



preliminary scientific program



International RLS Study Group (IRLSSG)
and European RLS Study Group (EU-RLSSG)

2015 RLS/WED SCIENCE SUMMIT

OCTOBER 22-26, 2015

Asilomar Conference Grounds in Pacific Grove, CA

www.irlssg.org

COMMITTED TO ADVANCING BASIC AND CLINICAL RESEARCH ON RLS

Contact us for registration and
sponsorship opportunities:

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DEAR COLLEAGUES,

The International RLS study group (IRLSSG) and the European RLS Study Group (EURLSSG) are organizing a 3 and half-day 2015 RLS/WED science summit from October 22-26, 2015, in Monterey, California. This will include a series of discussion forums typically 90 minutes each focused on one area of RLS research.

Each symposium will provide a careful review and synthesis of current knowledge with indications for gaps in the knowledge and the needs for future studies. The symposia talks are designed to germinate new ideas based on current state of the art research. A key outcome will be developing several papers related to different areas of RLS research.

The conference will be at the Asilomar Conference Grounds in Pacific Grove, CA, www.visitasilomar.com allowing the attendees to network together while enjoying the scenic landscape of California. Please join us at this research retreat. Your expertise in the field will play an important role in making this international RLS workshop a great success.



Diego Garcia-Borreguero, *Co-chair*



Juliane Winkelmann, *Co-chair*

2015 RLS/WED SCIENCE SUMMIT PROGRAM COMMITTEE



Diego Garcia-Borreguero (Co-chair)



Juliane Winkelmann (Co-chair)

Richard Allen
Wolfgang H Oertel
Daniel Picchietti
Marco Zucconi





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and European RLS Study Group (EU-RLSSG)**
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PROGRAM

THURSDAY OCTOBER 22, 2015

Noon – 10:00pm	Check-in and registration
6:00pm – 6:20pm	Sunset view, drinks and opening reception
6:20pm – 7:00pm	BBQ dinner at Crocker Dining Hall
7:30pm – 9:00pm	Opening remarks, networking, and social reception

FRIDAY OCTOBER 23, 2015

7:30am – 8:00am	Breakfast at Crocker Dining Hall
8:15am – 8:30am	Opening session
8:30am – 10:00am	Session 1 – Epidemiology
10:00am – 10:20am	Coffee Break
10:20am – 11:50am	Session 2 – Animal Models for RLS Phenotype
Noon – 1:00pm	Lunch at Crocker Dining Hall
1:15pm – 3:15pm	Session 3 – Genetics
3:15pm – 3:30pm	Coffee Break
3:30pm – 5:00pm	Session 4 - Spinal and cortical excitability/hyperarousal
5:00pm – 6:00pm	Writing Session and Posters
6:00pm – 7:00pm	Break, sunset view at 6:20pm; dinner at Crocker Dining Hall
7:30pm – 8:30pm	Debate on Diagnostic Criteria: HB Lee, Dan Picchietti, and Art Walters
8:30pm – 9:30pm	Posters, discussion, and social networking

SATURDAY OCTOBER 24, 2015

7:30am – 8:00am	Breakfast at Crocker Dining Hall
8:00am – 9:30am	Session 5 – PLMS discussion session
9:30am – 9:50am	Coffee Break
9:50am – 11:50am	Session 6 – The Role of Iron
Noon – 1:00pm	Lunch at Crocker Dining Hall
1:15pm – 2:45pm	Session 7 – The Dopaminergic System and RLS: Where are We and What Next
2:45pm – 3:00pm	Coffee Break
3:00pm – 4:30pm	Session 8 - Opioids and pain in RLS
4:30pm – 5:30pm	Writing Session and Posters
6:00pm – 7:00pm	Break, sunset view at 6:20pm; dinner at Crocker Dining Hall
7:30pm – 8:30pm	Genetics of PLMs: E Mignot
8:30pm – 9:30pm	Posters, discussion, and social networking



