UK, Thailand, Nigeria

SG 08 - Dopamine transporter scan (DaTscan) and clinical global impression of severity of Parkinson's disease: Data from a non motor

SG 09 - Effect of acute non-oral dopaminergic (apomorphine and levodopa) treatment on non-motor symptoms in Parkinson's disease

SG 10 - Sleep assessment in Parkinson's disease - The use of Parkinson's KinetiGraph

SG 11 - PD-MCI: application of the Level I criteria and prediction of PDD

SG 12 - Predictive Validity of Level II PD-MCI Criteria for PDD

SG 13 - Benign Progressive Supranuclear Palsy: a clinico-pathological analysis of cases with prolonged survival



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Consult Summary of Product Characteristics before prescribing. **Uses** Treatment of motor fluctuations ("on-off" phenomena) in patients with Parkinson's disease which are not sufficiently controlled by oral anti-Parkinson medication. **Dosage and Administration** Apomorphine hydrochloride is administered subcutaneously either as an intermittent bolus injection or by continuous subcutaneous infusion. Its rapid onset (5-10 mins) and duration of action (about 1 hour) may prevent an "off" episode which is refractory to other treatments. Apomorphine should be initiated in the controlled environment of a specialist clinic. The patient should be supervised by a physician experienced in the treatment of Parkinson's disease (e.g. neurologist). Please refer to the Summary of Product Characteristics for full details before initiating therapy. Treatment with domperidone (typical dosage 20mg three times a day) before and during apomorphine HCl therapy is essential. The optimal dosage of apomorphine HCl has to be determined on an individual patient basis; individual bolus injections should not exceed 10mg and the total daily dose should not exceed 100mg. Do not use if the solution has turned green. The solution should be inspected visually prior to use. Only clear, colourless and particle free solution should be used. **Contraindications** Children and adolescents (up to 18 years of age). Known sensitivity to apomorphine or any other ingredients of the product. Respiratory depression, dementia, psychotic disease or hepatic insufficiency. Intermittent apomorphine HCl treatment is not suitable for patients who have an "on" response to levodopa which is marred by severe dyskinesia or dystonia. **Pregnancy and lactation** Apomorphine should not be used in pregnancy unless clearly necessary. Breast-feeding should be avoided during apomorphine HCl therapy. **Interactions** Patients should be monitored for potential interactions during initial stages of apomorphine therapy. Particular caution should be given when apomorphine is used with other medications that have a narrow therapeutic window. It should be noted that there is potential for interaction with neuroleptic and antihypertensive agents. It is recommended to avoid the administration of apomorphine with other drugs known to prolong the QT interval. Apomorphine can increase the antihypertensive effects of domperidone. **Precautions** Use with caution in patients with renal, pulmonary or cardiovascular

disease, or who are prone to nausea or vomiting. Extra caution is recommended during initiation of therapy in elderly, and/or debilitated patients. Since apomorphine may produce hypotension, care should be exercised in patients with cardiac disease or who are taking vasoactive drugs, particularly when pre-existing postural hypotension is present. Neuropsychiatric disturbances are common in Parkinsonian patients. APO-go should be used with special caution in these patients. Apomorphine has been associated with somnolence and episodes of sudden sleep onset, particularly in patients with Parkinson's disease. Patients must be informed of this and advised to exercise caution whilst driving or operating machines during treatment with apomorphine. Haematology tests should be undertaken at regular intervals as with levodopa with given concomitantly with apomorphine. Patients should be regularly monitored for the development of impulse control disorders. Patients and carers should be made aware that behavioural symptoms of impulse control disorders including pathological gambling, increased libido, hypersexuality, compulsive spending or buying, binge eating and compulsive eating can occur in patients treated with dopamine agonists including apomorphine. Dose reduction/tapered discontinuation should be considered if such symptoms develop. Since apomorphine, especially at high dose, may have the potential for QT prolongation, caution should be exercised when treating patients at risk for torsades de pointes arrhythmia. Apomorphine has been associated with local subcutaneous effects that can be reduced by rotation of injection sites or use of ultrasound on areas of nodularity and induration. Contains sodium metabisulphite which rarely causes severe allergic reactions and broncospasm. **Side Effects** Local induration and nodules (usually asymptomatic) often develop at subcutaneous site of injection leading to areas of erythema, tenderness, induration and panniculitis. Irritation, itching, bruising and pain may also occur. Rarely injection site necrosis and ulceration have been reported. Pruritus may occur at the site of injection. Drug-induced dyskinesias during "on" periods can be severe, and in a few patients may result in cessation of therapy. Postural hypotension is seen infrequently and is usually intransient. Transient sedation following each dose of apomorphine may occur at the start of therapy, but this usually resolves after a

few weeks of treatment. Dizziness and light-headedness have also been reported. Nausea and vomiting may occur, particularly when APO-go treatment is initiated, usually as a result of the omission of domperidone. Neuropsychiatric disturbances (including transient mild confusion and visual hallucinations) have occurred during apomorphine therapy and neuropsychiatric disturbances may be exacerbated by apomorphine. Positive Coombs' tests and haemolytic anaemia and thrombocytopenia have been reported in patients receiving apomorphine and levodopa. Local and generalised rashes have been reported. Eosinophilia has occurred in only a few patients during treatment with apomorphine HCl. Patients treated with dopamine agonists, including apomorphine, have been reported as exhibiting signs of pathological gambling, increased libido and hypersexuality (especially at high doses). Apomorphine is associated with somnolence. Yawning and breathing difficulties have been reported as has peripheral oedema. *Prescribers should consult the Summary of Product Characteristics in relation to other side effects* **Presentation and Basic NHS Cost** APO-go ampoules contain apomorphine hydrochloride 10mg/ml, as follows: 20mg in 2ml – basic NHS cost £37.96 per carton of 5 ampoules. 50mg in 5ml – basic NHS cost £73.11 per carton of 5 ampoules. APO-go pens (disposable multiple dosage injector system) contain apomorphine hydrochloride 10mg/ml, as follows: 30mg in 3ml – basic NHS cost £123.91 per carton of 5 pens. APO-go Pre-filled syringes contain apomorphine hydrochloride 5mg/ml, as follows: 50mg in 10ml – basic NHS cost £73.11 per carton of 5 syringes. **Marketing Authorisation Numbers:** APO-go Ampoules: PL 06831/0245 APO-go Pens: PL 06831/0246 APO-go Pre filled syringes: PL 06831/0247 **Legal Category POM Date of last revision:** December 2014 For further information please contact: Britannia Pharmaceuticals, Park View House, 65 London Road, Newbury, Berkshire, RG14 1JN, UK

Adverse events should be reported. Reporting forms and information can be found at [www.mhra.gov.uk/yellowcard](http://www.mhra.gov.uk/yellowcard).  
Adverse events should also be reported to Medical Information on 0870 851 0207 or [dso@britannia-pharm.com](mailto:dso@britannia-pharm.com)

Version Number: APG.P1.V22

Date of preparation: January 2015

Item code: AP01-0115-0551



**APOKYN has new  
options for patient access.**

**In-home initiations  
are now available!\***



**APOKYN<sup>®</sup>**  
**apomorphine hydrochloride injection**



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BOOTH 701  
to Learn More.**

\*In accordance with applicable state regulations.

