

2022 Annual CSI Research Retreat Program
October 12, 2022
Smilow Auditorium, University of Pennsylvania

We welcome you to the 2022 Annual CSI Research Retreat and thank you for your participation!

Dr. Amita Sehgal Ph.D.

Musser Professor of Neuroscience and HHMI Investigator; Director, Chronobiology and Sleep Institute (CSI)

The CSI Organizing Committee

Michael Tackenberg, Ph.D.

Sharon Schutte-Rodin MD, DABSM, FAASM

Pawan Kuma Jha, Ph.D.

Jennifer Goldschmeid, Ph.D.

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2022 CSI Research Retreat Program

8-9am: Breakfast, Registration, Posters

9-10am:

Welcome by Dr. Amita Sehgal Ph.D.

Musser Professor of Neuroscience and HHMI Investigator; Director, Chronobiology and Sleep Institute (CSI)

Introduction to the Keynote Speaker by Dr. Sigrid Veasey

Keynote Speaker: Maiken Nedergaard MD, DMSc

Professor, Developmental Neurology and Neurosurgery; Co-Director, Department of Neurology, Center for Translational Neuromedicine; University of Rochester School of Medicine and Dentistry

10am-10:45am:

Session Leader: Juan Alvarez Ph.D.

Session Theme: Molecular Metabolism Around the Clock

Presentations:

Dania Malik *Glucose Challenge Uncovers Temporal Fungibility of Metabolic Homeostasis Throughout the Day*

Michael Iannacone *Sleep Enhances Survival During Virus Infection in Caenorhabditis Elegans*

Pawan Jha *Acute Sleep Restriction Predisposes the Liver to Inflammation by Elevation of Uric Acid*

10:45-11am: Coffee break

11am-12pm:

Session Leader: Lauren Woodie, Ph.D.

Session Theme: Organismal Metabolism Around the Clock

Presentations:

Arjun Sengupta *Vulnerability to Total Sleep Deprivation Is a Function of Peripheral Metabolic Profile*
NadimEl Jamal *The Retention of Rhythmic Components in Blood Pressure: A Novel Prognostic Indicator in Chronic Kidney Disease*
Oindrila Paul *Effect of Environmental Lighting on Circadian Control of Lung Injury*
Lauren Woodie *Vagal Control of Hepatocyte Clock-Independent Rhythmic Gene Expression in the Liver*

12-1pm: Lunch and Poster Viewing

1-2PM:

Introduction to the Keynote Speaker by Dr. David Raizen

Keynote Speaker: Horacio de la Iglesia Ph.D.

Professor, Department of Biology; Director, Graduate Program in Neuroscience; University of Washington

Keynote title: "How The Sun and the Moon Time Our Sleep"

2-3pm:

Session Leader: Sammy Dhaliwal, Ph.D.

Session Theme: Psychosocial Factors Affecting Sleep

Presentations:

Olivia Larson *Shallower Sleep Depth in the Laboratory Is Not Related to Insomnia Severity*

Mathias Basner *Effects of Bedroom PM2.5, CO2, Temperature, Humidity and Noise on Sleep: An Observational Actigraphy Study*

Fanghong Dong *Adverse Family Experiences and Depression in Adolescents: The Moderating Role of Sleep Habits*

Bruno Saconi *Daytime Sleepiness, Insomnia Symptoms, and Quality of Life in Veterans with Obstructive Sleep Apnea With or Without Chronic Pain*

3-3:15pm: Coffee break

3:15-4:15pm:

Session Leader: Rebecca Moore, Ph.D.

Session Theme: Sleep in Health and Disease

Presentations:

Kyla Mace *A Reverse-genetic Screen of Human Hypersomnia-associated Genes Identifies Synaptic Adhesion Molecule *Beat-1a* as a Sleep-regulatory Factor*

Akshay Tangutur *Cardiovascular Endpoints for Obstructive Sleep Apnea with Twelfth Cranial Nerve Stimulation (CARDIOSA-12)*

Vishnu Cuddapah *Circuits Encoding Sleep Need Can Be Manipulated to Control Seizure Severity*

Everett Seay *A Comparison of Visual and Physiologic Assessments of Upper Airway Collapse During Drug-Induced Sleep Endoscopy (DISE)*