SUNDAY OCTOBER 25, 2015

7:30am – 8:00am	Breakfast at Crocker Dining Hall
8:10am – 9:40am	Session 9 – RLS and cardiovascular disease: current evidence and a roadmap for future research*
9:40am – 10:00am	Coffee Break
10:00am – 11:30am	Session 10 – Brain imaging and connectivity
Noon – 1:00pm	Lunch at Crocker Dining Hall
1:15pm – 2:45pm	Session 11 – New treatment implications of current science*
2:45pm – 3:00pm	Coffee Break
3:00pm – 4:30pm	Session 12 - Clinical updates
4:30pm – 6:00pm	Writing Session and Posters
6:00pm – 7:00pm	Break, sunset view at 6:20pm; dinner at Crocker Dining Hall
7:30pm – 8:30pm	Next Generation RLS Researchers - increasing awareness on RLS Research for Young scientists and clinicians: Wolfgang H Oertel and J Montplaisir
8:30pm – 9:30pm	Discussion and next steps
9:30pm – 10:00pm	Networking

MONDAY OCTOBER 26, 2015

5:00am – Noon	Depart for airports
7:30am – 8:30am	Breakfast at Crocker Dining Hall
8:30am – 11:30am	Writing sessions

REGISTRATION RATES AND HOTEL/CATERING RATES:

Registration rates:

IRLSSG and EU-RLS Member registration rate:	\$300
Non-member registration rate:	\$1,200

Hotel and catering rates:

Asilomar Conference Grounds:	\$240 per night (includes breakfast, lunch and dinner)
Catering only (no overnight stay):	\$120 per day

Registration and lodging form is available at www.irlssg.org/2015-workshop. Space is limited. Priority deadline is July 1, 2015. Contact secretary@irlssg.org with questions.



SESSION 1 **Epidemiology****CO-CHAIRS** Daniel Picchietti, Klaus Berger**SPEAKERS AND TITLE**

Daniel Picchietti	How has epidemiological research helped the field of WED/RLS? (brief introduction)
Stephen van den Eeden	Opportunities and limits of secondary data sources in WED/RLS research
Lorene M. Nelson (Stanford)	What needs to be done in WED/RLS epidemiological research?—an “outside” expert’s view
Klaus Berger	Convergence of WED/RLS epidemiological research with genetic, biologic, and other areas of WED/RLS research
Daniel Picchietti and Klaus Berger	Summary

SESSION 2 **Animal models for RLS phenotype****CO-CHAIRS** Bryon Jones, David Rye**SPEAKERS AND TITLE**

Juliane Winkelmann	The role of <i>Meis1</i> , a gene nominated by GWAS, in behaviors mimicking RLS
Yunqing Li	The role of <i>Btbd9</i> , a gene nominated by GWAS, in behaviors and iron regulation related to RLS
Subhabrata Sanyal	Ubiquitination in <i>Drosophila</i> as related to RLS
Richard Allen	BXD 40, a mouse that when fed an iron-poor diet, exhibits endo- and exo-phenotypes mimicking RLS
Byron Jones and David Rye	Discussion

SESSION 3 **Genetics****CO-CHAIRS** Guy Rouleau, Juliane Winkelmann**SPEAKERS AND TITLE**

Juliane Winkelmann	The search for common variants: GWAS studies – an update
Barbara Schormair	The search for rare variants: WES and WGS studies of RLS
Guy Rouleau	Genetic architecture of RLS”, including “common variants” and “rare variants” and thoughts about “missing heritability.”
David Rye	From genotype to phenotype in RLS and PLMS
Juliane Winkelmann	Summary and discussion

SESSION 4 **Spinal and cortical excitability/hyperarousal****CO-CHAIRS** Liborio Parrinoco, Walter Paulus**SPEAKERS AND TITLE**

Imad Ghorayeb (Bordeaux)	Spinal physiology in non-human primate models of RLS
Cornelius Bachmann	Physiology of spinal sensory processing in RLS alternatively RLS and its relation to pain at a spinal level
Walter Paulus	Spinal excitability and methods of stimulation
Yuping Wang	Cortical excitability
Giuseppe Lanza	Discussion on spinal and cortical excitability hyperarousal
Walter Paulus and Liborio Parrino	Summary

SESSION 5 **PLMS****CO-CHAIRS** Raffaele Ferri, Stephany Fulda**SPEAKERS AND TITLE**

Jacques Montplaisir	PLMS as a cardiovascular risk factor: evidence and mechanisms
Stephany Fulda	Evidence-based criteria are needed to score PLMS
Liborio Parrino	Neurophysiological mechanisms of driving PLMS
Raffaele Ferri and Stephany Fulda	Discussion

