

## XIV Meeting of the International Basal Ganglia Society (IBAGS), June 13-16, 2023

**Venue:** Clarion Sign Hotel, Stockholm (2.8 km from the centre and very close to a metro station).

### I. Opening event (Tuesday June 13)

17:00-18:30 **Welcome address and IBAGS-MDS honorary lectures.**

18:30-21:00 **Welcome reception** - Light buffet dinner at the meeting venue.

### II. Meeting programme synopsis

The meeting will consist of 10 plenary lecture sessions and 3 poster sessions. Most lecture sessions will include an oral presentation selected from the submitted abstracts (shown in purple).

Sessions, topics, speakers, lecture titles on the next pages.

Wednesday, 14 June 2023	Thursday, 15 June 2023	Friday, 16 June 2023
<p><b>08.45-10.20 – Session 1</b>                      - 08:45-09:10 Speaker 1                      - 09:10-09:35 Speaker 2                      - 09:35-10:00 Speaker 3                      - 10:00-10:20 Speaker 4</p> <p>10.20-10.45 <i>Coffee break</i></p> <p><b>10:45-12.20 – Session 2</b>                      - 10:45-11:10 Speaker 5                      - 11:10-11:35 Speaker 6                      - 11:35-12:00 Speaker 7                      - 12:00-12:20 Speaker 8</p> <p><b>12.20-13.30 – Lunch</b></p> <p><b>13.30-15.05 – Session 3</b>                      - 13:30-13:55 Speaker 9                      - 13:55-14:20 Speaker 10                      - 14:20-14:45 Speaker 11                      - 14:45-15:05 Speaker 12</p> <p>15:05-15:30 <i>Coffee break</i></p> <p><b>15:30-16:40 – Session 4</b>                      - 15:30-15:55 Speaker 13                      - 15:55-16:20 Speaker 14                      - 16:20-16:40 Speaker 15</p> <p>16:40-16:50: <i>highlighted posters – authors’ presentation</i></p> <p><b>16:50 – 18:20:</b>  <b>POSTER SESSION 1</b>                      posters can be removed by 10:00 AM on June 15</p> <p>18:30:19:00 <i>transportation to the Gala Dinner</i></p> <p><b>19:00-23:00 GALA DINNER</b></p>	<p><b>08:45-10:20 – Session 5</b>                      - 08:45-09:10 Speaker 16                      - 09:10-09:35 Speaker 17                      - 09:35-10:00 Speaker 18                      - 10:00-10:20 Speaker 19</p> <p>10.20-10.45 <i>Coffee break</i></p> <p><b>10:45-12:25 – Session 6</b>                      - 10:45-11:10 Speaker 20                      - 11:10-11:35 Speaker 21                      - 11:35-12:00 Speaker 22                      - 12:00-12:25 Speaker 23</p> <p><b>12.25-13.35 – Lunch</b></p> <p><b>13.35-14:45 – Session 7</b>                      - 13:35-14:00 Speaker 24                      - 14:00-14:25 Speaker 25                      - 14:25-14:45 Speaker 26</p> <p>14:45-15:10 <i>Coffee break</i></p> <p><b>15:10-16:20 – Session 8</b>                      - 15:10-15:35 Speaker 27                      - 15:35-16:00 Speaker 28                      - 16:00-16:20 Speaker 29</p> <p>16:20-16:30: <i>highlighted posters – authors’ presentation</i></p> <p><b>16:30 – 18:00:</b>  <b>POSTER SESSION 2</b></p> <p>18:00-18:30 poster removal</p> <p><i>A light buffet will be offered during this session</i></p>	<p><b>09:00-10.10 – Session 9</b>                      - 09:00-09:25 Speaker 30                      - 09:25-09:50 Speaker 31                      - 09:50-10:10 Speaker 32</p> <p>10.10-10:35 <i>Coffee break</i></p> <p><b>10:35-12:10 – Session 10</b>                      - 10:35 -11:00 Speaker 33                      - 11:00 -11:25 Speaker 34                      - 11:25 -11:50 Speaker 35                      - 11:50 -12:10 Speaker 36</p> <p>12:10-12:20: <i>highlighted posters – authors’ presentation</i></p> <p><b>12.20-13.30 – Lunch</b></p> <p><b>13:30-15:00:</b>  <b>POSTER SESSION 3</b></p> <p>15:00-15:30: poster removal</p> <p>15:30-16:00 <i>General assembly new council member election</i></p> <p>16:00-16:30 <i>Wrap-up</i></p> <p><b>- End of meeting -</b></p>