4:15-6:15pm: Reception, Poster viewing, Trainee awards

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The CSI Research Retreat Posters:

Poster #	Name	Abstract Title
1	Rebecca Somach	Alterations in Orexin/Hypocretin Physiology are Different in Male and Female Mice after Mild Traumatic Brain Injury
2	Amber Zimmerman	Translating GWAS Loci to Function: 3D-genomics Paired with Cross-species Validation Implicates Novel Genes for Insomnia
3	Fusun D. Balli	Testing Pleiotropic Effects of a High Confidence Autism Spectrum Disorder Gene, ARID1B, on Sleep and Social Preference
4	Benjamin Auerbach	Tempo: An Unsupervised Bayesian Algorithm for Circadian Phase Inference in Single-cell Transcriptomics
5	Xiaofeng Guo	Transcriptomic Characterization of Preoptic Area in Homeostatic Sleep Controls Using Single-nucleus RNA-sequencing
6	Kerry LeCure	Genetic Screen Using the Million Mutation Project to Identify Genes Required for Sickness Sleep in <i>C. Elegans</i>
7	Elana Pyfrom	Determining the Role of Sleep in <i>Drosophila</i> Brain Lipid Homeostasis
8	Jessica Schwarz	Blood-born Factors that Change with Age Contribute to Differences in Transcriptional Rhythms
9	Joseph Bedont	Polyamine Elevation and Nitrogen Stress are Toxic Hallmarks of Chronic Sleep Loss in <i>Drosophila Melanogaster</i>
10	Yongjun Li	Sleep and Memory Consolidation are Linked by RNA Processing Genes in the <i>Drosophila</i> Mushroom Body
11	Fu Li	Modulation of Sleep by Trafficking of Lipids through the <i>Drosophila</i> Blood Brain Barrier
12	Michael Fetchko	Traumatic Brain Injury Effects Circadian Activity and Sleep in <i>Drosophila</i>
13	Khushbakht Butt	An Auxin-inducible, GAL4-compatible, Gene Expression System for <i>Drosophila</i>
14	Sergio Crespo-Flores	Deciphering the Molecular Underpinnings of Circadian Signaling Integration in <i>Drosophila</i> by Cell Specific CRISPR Knockout
15	Stephen Ratner	Impact of Circadian Rhythms on the Outcome of Traumatic Injury in <i>Drosophila Melanogaster</i>
16	Akanksha Mathivanan	Examining Sleep and Locomotor Behavior Following Traumatic Brain Injury
17	Naureen Hameed	Neuromodulatory Signal Integration in a <i>Drosophila</i> Clock Output Region
18	Lisa Bottalico	Systems-based Exposure Modeling of Endocrine Disrupting Chemical Exposure: Exploring Mode of Action of EDCs and Interactions with the Circadian Clock
19	Christopher Goudarzi	Optimizing DESI-MS Small Molecule Detection from Dried Blood Spots
20	Ashley Woolfork	A Multimodal Approach to Study the Effects of a Functional Circadian Clock on Brain Metabolite Distribution Using Mass Spectrometry Imaging in Mice
21	Paula Haynes	Measurement of Metabolic Rate of <i>Drosophila</i> Sleep and Circadian Mutants Using Respirometry
22	Adam Honig-Frand	Elucidating Excitatory and Inhibitory Inputs to the Preoptic Area of the Hypothalamus
23	David Lozano	Neural Population Dynamics in Midbrain and Pons During Sleep
24	Kun Zhu	REV-ERB Repressive Hubs Shape Rhythmic Gene Expression in Liver
25	Amy Poe	Developmental Emergence of Sleep Rhythms Enables Long-term Memory Capabilities in <i>Drosophila</i>
26	Jaclyn Durkin	Atx2 is a Modifier of TDP-43-dependent Sleep Disturbances