#### Indication

APOKYN is indicated for the acute, intermittent treatment of hypomobility, *off* episodes (end-of-dose *wearing-off* and unpredictable *on-off* episodes) associated with advanced Parkinson's disease. APOKYN has been studied as an adjunct to other medications.

#### Important Safety Information

**Contraindication:** Concomitant use of APOKYN with 5HT<sub>2A</sub> antagonists is contraindicated based on reports of profound hypotension and loss of consciousness when apomorphine was administered with ondansetron.

**Contraindication:** APOKYN is contraindicated in patients who have demonstrated hypersensitivity to the drug or its ingredients (notably sodium metabisulfite).

**SC Injection:** APOKYN should be administered by subcutaneous injection, NOT intravenously, because serious adverse events like thrombus formation and pulmonary embolism may occur. Patients and care partners must receive detailed instructions in the preparation and injection of doses, with particular attention paid to the correct use of the dosing pen.

**Nausea and Vomiting:** At recommended doses of apomorphine, severe nausea and vomiting can be expected. Therefore, trimethoprim hydrochloride should be started 3 days prior to the initial dose of APOKYN and continued for at least 2 months. In clinical trials, 50% of patients (262/522) discontinued trimethoprim hydrochloride after 2 months of APOKYN.

**Falling Asleep During Activities of Daily Living (ADL):** There have been reports of patients treated with apomorphine subcutaneous injections who suddenly fell asleep while engaged in ADL. Patients should be advised not to drive or participate in potentially dangerous activities until it is known how APOKYN affects them. Patients should be continually reassessed for daytime drowsiness or sleepiness.

**Symptomatic Hypotension:** Dopamine agonists, including APOKYN, can cause hypotension, orthostatic hypotension, and syncope. Alcohol, antihypertensive medications, and vasodilating medications may potentiate the hypotensive effect of apomorphine. These adverse events occurred with initial dosing and long-term treatment. Whether hypotension contributes to other significant events seen (e.g., falls) is unknown.

**Falls:** Patients with Parkinson's disease (PD) are at risk of falling due to the underlying postural instability and concomitant autonomic instability seen in some patients with PD, and from syncope caused by the blood pressure lowering effects of the drugs used to treat PD.

**Hallucinations / Psychotic-Like Behavior:** APOKYN has been associated with new or worsening mental status and behavioral changes, which may be severe, including psychotic-like behavior. This abnormal thinking and behavior can consist of paranoid ideation, delusions, hallucinations, confusion, disorientation, aggressive behavior, agitation and delirium.

**Dyskinesias:** APOKYN may cause dyskinesia or exacerbate pre-existing dyskinesia.

**Intense Urges:** Some people with PD have reported new or increased gambling urges, increased sexual urges, and other intense urges, while taking PD medicines, including APOKYN. Because patients may not recognize these behaviors as abnormal, it is important for prescribers to specifically ask patients or their care partners about the development of new or increased gambling urges, sexual urges, uncontrolled spending or other urges while being treated with APOKYN. Physicians should consider dose reduction or stopping the medication if a patient develops such urges while taking APOKYN.

**Cardiac Events:** *Coronary Events*—APOKYN reduces resting systolic and diastolic blood pressure and has the potential to exacerbate coronary (and cerebral) ischemia. Therefore, exercise caution when prescribing APOKYN for patients with known cardiovascular and cerebrovascular disease.

**QT Prolongation**—Caution is recommended when administering APOKYN to patients with increased risk of QT prolongation, such as those with hypokalemia, hypomagnesemia, bradycardia, or a genetic predisposition, or who use other drugs that prolong the QT/QTc interval.

**Melanoma:** Patients with Parkinson's disease have a higher risk of developing melanoma than the general population. Patients should be monitored for melanomas frequently when using APOKYN.

**Adverse Events:** The most common adverse events seen in controlled trials were yawning, drowsiness/somnolence, dyskinesias, dizziness/postural hypotension, rhinorrhea, nausea and/or vomiting, hallucinations/confusion and edema/swelling of extremities. Injection-site reactions, including bruising, granuloma, and pruritus, have been reported.

To report SUSPECTED ADVERSE REACTIONS or product complaints, contact US WorldMeds at 1-877-727-6596 (1-877-7APOKYN). You may also report SUSPECTED ADVERSE REACTIONS to the FDA at 1-800-FDA-1088 or [www.fda.gov/medwatch](http://www.fda.gov/medwatch).

**Please see booth representative for full Prescribing Information and Pen Instructions for Use/Patient Information.**

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# WHAT ARE YOUR PATIENTS WITH PD PSYCHOSIS HOLDING BACK?

Join ACADIA Pharmaceuticals Inc. for a virtual reality experience that will transform how you see PD psychosis.

See what they see  
booth 309

For more information, visit  
[PDpsychosis.com](http://PDpsychosis.com).

Parkinson's disease (PD).



## Corporate Therapeutic Symposia

The following company-based information sessions will provide delegates with non-CME educational opportunities to learn the latest in therapeutics.

### SUNDAY, JUNE 14, 2015

#### Lundbeck US

**13:15-14:15**

Location: Harbor B-C, 2nd Level, Harbor Tower

#### **Advances in the treatment of symptomatic Neurogenic Orthostatic Hypotension (nOH)**

Chair: Rajesh Pahwa  
*Kansas City, KS, USA*

Orthostatic hypotension in the movement disorder patient

Horacio Kaufmann  
*New York, NY, USA*

Evaluating cardiovascular health in the patient with nOH - TBD

Droxidopa for the treatment of symptomatic neurogenic orthostatic hypotension

Stuart Isaacson  
*Miami, FL, USA*

Case study discussion

Daniel Claassen  
*Nashville, TN, USA*

### MONDAY, JUNE 15, 2015

#### Britannia Pharmaceuticals, Ltd. and US WorldMeds

**14:00-15:00**

Location: Harbor D-F, 2nd Level, Harbor Tower

#### **Subcutaneous apomorphine for Parkinson's disease motor fluctuations: Emerging treatment strategies**

Introduction to the fluctuating response of levodopa & the role of Apomorphine

Peter LeWitt  
*Detroit, MI, USA*

Apokyn® (apomorphine hydrochloride injection): Rapid & Reliable Turning "ON"

Stuart Isaacson  
*Miami, FL, USA*

APO-go® infusion in the treatment of motor fluctuations: Continuous Reliable "ON"

K. Ray Chaudhuri  
*London, United Kingdom*

### MONDAY, JUNE 15, 2015

#### Teva Pharmaceutical

**14:00-15:00**

Location: Seaport G-H, 2nd Level, Seaport Tower

#### **Designing Huntington's disease trials to address unmet patient needs**

Chair: Karl Kieburtz  
*Rochester, NY, USA*

Unmet needs in Huntington's disease

Karl Kieburtz  
*Rochester, NY, USA*

Novel markers in Huntington's disease

Bernhard Landwehrmeyer  
*Ulm, Germany*

Clinical scales used in interventional HD Trials

Tiago Mestre  
*Ottawa, ON, Canada*

### TUESDAY, JUNE 16, 2015

#### Zambon

**13:45-15:00**

Location: Harbor D-F, 2nd Level, Harbor Tower

#### **Parkinson's disease 2015: Advances in understanding disease pathways and progression**

Chairs: C. Warren Olanow  
*New York, NY, USA*

Paolo Barone  
*Napoli, Italy*

Unmet needs in Parkinson's disease: from pathophysiology to treatments

José Obeso  
*Madrid, Spain*

Dopamine and glutamate alterations in Parkinson's disease: new insights

Stella Papa  
*Atlanta, GA, USA*

Moving forward in Parkinson's disease: Advances in therapy for motor and non-motor complications

K. Ray Chaudhuri  
*London, United Kingdom*

## Corporate Therapeutic Symposia

TUESDAY, JUNE 16, 2015

### Ipsen

**14:00-15:00**

Location: Seaport G-H, 2nd Level, Seaport Tower

#### **Management of patients with cervical dystonia: A step forward**

Chair: Joseph Jankovic  
*Houston, TX, USA*

Listening to patients perspectives

Janet Hieshetter  
*Chicago, IL, USA*

How could abobotulinum toxin A increase patient's and physician's satisfaction?