### III. Plenary scientific programme

#### Tuesday, June 13<sup>th</sup>

15:30 Registration opening

17:00-18:30 **Welcome address and IBAGS-MDS honorary lectures**  
(Supported by MDS - The International Parkinson and Movement Disorders Society).

17:00-17:10 Welcome to IBAGS XIV (Angela Cenci Nilsson)

17:10-18:25 Honorary lectures (Chairpersons: Per Svenningsson, Jim Surmeier)

17:10-17:35 **Judie Walters** (USA)  
*"Probing motor circuit dynamics for insight into movement disorder pathophysiology"*

17:35-18:00 **Atsushi Nambu** (Japan)  
*"In search of a unified view for the pathophysiology of movement disorders"*

18:00-18:25 **José Obeso** (Spain)  
*"Focused ultrasound for movement disorders and neurodegeneration"*

18:25-18:30 Short meeting information (Gilberto Fisone)

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#### Wednesday, June 14<sup>th</sup>

##### **Session 1. Dopamine cell types and functions** ([08:45-10:20](#))

Chairpersons: Konstantinos Meletis, Louise Parr-Brownlie

**Marisela Morales**, NIDA (USA)  
*Differential dopamine signaling achieved by co-release of other neurotransmitters*

**Thomas Perlmann**, Karolinska Institute (Sweden)  
*Interrogating dopamine neuron diversity and vulnerability at the single cell level*

**Huaibin Cai**, National Institutes of Health (USA)  
*Endocannabinoid signaling in dopaminergic neurons and Parkinson's disease*

**Guendalina Bastioli**, Vita-Salute San Raffaele University (Italy)  
*Exercise increases striatal dopamine release and improves motor behavior in aging mice*

##### **Session 2: Cortical and thalamic interplay with the basal ganglia** ([10:45-12:20](#))

Chairpersons: Per Petersson, Jeanette Hellgren Kotaleski

**Yoland Smith**, Emory University, Atlanta (USA)  
*Comparative Anatomy of Thalamocortical and Corticofugal Systems*

**Pavel Rueda-Orozco**, UNAM Mexico City (Mexico)  
*Role of corticostriatal systems in bilaterally coordinated movements and their disruption in PD models*

**Hayriye Cagnan**, University of Oxford (UK)  
*Thalamocortical dynamics and the emergence of basal ganglia oscillations*

**Emmett Thompson**, University College London (UK)  
*Procedural replay in dorsolateral striatum is revealed using an unsupervised point process model*

### **Session 3: The basal ganglia network and maladaptive behaviors** ([13.30-15:05](#))

Chairpersons: Ledia F. Hernandez, Rosario Moratalla

**Christiane Schreiweis**, Sorbonne Université & Hôpital de la Pitié Salpêtrière (France)  
*Behavioural features and synaptic dysfunctions in mouse models of OCD*

**Cristina Alcacer**, Champalimaud Neuroscience Programme (Portugal)  
*Behavioural features and striatal pathways in mouse models of L-DOPA-induced dyskinesia*

**Alexandra Nelson**, UCSF (USA)  
*PD-related impulse control disorders: models and mechanisms*

**Anastasia Diamantopoulou**, Goethe University Frankfurt (Germany)  
*Dopaminergic hyperactivity in a 22q11.2 genetic high risk mouse model of schizophrenia*

### **Session 4: Cell types, connections, and functions of the intrinsic basal ganglia nuclei** ([15:30-16:40](#)) Chairpersons: Åsa Mackenzie, Yoland Smith

