



The Roles of Dendrites in Neurons, Circuits, Systems and Behaviors

March 26 - 31, 2017

Chairs

Randy M. Bruno and Ryohei Yasuda

Vice Chairs

Karen Zito and Jackie Schiller

Renaissance Tuscany Il Ciocco

Via Giovanni Pascoli

Lucca (Barga), IT

Conference Description

Dendrites dramatically transform how neurons interpret incoming synaptic inputs, and their electrical activity interacts with sophisticated gene transcription and protein translation machinery. Numerous human diseases and disorders are now known to involve disruptions of dendritic structure and function. Dendrites' remarkable capacity for change is thought to underlie normal learning and memory, and dysfunction within such plasticity mechanisms has been repeatedly implicated in neurodevelopmental disorders. The 2017 GRC and GRS on Dendrites will bring together scientists of all levels who study the critical roles dendritic molecules, structures, and functions play in neurons, circuits, systems, and behaviors.

Related Meeting



This GRC will be held in conjunction with the "Dendrites: Molecules, Structure and Function (GRS)" Gordon Research Seminar (GRS). Those interested in attending both meetings must submit an application for the GRS in addition to an application for the GRC. Refer to the [associated GRS program page](#) for more information.

Conference Program



Sunday

4:00 pm - 8:00 pm	Arrival and Check-in
6:00 pm - 7:00 pm	Dinner
7:30 pm - 7:40 pm	Introductory Comments by GRC Site Staff / Welcome from the GRC Chair
7:40 pm - 9:30 pm	Dendrites in Skill Learning Discussion Leader: Masanori Murayama (RIKEN Brain Science Institute, Japan)
7:40 pm - 8:10 pm	Wenbiao Gan (Skirball Institute of Biomolecular Medicine, NYU Langone Medical Center, USA) "Learning-Dependent Dendritic Branch-Specific Plasticity in the Cortex"
8:10 pm - 8:20 pm	Discussion
8:20 pm - 8:40 pm	Akiko Hayashi-Takagi (Gunma University, Japan) "Wide-Field Mapping of Hebbian Synaptic Potentiation Using Synaptic Optoprobes"
8:40 pm - 8:50 pm	Discussion
8:50 pm - 9:20 pm	Jun Ding (Stanford University, USA) "Dendritic Branching Specific Inhibition of Plateau Potentials in the Striatal Spiny Projection Neurons"
9:20 pm - 9:30 pm	Discussion

Monday

7:30 am - 8:30 am	Breakfast
9:00 am - 12:30 pm	Dendritic Development and Remodeling Discussion Leader: Kurt Haas (University of British Columbia, Canada)
9:00 am - 9:30 am	Anna Dunaevsky (University of Nebraska Medical Center, USA) "Basal and Motor Skill Learning-Induced Spine and AMPAR Dynamics: Impairments in FXS Mouse Model"



9:30 am - 9:40 am	Discussion
9:40 am - 10:10 am	Hyungbae Kwon (Max Planck Florida Institute for Neuroscience, USA) "Temporally Precise Labeling and Control of Neuromodulatory Circuits in Mammalian Brain"
10:10 am - 10:20 am	Discussion
10:20 am - 10:50 am	Coffee Break
10:50 am - 11:05 am	Stephen Glasgow (McGill University, Canada) "Netrin-1 Regulates Glutamergic Synaptic Transmission in the Adult Hippocampus"
11:05 am - 11:10 am	Discussion
11:10 am - 11:40 am	Julie Lefebvre (Hospital for Sick Children / University of Toronto, Canada) "Neurite Recognition Strategies for Dendritic Arbor Patterning"
11:40 am - 11:50 am	Discussion
11:50 am - 12:20 pm	Kang Shen (Stanford University, USA) "Ligand-Receptor Interactions in Dendrite Morphogenesis"
12:20 pm - 12:30 pm	Discussion
12:30 pm - 1:30 pm	Lunch
1:30 pm - 4:30 pm	Free Time
3:00 pm - 4:00 pm	Power Hour <i>The GRC Power Hour is an optional informal gathering open to all meeting participants. It is designed to help address the challenges women face in science and support the professional growth of women in our communities by providing an open forum for discussion and mentoring.</i> Organizers: Karen Zito (University of California, Davis, USA) and Jackie Schiller (Rappaport Faculty of Medicine, Technion - Israel Institute of Technology, Israel)
4:30 pm - 6:00 pm	Poster Session