Mark Lew  
*Los Angeles, CA, USA*

Reshaping the toxins world for patients

Keith Foster  
*Salisbury, United Kingdom*

### UCB

**19:45-20:45**

Location: Harbor D-F, 2nd Level, Harbor Tower

#### **The path of Parkinson's disease patients in an evolving era**

Chair: William Ondo  
*Houston, TX, USA*

Is there a need for pharmacotherapy in newly diagnosed parkinson's patients?

Larry Elmer  
*Toledo, OH, USA*

Managing parkinson's disease patients in an electronic era with mobile devices

Kevin Biglan  
*Rochester, NY, USA*

WEDNESDAY, JUNE 17, 2015

### ACADIA Pharmaceuticals

**13:30-14:30**

Location: Seaport G-H, 2nd Level, Seaport Tower

#### **Beyond motor symptoms of Parkinson's disease**

Neuropsychiatric complications of Parkinson's disease:  
focus on parkinson's disease psychosis

David John Burn  
*Newcastle upon Tyne, United Kingdom*

Sleep disturbance in Parkinson's disease

Alon Y. Avidan  
*Los Angeles, CA, USA*

Caregiver burden: Challenges in Parkinson's disease psychosis

Jennifer Goldman  
*Chicago, IL, USA*

### Medtronic

**13:30-14:30**

Location: Harbor D-F, 2nd Level, Harbor Tower

#### **Long-term outcomes & therapeutic optimization of DBS for Parkinson's disease**

William J. Marks, Jr.  
*San Francisco, CA, USA*

Jens Volkmann  
*Würzburg, Germany*

THURSDAY, JUNE 18, 2015

### Cynapsus Therapeutics

**13:30-14:30**

Location: Harbor D-F, 2nd Level, Harbor Tower

#### **Waiting to turn ON: The impact and importance of OFF episodes in Parkinson's disease patients and the need for turning ON therapies**

Chair: C. Warren Olanow  
*New York, NY, USA*

Stuart Isaacson  
*Miami, FL, USA*

Robert Hauser  
*Tampa, FL, USA*

Russell Katz  
*USA*

### Med Learning Group

**13:30-14:30**

Location: Seaport G-H, 2nd Level, Seaport Tower

#### **Evolving role of personalized strategies and patient-centered approaches in the management of Parkinson's disease from clinical data to individualized care**

Michele Tagliati  
*Los Angeles, CA, USA*

Mayela Rodriguez-Violante  
*Mexico City, Mexico*



International Parkinson and  
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## Science and Technology Pavillion

### Science and Technology Pavilion

Location: Regatta, 4th Level, Harbor Tower

Through the Science and Technology Pavilion, MDS' industry partners provide delegates the opportunity to learn about the latest science in an interactive session. CME credit is not given for any activities in the Science and Technology Pavilion. All Congress participants are encouraged to visit the Pavilion.

#### Lundbeck US

**Monday, June 15**

**10:00-17:00**

The Lundbeck Medical Affairs Science and Technology Pavilion will showcase an overview of Symptomatic Neurogenic Orthostatic Hypotension (NOH) via interactive kiosk/media, and will be presented by key clinical experts/study investigators and Lundbeck Medical Affairs representatives.

#### AbbVie

**Wednesday, June 17**

**10:00-17:00**

The Abbvie-sponsored Science and Technology Pavilion will provide an educational platform to learn more about Advanced Parkinson's disease, Multidisciplinary Care and carbidopa and levodopa enteral suspension. In addition to information displays throughout the day, delegates have an opportunity to attend medical presentations by clinical experts involved in multidisciplinary care and Advanced Parkinson's disease at 12:30 and 16:00.



大坂城 (Osaka Castle)

For Patients with Parkinson's Disease

藤本製薬グループ

エフピー

FP Pharmaceutical Corp. is pleased to be a supporter of the 19<sup>th</sup> International Congress of Parkinson's Disease and Movement Disorders.

SAN DIEGO, CA, USA  
June 14 - 18, 2015

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FP Pharmaceutical Corp.

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580-0011 JAPAN





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**To address healthcare challenges across the world, we unite a biotech spirit with the strength of a successful pharmaceutical business.** The result is a biopharmaceutical company combining science, passion, and expertise to improve health and healthcare in new ways. Making a remarkable impact in people's lives is more than our promise. It's our purpose.

**Please visit us at Booth #411**

**[abbvie.com](http://abbvie.com)**



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International Parkinson and  
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# PLEASE JOIN US!

## ADVANCES IN POTENTIAL NEW THERAPIES FOR HYPERKINETIC MOVEMENT DISORDERS

Sponsored by Auspex Pharmaceuticals

*Heavy hors d'oeuvres and cocktails will be served at 7:30pm*

### EVENT DATE AND TIME:

Tuesday, June 16, 2015, from 8pm to 9pm

Location: Seaport GH, Manchester Grand Hyatt

### PRESENTERS

#### JOSEPH JANKOVIC, MD

Professor of Neurology  
Distinguished Chair in Movement Disorders  
Director, Parkinson's Disease Center  
and Movement Disorders Clinic  
Department of Neurology  
Baylor College of Medicine

#### HUBERT H. FERNANDEZ, MD

Professor of Medicine (Neurology)  
Cleveland Clinic Lerner College of Medicine  
Case Western Reserve University  
Co-Chair, Parkinson's Study Group