**Nicolas Mallet**, University of Bordeaux (France)  
*On the functions and connections of GPe cell types*

**Yoni Kupchik**, The Hebrew University of Jerusalem (Israel)  
*Cells and connections of the ventral pallidum*

**Elina Nagaeva**, University of Helsinki (Finland)  
*The somatostatin neurons in the ventral tegmental area (VTA) send long-range projections and are implicated in stress-related behaviours*

**16:40-16:50** Highlighted posters – authors' presentations<sup>1</sup> Chairperson: Angela Cenci Nilsson

**16:50-18:20: POSTER SESSION 1**

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## **Thursday, June 15<sup>th</sup>**

### **Session 5: Glial-neuronal interactions at basal ganglia circuits** ([08:45-10:20](#))

Chairpersons: Raffaella Tonini, Elaine Del Bel

**Baljit Khakh**, UCLA (USA)  
*Astrocytic functions in the regulation of basal ganglia physiology and behaviors*

**Stephanie Cragg**, University of Oxford (UK)  
*Modulation of striatal dopamine transmission by astrocytes*

**Marta Navarrete-Llinas**, Institute Cajal CSIC (Spain)  
*Input-specific astrocyte activation in the ventral striatum*

**José Luis Lanciego**, University of Navarra (Spain)  
*Development and characterization of a novel animal model of Parkinson's disease in non-human primates based on neuromelanin accumulation*

### **Session 6: Synaptic plasticity and behavioral reinforcement** ([10:45-12:25](#))

Chairpersons: Arvind Kumar, Hagai Bergman

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<sup>1</sup> All highlighted posters are listed on p. 5-6.

**Ann Graybiel**, MIT McGovern Institute (USA)  
*Behavioural consequences of neural plasticity in nigro-striato-nigral loops*

**Sho Yagishita**, University of Tokyo (Japan)  
*Multimodal systems-level interrogations of striatal plasticity*

**John Reynolds**, University of Otago (New Zealand)  
*Dopamine effects on basal ganglia systems and plasticity – a translational perspective*

**Peter Dayan**, University of Tübingen (Germany)  
*A computational approach to study basal ganglia plasticity in reinforcement learning*

**Session 7: External inputs to the basal ganglia** ([13.35-14:45](#))  
Chairpersons: Gilberto Fisone, Alexandra Nelson

**Kamran Khodakhah**, Albert Einstein College of Medicine (USA)  
*Cerebellum and basal ganglia interplay*

**François George**, University of Bordeaux (France)  
*Amygdala and basal ganglia interplay*

**Nadine K. Gut**, Rutgers University, Newark, NJ (USA)  
*Pedunculopontine connections to the basal ganglia*

**Session 8: Basal ganglia neurochemistry revisited using new sensor technology**  
([15:10-16:20](#)) Chairpersons: Jill Crittenden, John Reynolds

**Jun Ding**, Stanford University (USA)  
*Voltage sensitive indicators in striatal neurons*

**Alan Pradip Jasanoff**, MIT Dept. Biological Engineering (USA)  
*Functional dissection of striatal circuitry using molecular fMRI*

**Guy Yona**, University of Oxford (UK)  
*Movement-related dopamine signaling in mouse dorsal striatum in health and Parkinsonism*

**16:20-16:30: Highlighted posters – authors' presentation** (Chairperson Åsa McKenzie)

**16:30-18:00: POSTER SESSION 2**

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**Friday, June 16<sup>th</sup>**

**Session 9: Striatal microcircuits and compartments** ([09:00-10.10](#))  
Chairpersons: Josh Goldberg, Gilad Silberberg

**Maxime Assous**, Cardiff University (UK)  
*Striatal microcircuits organization*

**Joshua Plotkin**, SUNY Stony Brook (USA)  
*New vistas on striosome and matrix*

**Nathalie Dehorter**, University of Queensland (Australia)  
*Molecular Control of the Striatal microcircuits during Development*

**Session 10: Utilising circuit dynamics and oscillations to treat basal ganglia disorders**  
([10:35-12:10](#)) Chairpersons: Julian Neumann, Thomas Boraud

**Aryn Gittis**, Carnegie Mellon University Pittsburgh (USA)

*Translating cell-specific interventions from optogenetics to deep brain stimulation*

**Andrew Sharott**, University of Oxford (UK)

*Utilising phase information from beta oscillations for adaptive neuromodulation*