- 27 Milan Szuperak A Subpopulation of Octopaminergic Neurons Persists throughout Development to Promote Arousal across the Lifespan in *Drosophila*
- 28 Jeffrey Rosa Identifying the Genetic Basis of Sleep Maturation in *Drosophila* Dopaminergic Neurons
- 29 Andrzej Wasilczuk Sex Difference in the Anesthetic State
- 30 Timothy Jiang Modulating Resistance to State Transition by Upregulating Adrenergic Loci Activity
- 31 Joseph Buchler Modulation of Post-mating Sleep Suppression by Food Quality in *Drosophila* Females
- 32 Oghenerukevwe Akpoghiran TARANIS interacts with PDP1 and VRI to modulate the pace of the circadian clock temperature-dependently
- 33 Benjamin Peter Jenny A Novel *Drosophila* C9orf72-associated ALS Model with Pre-neurodegeneration Circadian Phenotypes
- 34 Sho Inami Benefits and Neural Mechanisms of Sleep Induced by Vibration in *Drosophila*
- 35 Diego Davila Dissociative Altered State Elicited by Subanesthetic Concentrations of Ketamine in Humans is Associated with More Stable Neural Dynamics Relative to Wakefulness
- 36 Utham Valekunja Circadian Regulation of TARDIS
- 37 Amruta Naik Circadian Regulation of Influenza Induced Lung Injury in the aging Lung
- 38 John Maurer Neuronal and Homeostatic Regulation of Sleep by the Preoptic Area and Tubermammillary Nucleus
- 39 Jenny Smith Control of Sleep by the Preoptic Area of the Hypothalamus
- 40 Ashley Choi Neural Circuit Mechanisms Underlying Sleep Disturbances In 16p11.2 Deletion Mouse Model of Autism
- 41 Henry Hollis Multi-tissue Transcriptional Changes and Core Circadian Clock Disruption Following Intensive Care
- 42 Jan Hammarlund Integrated Informatic and Experimental Analysis Reveals Subtype Specific Circadian Changes Predicting Breast Cancer Prognosis and Drug Responsiveness
- 43 Thomas Brooks Temperature Biorhythm Atlas: Diurnal Rhythmicity of Wrist Temperature Predicts Disease Incidence in the UK Biobank
- 44 Alexa Watach Utilizing Workflow Mapping and Stakeholder Engagement to Enhance Implementation Planning of PennPALS
- 45 Brendan Keenan Analyses in Diversity Outbred Mice Identify New Genetic Loci Associated with Sleep Phenotypes
- 46 Lindsey Clark The Identification of Overlap Syndrome in COPD: A Systematic Scoping Review
- 47 Abigail Bretzin A Cross-sectional Study of Sleep Habits and Associated with Self-reported Concussion History in Collegiate Students
- 48 Manan Parekh The Application of Ultrasound to Quantify Hyoid Motion during Drug-Induced Sleep Endoscopy
- 49 Marc Kaizi-Lutu Repeated Performance on a Working Memory Task is Associated with Slow Wave Activity during Sleep
- 50 Christopher Jones Evaluation of the Efficacy of Auditory Brain Stimulation during Sleep to Mitigate the Neurocognitive Deficits Induced by Sleep Restriction through EEG slow-wave Enhancement
- 51 Christopher Jones Repeated Periods of Sustained Sleep Restriction with intervening Acute Sleep Opportunity Reveal Hysteresis in Neurobehavioral Performance Deficits

- 52 Mathias Basner Ultra-short Objective Alertness Assessment: An Adaptive Duration Version of the 3 Minute PVT Accurately Tracks Changes in Psychomotor Vigilance Induced by Sleep Restriction
- 53 Danni Tu Dynamic Ensemble Prediction of Cognitive Performance in Spaceflight
- 54 Yoni Gilad Regular Exercise Counteracts Circadian Shifts in Core Body Temperature during Long-duration Bed Rest
- 55 Makayla Cordoza Feasibility of Using Wireless EEG to Assess Physiologic Sleep Before, During, and After Intensive Care Unit Admission
- 56 Alexandria Muench Does CBT-I Dose effect Sleep Duration and Fatigue in Breast and Prostate Cancer Patients?
- 57 Stephanie Korenic Facial Emotion Recognition and Sleep Quality in Community Participants at Clinical High-Risk for Psychosis
- 58 Nayeli Nunez Cruz The Relationship between Spirituality and Insomnia in Military Soldiers
- 59 Holly Barilla The Impact of Unit Cohesion on Insomnia Symptoms among Army Soldiers