#### DAVID STAMLER, MD

Chief Medical Officer, Auspex Pharmaceuticals

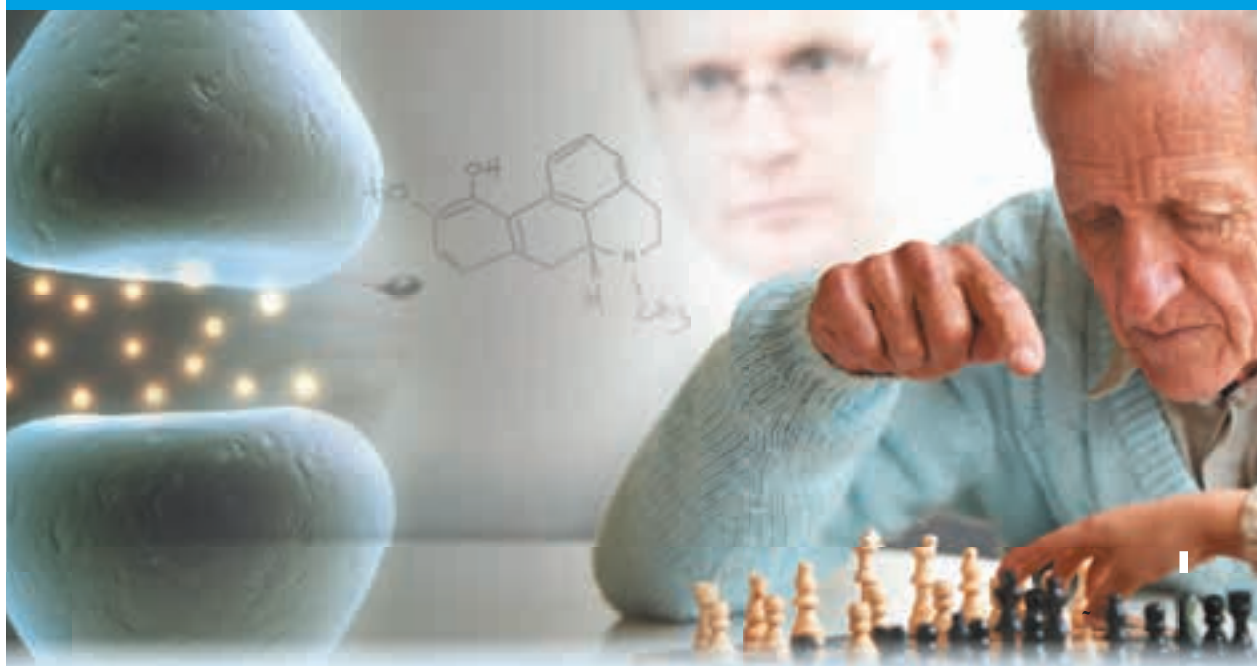


At Adamas, we share  
the International Parkinson  
and Movement Disorder  
Society's commitment  
to advancing the  
treatment of central  
nervous system  
disorders.



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

[www.adamaspharma.com](http://www.adamaspharma.com)



***Cynapsus is proud to be a supporter of the  
19th International Congress of Parkinson's  
Disease and Movement Disorders.***

*Cynapsus is a specialty pharmaceutical company developing a convenient and easy to use sublingual (oral mucosal) thin film strip which provides a rapid, reliable and sustained "ON" in Parkinson's disease patients suffering all types of "OFF" episodes.*

*Cynapsus' drug candidate, APL-130277, is an easy-to-administer, fast-acting reformulation of apomorphine, which is the only approved drug (in the United States, Europe, Japan and other countries) for the acute, intermittent treatment of "OFF" episodes in Parkinson's disease patients.*

*Cynapsus is focused on completing the clinical, regulatory development and commercialization of APL-130277 such that it might provide patients, their care givers and neurologists a convenient and safe means of achieving a fast "ON".*



## Exhibitor Information

### EXHIBIT HALL

Location: Grand Hall, Lobby Level

Please allow adequate time in your daily schedule to visit the Exhibit Hall. The exhibition is an integral component of your International Congress experience, offering you the opportunity to speak with representatives of companies providing services or marketing products directly related to Movement Disorders.

Exhibit Hall hours are as follows:

Monday, June 15	9:00 – 18:00
Tuesday, June 16	9:00 – 18:00
Wednesday, June 17	9:00 – 18:00
Thursday, June 18	9:00 – 16:00

### EXHIBITOR REGISTRATION

Location: Palm Foyer, 2nd Level

Exhibitors must register and pick up their badge at the Exhibitor Registration Desk.

Exhibitor Registration Desk hours are as follows:

Saturday, June 13:	16:00 – 20:00
Sunday, June 14:	7:00 – 20:00
Monday, June 15:	7:00 – 18:00
Tuesday, June 16:	7:00 – 18:00
Wednesday, June 17:	7:00 – 18:00
Thursday, June 18:	7:00 – 16:00

### EXHIBITOR BADGE POLICY

Admission to the Exhibit Hall will be by name badge only. Security guards will monitor Exhibit Hall entrances for proper identification. Exhibit stand personnel must show an official MDS exhibitor name badge in order to gain access to the Exhibit Hall during installation, show, or dismantlement hours.

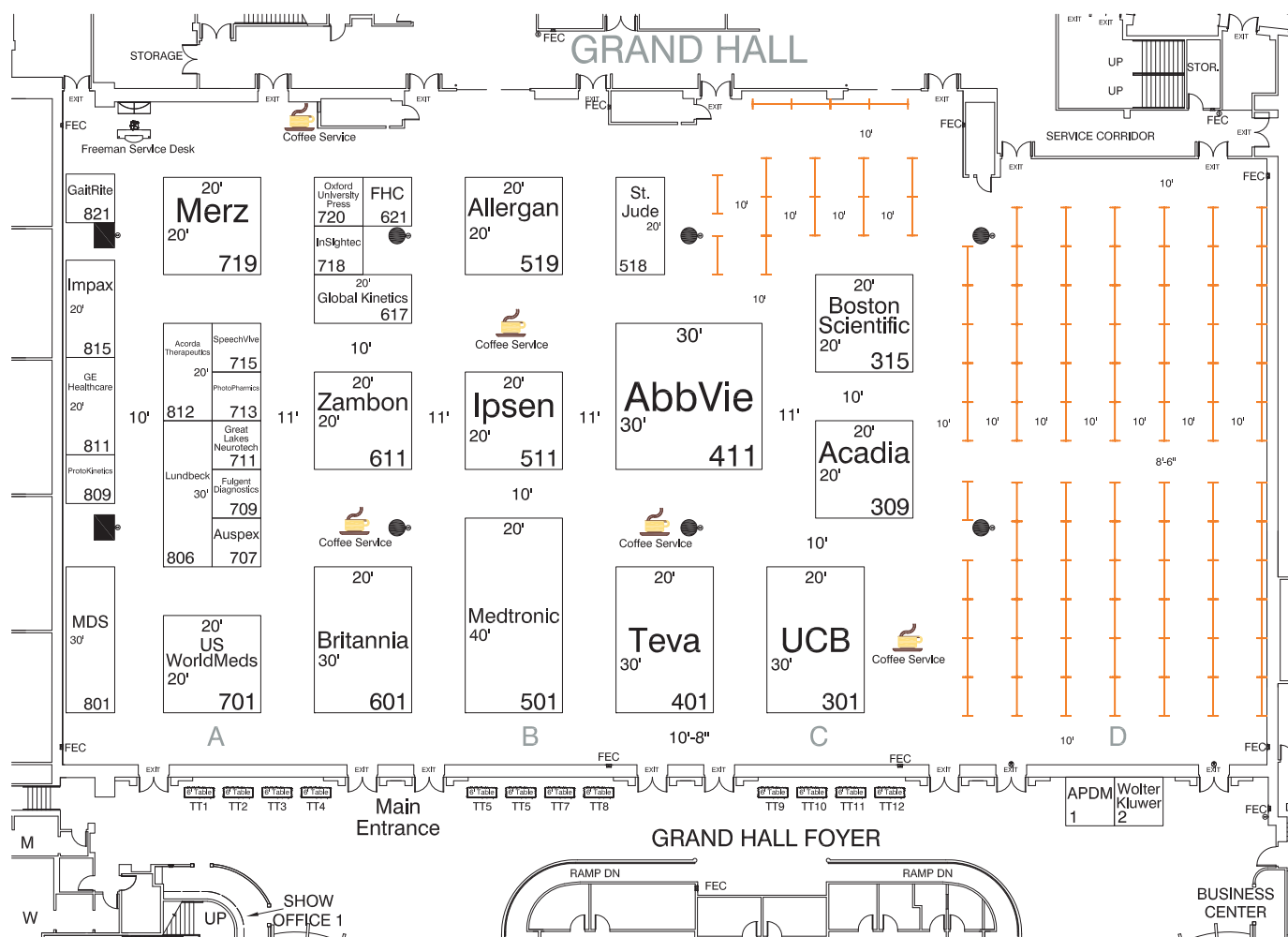
Exhibitor Personnel Badge (Yellow): Allows admittance to the Exhibit Hall only.