SESSION 6 **The role of iron****CO-CHAIRS** James Connor, Richard Allen**SPEAKERS AND TITLE**

James Connor	Blood Brain Barrier iron - CSF from RLS patient
Stephanie Patton	Iron – Hypoxia interaction: central and peripheral effects including effects on genes and peripheral myelin
Richard Allen	Pre-clinical and clinical data on effects of iron deficits and iron treatments
Konrad Oexle	Genetic factors of iron
Richard Allen and James Connor	Discussion

SESSION 7 The dopaminergic system and RLS: where are we and what next**CO-CHAIRS** Chris Earley, Stephan Clemens**SPEAKERS AND TITLE**

Sergi Ferre	DA receptor heteromers as possible new targets for RLS
George Uhl	DAergic systems and cell adhesion molecules. How might they inform us about RLS, augmentation and novel therapeutic targets
Chris Earley	The state of the DAergic system in RLS
Stefan Clemens	The spinal DAergic system and relevance to RLS
Chris Earley and Stephan Clemens	Discussion

SESSION 8 Opioids and pain in RLS**CO-CHAIRS** Claudia Trenkwalder, Walter Zieglgänsberger**SPEAKERS AND TITLE**

Walter Zieglgänsberger	The interaction of pain physiology and the opioid system: from animals to humans
Birgit Hoegl	The contribution of Sleep and Sleep deprivation for pain
Sam Ahmedzai	Actions of commonly used opioid medications; mechanisms and actions of opioids
Claudia Trenkwalder	Possible mechanisms of action for opioid treatment in RLS - lessons from clinical trials
Claudia Trenkwalder	Discussion; What type of pain is occurring in RLS patients

SESSION 9 RLS and cardiovascular disease: current evidence and a roadmap for future research**CO-CHAIRS** John Winkelman, Virend Somers**SPEAKERS AND TITLE**

John Winkelman	Epidemiologic evidence linking RLS and other sleep disorders to cardiovascular disease
Virend Somers	Neural mechanisms linking RLS and other sleep disorders to cardiovascular disease
John Floras	Vascular mechanisms linking RLS and other sleep disorders to cardiovascular disease
Naresh Punjabi	Inflammatory/metabolic mechanisms linking RLS and other sleep disorders to cardiovascular disease
John Winkelman and Virend Somers	Open discussion on how relates to RLS.

SESSION 10 **Brain imaging and connectivity****CO-CHAIRS** Giovanni Rizzoco, Yong Won Cho**SPEAKERS AND TITLE**

Giovanni Rizzo	Brain MRI in RLS. Include both 1) Iron level to possible structural changes 2) Regional brain metabolic dysfunctions in RLS patients: magnetic resonance spectroscopy findings
Maria I. Argyropoulou	Task-evoked functional MRI for studying RLS
Enzo Tagliazucchi	Investigating brain connectivity from resting state functional MRI recordings: methodological aspects
Yong Won Cho	Resting state functional MRI assessments in RLS
Giovanni Rizzo and Young Won Cho	Discussion

SESSION 11 **New treatment implications of current science****CO-CHAIRS** Diego Garcia-Borreguero, Sergi Ferre**SPEAKERS AND TITLE**

Chris Earley	A possible role of adenosine, histamine, and glutamate in RLS
Diego Garcia-Borreguero	Role of drugs acting on the calcium channels
Mauro Manconi	The future of animal models for drug development of RLS; Animal models for rapid screening of RLS
Sergi Ferre	Getting mechanistic with new in vivo models of cortico-striatal neurotransmission
Diego Garcia-Borreguero	Summary discussion of future treatments with interactive questions and answers

SESSION 12 **Clinical updates****CO-CHAIRS** Luigi Ferini-Strambi, S Chokroverty**SPEAKERS AND TITLE**

Marco Zucconi	Summary review of the PLMS task force
Ferini-Strambi and Chokroverty	Discussion of PLMS task force
Mike Silber	Summary review of the treatment algorithm from the augmentation task force
Ferini-Strambi and Chokroverty	Discussion of treatment algorithm
Bill Ondo	Deep brain stimulation and RLS: Pathophysiology considerations
Ferini-Strambi and Chokroverty	Discussion of DBS and overall summary of clinical updates