**Roxanne Lofredi**, Charité Universitätsmedizin Berlin (Germany)

*Oscillatory and behavioural mechanisms of neuromodulation in patients with basal ganglia disorders*

**Jared Cregg**, University of Copenhagen (Denmark)

*Basal ganglia-spinal cord pathway that commands locomotor gait asymmetries*

**12:10-12:20: Highlighted posters – authors’ presentation** ([Chairperson: John Reynolds](#))

**13:30-15:00: POSTER SESSION 3**

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## Highlighted posters

### Poster session 1

Natalia Lopez-Gonzalez del Rey "Selective ablation of Sox6+ dopaminergic neurons results in parkinsonism-like behaviors" (Dopamine cell types and functions)

Nir Asch "Basal Ganglia and Prefrontal Cortex Complementary Roles in Exploratory Learning of the Healthy and Phencyclidine Non-Human Primate Model of Schizophrenia" (BG and maladaptive behaviors)

Mathilde Bertrand "Subthalamic nucleus electrophysiological biomarkers as predictors of symptoms onset in a non-human primate model of Parkinson's disease" (Utilising circuit dynamics and oscillations to treat BG disorders)

Alban de Kerchove d'Exaerde "Histone H2A monoubiquitination in the thalamus regulates cocaine effects and addiction risk" (BG and maladaptive behaviors)

Isaac Greenan "Encoding of reward, effort and decision by neuronal ensembles in the cortico-basal ganglia network" (Cell Types, Connections, & Functions of the Intrinsic BG Nuclei)

Mark Humphries "The computational bottleneck of basal ganglia output, and how to overcome it" (Cell Types, Connections, & Functions of the Intrinsic BG Nuclei)

Laureen McElvain "Organization of parallel basal ganglia output pathways" (Cell Types, Connections, & Functions of the Intrinsic BG Nuclei)

### Poster session 2

Dieter Jaeger "Thalamic and Cortical Activity Dynamics in a Decision Lick Task With Optogenetic Basal Ganglia Stimulation" (Cortical and thalamic interplay with the basal ganglia)

Charlotte Collingwood "Habits Through Temporal-Difference Action Learning" (Synaptic plasticity and behavioural reinforcement)

Daniel Trpevski "Calcium- and reward-based local learning rule for feature binding" (Synaptic plasticity and behavioural reinforcement)

Maya Molinari "Ionic plasticity of midbrain GABAergic synapses in PD models" (Synaptic plasticity and behavioural reinforcement)

Martina Montanari "Synaptic alterations in the dorsal striatum of the R451C-Nlgn3 mouse model of autism: role of group I metabotropic receptors" (Synaptic plasticity and behavioural reinforcement)

Gabriela Rodriguez "Cell-type specific cue representations in the dorsomedial striatum emerge during learning and support the selection of visually guided actions" (Synaptic plasticity and behavioural reinforcement)

Adriana Galvan "Use of chemogenetic ligand-gated ion channels to modulate the activity of the internal globus pallidus in monkeys" (Basal ganglia neurochemistry revisited using new sensor technology)

**Poster session 3:**

Patricia Bonnavion "Unexpected inhibition of motor function by dopamine activation of D1/D2 co-expressing striatal neurons" (Striatal microcircuits and compartments)

Victoria Hall "Regional Expression and Mechanisms of Striatal Fast-Spiking Interneuron Plasticity in Habit Learning" (Striatal microcircuits and compartments)

May-Anh Vu "Striatum-wide monitoring of DA release reveals contributions from distinct action, sensory, and reward-related spatiotemporal dynamics" (Striatal microcircuits and compartments)

Chang Li "Time course of neuronal and glial adaptations in the dopamine-denervated striatum" (Striatal microcircuits and compartments)

Meera Chickermane "Connectivity links beta oscillations with dopamine in the healthy brain" (Utilising circuit dynamics and oscillations to treat BG disorders)

Alessia Cavallo "Reinforcement of movement velocity through movement triggered adaptive deep brain stimulation in Parkinson's disease" (Utilising circuit dynamics and oscillations to treat BG disorders)