### ENDORSEMENT DISCLAIMER

Products and services displayed in the Exhibit Hall or advertised in the program occur by contractual business arrangements between MDS and participating companies and organizations. These arrangements do not constitute nor imply an endorsement by MDS of these products and services.



## EXHIBIT AND POSTER HALL FLOOR PLAN





## Exhibitor Directory

### ABBVIE

1 North Waukegan Road  
North Chicago, IL 60064  
USA  
Telephone: +1 800-255-5162  
Website: [www.abbvie.com](http://www.abbvie.com)

#### Booth #: 411

AbbVie is a global, research-based biopharmaceutical company which combines the focus of a leading-edge biotech with the expertise and structure of a long-established pharmaceutical leader. AbbVie is committed to using unique approaches to innovation to develop and market advanced therapies that address some of the world's most complex and serious diseases.

### ACADIA PHARMACEUTICALS

11085 Torreyana Road, Suite 100  
San Diego, CA 92121  
USA  
Telephone: +1 858-320-8655  
Website: [www.acadia-pharm.com](http://www.acadia-pharm.com)

#### Booth #: 309

ACADIA Pharmaceuticals is a biopharmaceutical company focused on the development and commercialization of innovative medicines to address unmet medical needs in neurological and related central nervous system disorders.

### ACORDA THERAPEUTICS, INC.

420 Saw Mill River Road  
Ardsley, NY 10502  
USA  
Telephone: +1 914-347-4300  
Website: [www.acorda.com](http://www.acorda.com)

#### Booth #: 812

Acorda Therapeutics develops therapies that restore function and improve the lives of people with neurological disorders. Acorda markets three FDA-approved therapies, including AMPYRA® (dalfampridine) Extended Release Tablets, 10 mg. The Company has a pipeline of novel therapies that addresses a range of disorders, including post-stroke walking deficits, Parkinson's disease, epilepsy and MS.

### ALLERGAN, INC.

2525 Dupont Drive  
Irvine, CA 92612  
USA  
Telephone: +1 714-246-4500  
Fax: +1 714-246-4971  
Website: [www.allergan.com](http://www.allergan.com)

#### Booth #: 519

Allergan is a multi-specialty healthcare company established more than 60 years ago with a commitment to uncovering the best of science and helping people reach their life's potential. With approximately 11,400 employees worldwide, we are committed to discovering new therapies to treat unmet medical needs in eye care, neurosciences, medical aesthetics, medical dermatology, breast aesthetics and urology. APC55PQ14

### AMERICAN PARKINSON DISEASE ASSOCIATION

135 Parkinson Avenue  
Staten Island, NY 10305  
USA  
Telephone: +1 718-981-8001, ext 125  
Fax: +1 718-981-4399  
Website: [www.apdaparkinson.org](http://www.apdaparkinson.org)

#### Table #: 7

The American Parkinson Disease Association (APDA) was founded in 1961 to *Ease the Burden – Find the Cure* for Parkinson's disease. APDA provides patient services and education serving more than 1 million American's with Parkinson's disease and their families and research opportunities for new scientists in the field of PD research as well as continued funding for established senior investigators.

### AUSPEX PHARMACEUTICALS

3333 North Torrey Pines Court, Suite 400  
La Jolla, CA 92037  
USA  
Telephone: +1 858-558-2400  
Fax: +1 858-558-2401  
Website: [www.auspexpharma.com](http://www.auspexpharma.com)

#### Booth #: 707

Auspex is a late stage biopharmaceutical company dedicated to developing innovative medicines for movement disorders. Auspex's lead product candidate SD-809 is in the final stages of development for the treatment of chorea associated with Huntington's disease. Auspex is also evaluating SD-809 for the treatment of tardive dyskinesia and tics associated with Tourette syndrome.

## Exhibitor Directory

### BENIGN ESSENTIAL BLEPHAROSPASM RESEARCH FOUNDATION, INC.

P.O. Box 12468  
Beaumont, TX 77726-2468  
USA  
Telephone: +1 409-832-0788  
Fax: +1 409-832-0890  
Website: [www.blepharospasm.org](http://www.blepharospasm.org)

#### Table #: 5

The purpose of BEBRF is to promote, develop and carry on the search for the cause and cure for Benign Essential Blepharospasm/Meige and other related disorders.

### BOSTON SCIENTIFIC

25155 Rye Canyon Loop  
Valencia, CA 91355  
USA  
Telephone: +1 661-949-4000  
Website: [www.vercise.com](http://www.vercise.com)

#### Booth #: 315

Boston Scientific is a worldwide developer, manufacturer and marketer of medical devices whose products are used in a broad range of interventional medical specialties. As an innovation leader in Neuromodulation and implantable Deep Brain Stimulation Technology, Boston Scientific is committed to transforming lives through innovative medical solutions that improve the health of patients.

### BRITANNIA PHARMACEUTICALS LTD.

200 Longwater Avenue  
Green Park, Reading RG2 6GP  
United Kingdom  
Telephone: +44 011 892 15900  
Website: [www.britannia-pharm.com](http://www.britannia-pharm.com)  
[www.apo-go.com](http://www.apo-go.com)

#### Booth #: 601

Britannia Pharmaceuticals Limited is a UK based pharmaceutical company specializing in niche innovative products for chronic and serious medical conditions, and in particular, the treatment of patients with Parkinson's disease.

The need for apomorphine as a treatment option for Parkinson's disease has led to the development of APO-go and other associated brands around the globe, which are available in many countries through our Distribution or Licensing Partners.

### CIR SYSTEMS/GAITRITE

376 Lafayette Road, Suite 202  
PO Box 899  
Sparta, NJ 07871  
USA  
Telephone: +1 973-862-6151  
Fax: +1 973-862-6451  
Website: [www.gaitrite.com](http://www.gaitrite.com)

#### Booth #: 821

GAITRite is a truly portable pressure sensitive walkway with a quick 5 minute setup measuring temporal spatial parameters, providing easy identification of gait anomalies, comes in various lengths. Our new wider SURFACE System allows instrumentation of an entire room and is Wi-Fi based. All GAITRite Systems provide reporting publishing options.