6:00 pm - 8:00 pm	Molecular and Biochemical Signaling in Dendrites Discussion Leader: Rachel Wong (University of Washington, USA)
6:00 pm - 6:30 pm	Erin Schuman (Max Planck Institute for Brain Research, Germany) "Local Control of Synaptic Proteomes"
6:30 pm - 6:40 pm	Discussion
6:40 pm - 7:10 pm	Haruhiko Bito (University of Tokyo, Japan) "Deciphering the Role of Arc and Inverse Synaptic Tagging in Long-Term Memory"
7:10 pm - 7:20 pm	Discussion
7:20 pm - 7:50 pm	Yasunori Hayashi (Kyoto University, Japan) "Mutually Activating CaMKII/TIAM1 Complex Converts Transient Ca ²⁺ Rise into Persistent Biochemical Signaling During Structural LTP"
7:50 pm - 8:00 pm	Discussion
8:00 pm - 9:00 pm	Dinner
Tuesday	
7:30 am - 8:30 am	Breakfast
8:30 am - 9:00 am	Group Photo
9:00 am - 12:30 pm	Dendritic Excitability Discussion Leader: Attila Losonczy (Columbia University, USA)
9:00 am - 9:30 am	Wei Wei (University of Chicago, USA) "Cross-Compartmental Modulation of Dendritic Signals for Retinal Direction Selectivity"
9:30 am - 9:40 am	Discussion
9:40 am - 10:10 am	Alon Polsky (National Institutes of Health, USA) "Integration of Noisy Signals in the Direction Selective Network"
10:10 am - 10:20 am	Discussion



10:20 am - 10:50 am	Coffee Break
10:50 am - 11:05 am	Jason Moore (University of California, Los Angeles, USA) "Behavioral Modulation of Neocortical Dendritic Spikes in Freely Behaving Rats"
11:05 am - 11:10 am	Discussion
11:10 am - 11:40 am	Naoya Takahashi (Humboldt University of Berlin, Germany) "Dendritic Mechanism for Sensory Perception"
11:40 am - 11:50 am	Discussion
11:50 am - 12:20 pm	Huibert Mansvelder (Vrije Universiteit Amsterdam, The Netherlands) "Dendritic Structure and Function of Human Pyramidal Neurons Associate with Human Cognitive Ability"
12:20 pm - 12:30 pm	Discussion
12:30 pm - 1:30 pm	Lunch
1:30 pm - 4:30 pm	Free Time
4:30 pm - 6:00 pm	Poster Session
6:00 pm - 8:00 pm	New Techniques for Imaging Dendrites Discussion Leader: Matthew Larkum (Humboldt University of Berlin, Germany)
6:00 pm - 6:30 pm	Alessio Attardo (Max Planck Institute for Psychiatry, Germany) "Imaging Hippocampal Structural Synaptic Dynamics in Live Mice"
6:30 pm - 6:40 pm	Discussion
6:40 pm - 7:10 pm	Moritz Helmstaedter (Max Planck Institute for Brain Research, Germany) "Cerebral Cortex Connectomics"
7:10 pm - 7:20 pm	Discussion



7:20 pm - 7:50 pm	Na Ji (Janelia Research Campus, Howard Hughes Medical Institute, USA) "Video-Rate Volumetric Functional Imaging of the Brain at Synaptic Resolution"
7:50 pm - 8:00 pm	Discussion
8:00 pm - 9:00 pm	Dinner
Wednesday	
7:30 am - 8:30 am	Breakfast
9:00 am - 12:30 pm	Clustering on Dendrites Discussion Leader: Panayiota Poirazi (Foundation for Research and Technology - Hellas (FORTH), Greece)
9:00 am - 9:30 am	David Digregorio (Institut Pasteur, France) "Influence of Gap Junctions on Synaptic Integration of Dendritic Targeting Interneurons"
9:30 am - 9:40 am	Discussion
9:40 am - 10:10 am	David Fitzpatrick (Max Planck Florida Institute for Neuroscience, USA) "Functional Synaptic Architecture of Neurons in Visual Cortex"
10:10 am - 10:20 am	Discussion
10:20 am - 10:50 am	Coffee Break
10:50 am - 11:05 am	Erik Bloss (Janelia Research Campus, Howard Hughes Medical Institute, USA) "Projection-Specific Forms of Clustered Multi-Contact Excitatory Synaptic Connectivity on CA1 Pyramidal Neuron Dendrites"
11:05 am - 11:10 am	Discussion
11:10 am - 11:40 am	Christian Lohmann (Netherlands Institute for Neuroscience, The Netherlands) "Fine-Scale Organization of Synaptic Inputs in the Developing Cortex"



