Scientific program (preliminary)

RLS Gene networks and Genome-Wide-Association studies

G. Rouleau: RLS gene networks and GWAS studies of RLS patients
S. Clemens: RLS mouse models for Meis1, BTBD9, and D3KO
G Uhl: PTPRD associations, mouse models and identification of positive allosteric modulators as potential RLS therapeutics
B. Schormair: RLS genetic meta-analysis and drug repurposing opportunities and challenges

Utilizing Models of Brain Iron Dysregulation to Understand the Pathology of RLS

C. Earley: Validation of the dietary iron-deficiency rodent model as a model for RLS pathology
B. Jones: BXD RI mouse model – Exploring factors that define brain iron homeostasis and their relevance of RLS
S. Ferre: Dietary iron-deficiency rodent model – exploring the consequence on non-dopaminergic systems
J. Connor: Blood-brain-barrier model – What can it tell us about brain iron dysregulation in RLS

When Movement and Breathing Collide During Sleep: Defining a Unified RLS-OSA Phenotype

L. DelRosso: RLS + OSA as a Distinct Physiological and Psychiatric-Risk Phenotype: Insights from CO-ROSA and Clinical Cohorts
G. Senel: Movement–Breathing Overlap in Children: Early-Life Expression of RLS, PLMS, and OSA
D. Garcia-Borreguero: Converging Neurobiological Pathways Linking RLS, Parkinson's Disease, and Disordered Breathing
J. Winkelman: Respiratory-Related Leg Movements and Mortality Risk in Obstructive Sleep Apnoea

Role of Autoimmunity and Inflammation in Restless Legs Syndrome

P. Mogavero: Omics Evidence of Immune and Inflammatory Involvement in Restless Legs Syndrome
L. Weinstock: Mast Cell Activation and Restless Legs Syndrome
G. Senel: Flow Cytometry in the Diagnosis and Subtyping of Restless Legs Syndrome
A. Walters: (D)A Phenome Wide Association Study (PheWAS) lends genetic support to the association of Restless Legs Syndrome with auto-immune disorders

Restless Legs Syndrome and Stroke: Bridging Mechanisms, Vascular Risk, and Clinical Implications

N. Farhani: The Pathophysiology of RLS/PLMs: Implications for Stroke Risk
M. Boulos: Vascular Damage as a Risk Factor for Stroke and RLS/PLMs
A. Walters: Epidemiological Evidence Linking RLS/PLMs with Hypertension and Stroke
A. Walters: Can Treatment of RLS/PLMs Lead to Lower Cardiovascular Risk?

Cannabis and Restless Legs Syndrome

J. Bainbridge: The Physiology of Cannabis
H. Clarke: Medical Cannabis and Clinical Care
M. Boulos: Cannabis in RLS

New Perspectives on the Mechanisms of the Therapeutic Effects of Opioids in RLS

C. Earley: Opioids in the treatment of RLS: where do we stand?
M. Valle-Leon: Common neuronal mechanisms of RLS and opioid withdrawal
S. Ferre: Pharmacological targeting of μ-opioid receptor heteromers
M. Michaelides: The quest for opioids without non-wanted side effects

Dopaminergic augmentation of RLS Symptoms: New knowledge on its mechanisms and new therapeutic perspectives

L. DelRosso: Does the development of augmentation depend on the age of initiation of dopaminergic treatment? The experience with pediatric population
M. Manconi: Comparison between levodopa-induced dyskinesia in PD and augmentation in RLS: the role of plasma level stability
S. Ferre: Preclinical evidence of an impairment of the presynaptic control of dopaminergic transmission in augmentation
D. Garcia-Borreguero: The role of brain iron deficiency in augmentation

On the Mechanisms of Dopamine Receptor Agonists in RLS: Insights from the Brain Iron Deficiency Rodent Model

C. Earley: The clinicopathological aspects of the dopaminergic system in RLS
S. Ferre: Basal ganglia targets of the dopaminergic compounds in RLS
S Clemens: Spinal targets of the dopaminergic compounds in RLS
Y. Lai: Behavioral component of the BID model and relevance of dopaminergic system

Townhall Meeting with patients and families

Moderators: C. Earley and S. Clemens

Research grant awardees 2024

S. Hochman: title tbd
B. Koo: title tbd
Mauro Manconi: title tbd
I. Ghorayeb: title tbd

Neuromodulator Devices for Managing RLS

A. Spector: TOMAC: Exploring the data and real-life experiences
G. Lanza: Non-Invasive Brain Stimulation in Restless Legs Syndrome: From Neurophysiology to Neuromodulation
M. Manconi: Spinal Cord Neuromodulation: clinical studies reviewed
M. Holland: A Neurosurgeon Perspective: Clinical Evidence for Spinal Cord Stimulation and the NO-RLS Study