### FHC, INC.

1201 Main Street  
Bowdoin, ME 04287  
USA  
Telephone: +1 207-666-8190  
Fax: +1 207-666-8292  
Website: [www.fh-co.com](http://www.fh-co.com)

#### Booth #: 621

Innovating through collaboration with the neuroscience community, FHC presents its latest and signature offerings: Distance Expert®—Neurophysiology for telemedical DBS-surgical assistance; neuroCase for onsite DBS case support; STarFix™ for patient-specific, "no capital" stereotaxy; WayPoint™ Navigator for planning and visualizing; and STar™ Drive for neurosurgical positioning (24/7 technical support available).

### FULGENT DIAGNOSTICS

4978 Santa Anita Avenue, Suite 205  
Temple City, CA 91780  
USA  
Telephone: +1 626-350-0537  
Fax: +1 626-454-1667

#### Booth #: 709

Fulgent Diagnostics provides a wide array of genetic testing ranging from 4,600+ single gene tests, 170+ preset panels, rearrangement testing, and All-in-One reflex test. Fulgent Diagnostics provides flexibility. We tailor our tests to your unique requirements at the most competitive pricing available compared to any CLIA lab in the industry.



International Parkinson and  
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## Exhibitor Directory

### GE HEALTHCARE

35c Campus Drive, 5<sup>th</sup> Floor  
Marlborough, MA 01752  
USA  
Telephone: +1 508-683-2368  
Website: [www.gehealthcare.com](http://www.gehealthcare.com)

#### Booth #: 811

GE Healthcare provides transformational medical technologies and services to meet the demand for increased access, enhanced quality and more affordable healthcare around the world. GE (NYSE: GE) works on things that matter - great people and technologies taking on tough challenges. From medical imaging, software & IT, patient monitoring and diagnostics to drug discovery, biopharmaceutical manufacturing technologies and performance improvement solutions, GE Healthcare helps medical professionals deliver great healthcare to their patients.

### GLOBAL KINETICS CORPORATION

530 Collins Street, Level 6  
Melbourne, VIC 3000  
Australia  
Telephone: +61 3 9605 0034  
Website: [www.globalkineticscorporation.com](http://www.globalkineticscorporation.com)

#### Booth #: 617

GKC has developed the Parkinson's KinetiGraph (PKG). The PKG provides an objective, ambulatory assessment of Parkinson's patients during activities of daily living, via a simple wristwatch-like device worn continuously for 6-10 days. It reports their clinical state including scaled measures of bradykinesia & dyskinesia, fluctuation severity, a one-number fluctuation score, self-reported concordance and periods of daytime sleepiness.

### GREAT LAKES NEUROTECHNOLOGIES

10055 Sweet Valley Drive  
Valley View, OH 44125  
USA  
Telephone: +1 216-361-5410  
Fax: +1 216-361-5420  
Website: [www.GLNeuroTech.com](http://www.GLNeuroTech.com)

#### Booth #: 711

Kinesia technology provides continuous Parkinson's monitoring for in-clinic and home applications. Intelligent remote sensing technology increases sensitivity and reliability of outcome measures for pharmaceutical trials, DBS measurement, and patient care. Kinesia is validated in over 60 publications and is successfully used in pharmaceutical and medical device trials around the globe.

### IMPAX PHARMACEUTICALS

31047 Genstar Road  
Hayward, CA 94544  
USA  
Telephone: +1 510-240-6042  
Website: [www.impaxpharma.com](http://www.impaxpharma.com)

#### Booth #: 815

Impax Pharmaceuticals™ is a branded product division of Impax Laboratories™, Inc. Impax Pharmaceuticals is focused on targeting significant unmet needs, with a primary focus on developing treatments for neurological disorders.

### INSIGHTEC

Nachum Chet 5 Street  
Haifa 39120  
Israel  
Telephone: +972 4 8131380  
Website: [www.insightec.com](http://www.insightec.com)

#### Booth #: 718

INSIGHTEC is the global leader in MR-guided Focused Ultrasound (MRgFUS) and developer of the ExAblate therapeutic platform. The first company to successfully focus ultrasound through the cranium, INSIGHTEC offers a noninvasive treatment option for the treatment of essential tremor, Parkinson's tremor and neuropathic pain and has CE mark for these treatments. The ExAblate Neuro is presently an Investigational Device undergoing FDA clinical evaluation in the US. INSIGHTEC is actively pursuing research and development to expand the applications for its technology with a goal of becoming a non-invasive standard of care in medicine.



## Exhibitor Directory

### IPSEN

65 Quai Georges Gorse  
Boulogne Billancourt 92100  
France  
Telephone: +33 1 58 33 5000  
Website: [www.ipsen.com/en/](http://www.ipsen.com/en/)

#### Booth #: 511

Ipsen is a global specialty-driven pharmaceutical company with total sales exceeding €1.2 billion in 2014. Ipsen's ambition is to become a leader in specialty healthcare solutions for targeted debilitating diseases. Its development strategy is supported by 3 franchises: neurology, endocrinology and uro-oncology. Moreover, the Group has an active policy of partnerships. Ipsen's R&D is focused on its innovative and differentiated technological platforms, peptides and toxins. In 2014, R&D expenditure totaled close to €187 million, representing about 15% of Group sales. Ipsen also has a significant presence in primary care. The Group has more than 4,500 employees worldwide.

### INTERNATIONAL ESSENTIAL TREMOR FOUNDATION

P.O. Box 14005  
Lenexa, KS 66285-4005  
USA  
Telephone: +1 913-341-3880

#### Table #: 3

The International Essential Tremor Foundation (IETF) funds essential tremor research to find a treatment and cure for people with ET, increases awareness, and provides educational materials and tools for healthcare providers, the public, and those affected by ET.

### LUNDBECK

Four Parkway North  
Deerfield, IL 60015  
USA  
Telephone: +1 847-282-1000  
Website: [www.lundbeckus.com](http://www.lundbeckus.com)

#### Booth #: 806

Lundbeck, a global pharmaceutical company based in Copenhagen, Denmark, was founded in 1915. As one of the world's leading companies specializing in brain disorders, Lundbeck's key focus is to address disorders such as depression, anxiety, schizophrenia, epilepsy, and Huntington's, Alzheimer's and Parkinson's disease.

### MEDTRONIC

710 Medtronic Parkway  
Minneapolis, MN 55432-5604  
USA  
Telephone: +1 763-514-4000  
Website: [www.professional.medtronic.com](http://www.professional.medtronic.com)

#### Booth #: 501

At Medtronic, we're committed to innovating for life by pushing the boundaries of medical technology and changing the way the world treats chronic disease. It's the reason we've developed an unprecedented breadth and depth of innovative therapies over the past 60 years. This includes Medtronic Deep Brain Stimulation (DBS), with over 125,000 people worldwide having received our therapy.

### MERZ NEUROSCIENCES A DIVISION OF MERZ N. AMERICA

6501 Six Forks Road  
Raleigh, NC 27615  
USA  
Telephone: +1 919-582-8000  
Fax: +1 919-615-4851  
Website: [www.merzusa.com](http://www.merzusa.com)

#### Booth #: 719

Merz North America is a specialty healthcare company that develops and commercializes innovative treatment solutions in aesthetics, dermatology and neurology in the U.S. and Canada. Our ambition is to become a recognized leader in the treatment of movement disorders, and in aesthetics and dermatology.