11:40 am - 11:50 am	Discussion
11:50 am - 12:20 pm	Judit Makara (Institute of Experimental Medicine, Hungarian Academy of Sciences, Hungary) "Pattern-Dependent Synaptic Plasticity"
12:20 pm - 12:30 pm	Discussion
12:30 pm - 1:30 pm	Lunch
1:30 pm - 4:30 pm	Free Time
4:30 pm - 6:00 pm	Poster Session
6:00 pm - 8:00 pm	Dendrites in Memory Engrams Discussion Leader: Elly Nedivi (Massachusetts Institute of Technology, USA)
6:00 pm - 6:30 pm	Todd Sacktor (SUNY Downstate Medical Center, USA) "PKM ζ , LTP, and Memory"
6:30 pm - 6:40 pm	Discussion
6:40 pm - 7:10 pm	Johannes Letzkus (Max Planck Institute for Brain Research, Germany) "Dendritic Mechanisms of Associative Learning in Auditory Cortex"
7:10 pm - 7:20 pm	Discussion
7:20 pm - 7:50 pm	Nelson Spruston (Janelia Research Campus, Howard Hughes Medical Institute, USA) "Imaging Dendrites in Awake, Behaving Mice"
7:50 pm - 8:00 pm	Discussion
8:00 pm - 9:00 pm	Dinner
Thursday	
7:30 am - 8:30 am	Breakfast



8:30 am - 9:00 am	<p>Business Meeting</p> <p><i>Nominations for the Next Vice Chair; Fill in Conference Evaluation Forms; Discuss Future Site and Scheduling Preferences; Election of the Next Vice Chair</i></p>
9:00 am - 12:30 pm	<p>Dendritic Integration and Plasticity</p> <p>Discussion Leader: Michael Haeusser (University College London, United Kingdom)</p>
9:00 am - 9:30 am	<p>Veronica Egger (University of Regensburg, Germany)</p> <p>"The Olfactory Bulb Granule Cell Dendrite: A Confederation of Mini-Neurons"</p>
9:30 am - 9:40 am	Discussion
9:40 am - 10:10 am	<p>Roberto Araya (University of Montreal, Canada)</p> <p>"A Spike Timing-Dependent Plasticity Rule for Single, Distributed, and Clustered Dendritic Spines"</p>
10:10 am - 10:20 am	Discussion
10:20 am - 10:50 am	Coffee Break
10:50 am - 11:05 am	<p>Courtney Yaeger (University of California, Los Angeles, USA)</p> <p>"Optically Probing Dendritic Inhibition During the Visual Critical Period"</p>
11:05 am - 11:10 am	Discussion
11:10 am - 11:40 am	<p>Anthony Holtmaat (University of Geneva, Switzerland)</p> <p>"Plasticity in Somatosensory Cortex Driven by Paralemniscal Synaptic Circuits"</p>
11:40 am - 11:50 am	Discussion
11:50 am - 12:20 pm	<p>Greg Stuart (Australian National University, Australia)</p> <p>"SK Channels in Spines Regulate STDP"</p>
12:20 pm - 12:30 pm	Discussion
12:30 pm - 1:30 pm	Lunch
1:30 pm - 4:30 pm	Free Time



4:30 pm - 6:00 pm	Poster Session
6:00 pm - 8:00 pm	Inhibitory Signaling on Dendrites Discussion Leader: Bartlett Mel (University of Southern California, USA)
6:00 pm - 6:30 pm	Jeffrey Magee (Janelia Research Campus, Howard Hughes Medical Institute, USA) "Active Dendritic Signals Drive Novel CA1 Place Field Formation"
6:30 pm - 6:40 pm	Discussion
6:40 pm - 7:10 pm	Idan Segev (Hebrew University of Jerusalem, Israel) "Distinctive Cable Properties of Human Cortical Pyramidal Neurons"
7:10 pm - 7:20 pm	Discussion
7:20 pm - 7:50 pm	Jayeeta Basu (New York University, USA) "Inhibition and Dendritic Integration"
7:50 pm - 8:00 pm	Discussion
8:00 pm - 9:00 pm	Dinner
Friday	
7:30 am - 8:30 am	Breakfast
9:00 am	Departure

Contributors

		
		



THE  KAVLI FOUNDATION