### MULTIPLE SYSTEM ATROPHY COALITION

9935-D Rea Road, #212  
Charlotte, NC 28277  
USA  
Telephone: +1 866-737-4999  
Website: [www.multiplesystematrophy.org](http://www.multiplesystematrophy.org)

#### Table #: 2

The MSA Coalition is dedicated to supporting patients and educating healthcare professionals about Multiple System Atrophy. Educational pamphlets and DVDs available.



## Exhibitor Directory

### NATIONAL SPASMODIC TORTICOLLIS ASSOCIATION

9920 Talbert Avenue  
Fountain Valley, CA 92708  
USA  
Telephone: +1 714-378-9837  
Website: [www.torticollis.org](http://www.torticollis.org)

#### Table #: 8

The NSTA is dedicated to supporting Spasmodic Torticollis patients by providing information, answering questions, and providing hope and moral support. NSTA educates the public and the medical community about Spasmodic Torticollis, advocate for patients' rights, and support research aimed at understanding, treating, and ultimately curing this painful and debilitating neurological disorder.

### OXFORD UNIVERSITY PRESS

198 Madison Avenue  
New York, NY 10016  
USA  
Telephone: +1 800-445-9714  
Website: [www.oup.com/us](http://www.oup.com/us)

#### Booth #: 720

OUP proudly announces the launch of OxfordMedicalOnline as well as "Cognitive Impairment and Dementia in Parkinson's Disease," the "Handbook of Neurological Therapy," the "Video Protocols in Movement Disorders," Klein's "Movement Disorders," the Oxford Textbook of Movement Disorders," and "Hyperkinetic Movement Disorders" and other classics.

### PARKINSON'S WELLNESS RECOVERY

140 West Fort Lowell Road  
Tucson, AZ 85705  
USA  
Telephone: +1 520-591-5346  
Fax: +1 888-780-0154  
Website: [www.pwr4life.org](http://www.pwr4life.org)

#### Table #: 1

PWR! is a 501(c)(3) nonprofit founded by Becky Farley PT, MS, PhD to develop and implement worldwide access to Parkinson disease-specific neuroplasticity-principled programming. PWR! subsidizes cutting edge Exercise4BrainChange® programs for people with PD in a Model Community Center (PWR!Gym) in Tucson, AZ; and trains therapists and fitness professionals worldwide.

### PHOTOPHARMICS, INC.

6222 West 10480 North  
Highland, UT 84003  
USA  
Telephone: +1 801-494-7804  
Fax: +1 801-609-7055  
Website: [www.photopharmics.com](http://www.photopharmics.com)

#### Booth #: 713

PhotoPharmics, Inc. is conducting a DBPC clinical trial to establish the safety and efficacy of a non-invasive, specialized, ocular light therapy lamp for Parkinson's disease.

### PROTOKINETICS

60 Garlor Drive  
Havertown, PA 19083  
USA  
Telephone: +1 610-449-4879  
Fax: +1 610-853-2925  
Website: [www.protokinetics.com](http://www.protokinetics.com)

#### Booth #: 809

The ProtoKinetics Zeno Walkway and PKMAS program quickly and easily produces pressure, temporal and spatial parameters over a variety of testing protocols. The equipment offers easy output of objective measures during the evaluation and clinical research of individuals with central nervous system disorders, peripheral neuropathy, stroke, etc.

### SPEECHVIVE

603 Wexford Drive  
Lafayette, IN 47905  
USA  
Telephone: +1 612-723-7200  
Website: [www.speechvive.com](http://www.speechvive.com)

#### Booth #: 715

SpeechVive is a behind the ear device which helps people with Parkinson's disease speak more loudly and communicate more effectively. Clinical data over four years demonstrated SpeechVive to be effective in 90% of the people using the device.

## Exhibitor Directory

### ST. JUDE MEDICAL

6300 Bee Cave Road Building 2 Suite 100  
Austin, TX 78746  
USA  
Telephone: +1 512-286-4050  
Website: [www.sjm.com](http://www.sjm.com)

#### Booth #: 518

St. Jude Medical is dedicated to transforming the treatment of some of the world's most expensive epidemic diseases by creating cost-effective medical technologies that save and improve lives of patients around the world. For more information, please visit [sjm.com](http://sjm.com).

### TEVA CNS

11100 Nall Avenue  
Overland Park, KS 66211  
USA  
Telephone: +1 800-221-4026  
Website: [www.tevausa.com](http://www.tevausa.com)

#### Booth #: 401

Teva CNS invites you to visit booth #401 in the MDS exhibit hall to discuss our dedication to supporting and improving the lives of individuals with neurological disorders.

### THE MICHAEL J. FOX FOUNDATION FOR PARKINSON'S RESEARCH

Grand Central Station  
P.O. Box 4777  
New York, NY 10163  
USA  
Telephone: +1 212-509-0995  
Fax: +1 212-509-1107  
Website: [www.micaheljfox.org](http://www.micaheljfox.org)

#### Table #: 10

MJFF aims to accelerate Parkinson's research toward improved therapies and a cure through an aggressively funded, highly targeted research program coupled with global collaboration of Parkinson's community stakeholders. Connect with staff movement disorder specialists to discuss the latest research, funding opportunities and our new physician offerings.

### THE PARKINSON'S ASSOCIATION

8555 Aero Drive, Suite 308  
San Diego, CA 92123-1745  
USA  
Telephone: +1 858-273-6763  
Website: [www.ParkinsonsAssociation.org](http://www.ParkinsonsAssociation.org)

#### Table #: 9

The Parkinson's Association is a 501(c)3 non-profit that helps improve the quality of life for those living with Parkinson's disease. We partner with the medical community and offer vital programs and services that ease the burden of Parkinson's by supporting patients, their families and friends who see life change as the Parkinson's disease progresses.

### TREMOR ACTION NETWORK

P.O. Box 5013  
Pleasanton, CA 94566-0513  
USA  
Telephone: +1 510-681-6565  
Fax: +1 925-369-0485  
Website: [www.tremoraction.org](http://www.tremoraction.org)

#### Table #: 6

Tremor Action Network, acronym TAN, is a 501(c)(3) public benefit organization dedicated to providing boutique services that include one-on-one support and guidance. TremorAction.org connects the bench to the Tremor patient. TAN videos in English and Español provide a better understanding of movement disorders.

### UCB

Allée de la Recherche 60  
Brussels 1070  
Belgium  
Telephone: +32 2 559 9427  
Website: [www.ucb.com](http://www.ucb.com)

#### Booth #: 301

UCB, Brussels, Belgium is a global biopharmaceutical company focused on the discovery and development of innovative medicines and solutions to transform the lives of people living with severe diseases of the immune system or of the central nervous system. With about 9000 people in approximately 40 countries, the company generated revenue of EUR 3.4 billion in 2012. UCB is listed on Euronext Brussels (symbol: UCB).



International Parkinson and  
Movement Disorder Society

## Exhibitor Directory

### US WORLDMEDS

4441 Springdale Road  
Louisville, KY 40241  
USA  
Telephone: +1 502-815-8100  
Website: [www.usworldmeds.com](http://www.usworldmeds.com)

#### Booth #: 701

US WorldMeds holds a fundamental belief that our science has the potential to improve patients' lives. Our portfolio of products and development projects reflects our commitment to bring innovative therapies to patients with unmet medical needs. Please visit our US WorldMeds booth to learn more.

### WORLD PARKINSON COALITION

1359 Broadway, Suite 1509  
New York, NY 10018  
USA  
Telephone: +1 212-923-4700  
Fax: +1 212-923-4778  
Website: [www.worldpdcoalition.org](http://www.worldpdcoalition.org)

#### Table #: 4

The 4<sup>th</sup> World Parkinson Congress will take place from September 20 – 23, 2016 in Portland, OR, USA. By bringing some of the world's most respected movement disorder specialists, neuroscientists, nurses, rehab specialists together with people with Parkinson's and care partners, WPC 2016 will provide a vibrant international forum to learn about the latest scientific discoveries, medical practices, and care initiatives for PD. Visit [www.WPC2016.org](http://www.WPC2016.org) for more information.

### ZAMBON SPA

Via Lillo del Duca 10  
Bresso (Milan) 20091  
Italy  
Telephone: +39 02 6652401  
Website: [www.zambongroup.com](http://www.zambongroup.com)  
[www.zambonpharma.com](http://www.zambonpharma.com)

#### Booth #: 611

Zambon is a leading Italian pharmaceutical and fine-chemical multinational company. Zambon is well-established in 3 areas: respiratory, pain, woman care; it is also strongly committed in CNS area with Xadago® (safinamide) for PD. Zambon is headquartered in Milan and was established in 1906 in Vicenza. Zambon is present in 15 countries.



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Reference: 1. Statistics on Parkinson's. Parkinson's Disease Foundation website.  
[http://pdf.org/en/parkinson\\_statistics](http://pdf.org/en/parkinson_statistics). Accessed December 31, 2014.

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## Education Grant Supporters

MDS acknowledges the supporters of the following 2015 International Congress activities through unrestricted educational grants:

### **Therapeutic Plenary Session 1101:**

*Managing Parkinson's disease: Past, present and future*, supported by BIAL - Portela & C<sup>a</sup>, S.A.

### **Therapeutic Plenary Session 1102:**

*Treatment of dystonia*, supported by Merz North America

### **Therapeutic Plenary Session 1103:**

*Therapeutic options for mood, cognition and psychosis in Parkinson's disease*, supported by ACADIA Pharmaceuticals

### **Plenary Session 2102:**

*25 years of Movement Disorders – Movement Disorders Grand Rounds*, supported by GE Healthcare

### **Parallel Session 2208:**

*New technologies in evaluation of treatment of movement disorder patients*, supported by UCB

### **Skills Workshop 2412:**

*DBS for non-parkinsonian movement disorders*, supported by Medtronic

### **Skills Workshop 3412:**

*Practical issues in using neuroimaging in Movement Disorders: What, when, why*, supported by GE Healthcare

### **Plenary Session 4102:**

*Breaking news in movement disorders*, supported by Boston Scientific

### **Parallel Session 4206:**

*Electrophysiological, morphological and molecular basis of levodopa-induced dyskinesias and their therapeutic implications*, supported by Adamas Pharmaceuticals

### **Skills Workshop 4412:**

*Managing acute and chronic post-operative issues following DBS in Parkinson's disease*, supported by Medtronic

### **Plenary Session 5101:**

*Emerging paradigms for functional surgery for movement disorders*, supported by Medtronic

### **Plenary Session 5102:**

*Controversies in Movement Disorders*, supported by Medtronic

### **Plenary Session 5103:**

*Blue Ribbon Highlights*, supported by UCB

### **2015 MDS Video Challenge**

*2015 MDS Video Challenge*, supported by Allergan

### **Guided Poster Tour #9**

*Parkinson's Disease: Clinical Trials*, supported by UCB

### **Guided Poster Tour #16**

*Parkinson's disease: Neuropharmacology*, supported by UCB



## Acknowledgements

The International Congress Oversight Committee of the 19th International Congress of Parkinson's Disease and Movement Disorders wishes to acknowledge and thank the following companies for their support:

### Platinum Level



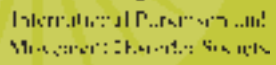
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Above companies are confirmed as of April 24, 2015

[illegible]



International Parkinson and  
Movement Disorder Society

CERTIFIES THAT

has attended the International Parkinson and Movement Disorder Society's  
19<sup>th</sup> International Congress of Parkinson's Disease and Movement Disorders on  
June 14-18, 2015 in San Diego, CA, USA

Matthew Stern  
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International Parkinson and Movement  
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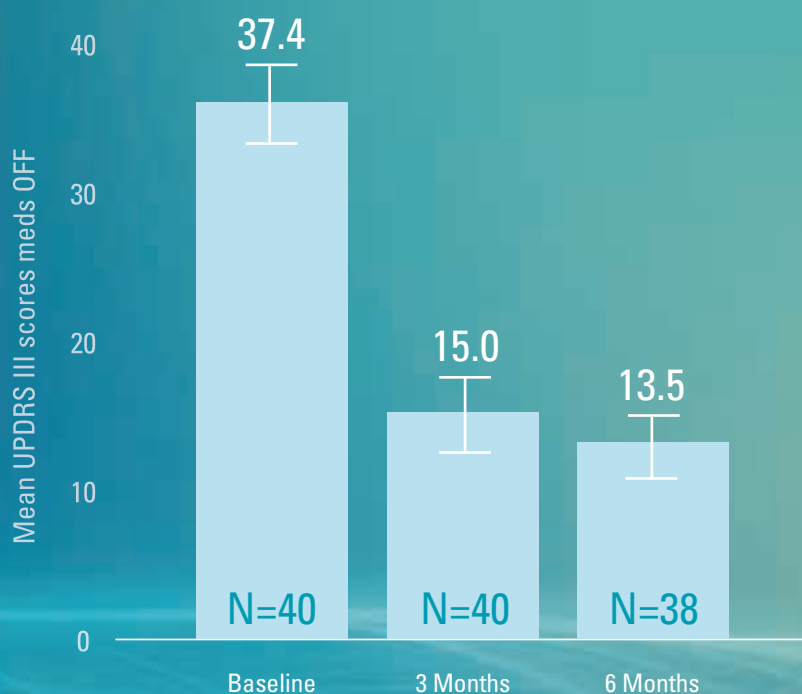
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## VERCISE™ DEEP BRAIN STIMULATION SYSTEM

1. References: Timmerman L., Alesch, A., et.al. VANTAGE trial: A prospective, multi-center trial evaluating Deep Brain Stimulation with a new multiple-source, constant-current rechargeable system (Vercise™) in Parkinson's disease. Movement Disorder Society, Poster June 2013.

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The Vercise™ Deep Brain Stimulation (DBS) System is indicated for use in unilateral or bilateral stimulation of the subthalamic nucleus (STN) or internal globus pallidus (GPi) for treatment of levodopa-responsive Parkinson's disease which is not adequately controlled with medication and also for treatment of intractable primary and secondary dystonia, for persons 7 years of age or older. Thalamic stimulation using the Boston Scientific Vercise™ DBS System is indicated for the suppression of tremor not adequately controlled by medications in patients diagnosed with Essential Tremor Parkinson's disease. All cited trademarks are the property of their respective owners. CAUTION: The law restricts these devices to sale by or on the order of a physician. Indications, contraindications, warnings and instructions for use can be found in the product labeling supplied with each device. Information for the use only in countries with applicable health authority product registrations.

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