



THE HEBREW UNIVERSITY OF JERUSALEM

ISRAEL INSTITUTE FOR ADVANCED STUDIES

The 22nd Jerusalem School in Life Sciences

Frontiers in Neuroscience

14-18 September, 2014

All lectures will take place at the Israel Institute for Advanced Studies,
on the Edmond J. Safra, Givat Ram Campus

**Directors: Roger Kornberg (Stanford University)
Daphne Atlas, Adi Mizrahi, (The Hebrew University)**

Program

Sunday, 14 Sept

- 09:00-09:45 Arrival and registration
- 09:45-10:15 Opening Remarks:
Roger Kornberg (Stanford University)
- 10:15-11:15 **Baruch Minke** (The Hebrew University)
TRP Channels: A Sensitive Target of Brain Damage Induced by Metabolic Stress
- 11:15-11:45 Coffee break
- 11:45-12:45 **Noam Ziv** (Technion)
Synaptic Remodeling and Proteostasis: The River of Constant Change
- 12:45-13:45 **David Julius** (University of California, San Francisco)
TRP Channels of the Pain Pathway: Connecting Physiology to Atomic Structure I
- 13:45-15:00 Lunch
- 15:00-16:00 **Alexander Binshtok** (The Hebrew University)
The Labeled Lines of Itch: Activity-Dependent Silencing of Primary Afferents as a Tool to Reveal Distinct Itch-Generating Sensory Neurons
- 16:00-16:30 Coffee break
- 16:30-17:30 **Bernard Attali** (Tel Aviv University)
Targeting the Promiscuous Voltage Sensor of Kv7.2 and TRPV1 Channels with New Gating-Modifiers to Cure Hyperexcitability Disorders

18:00 Opening Reception at IAS lobby

Monday, 15 Sept

09:00-10:00 **Tom Schwarz** (Harvard Medical School)
*Mitochondrial Movement and Removal and their
Regulation and Misregulation I*

10:00-11:00 **Tom Schwarz** (Harvard Medical School)
*Mitochondrial Movement and Removal and their
Regulation and Misregulation II*

11:00-11:45 Coffee break

11:45-12:45 **Daphne Atlas** (The Hebrew University)
*Voltage-Gated Calcium Channels Function as Ca²⁺-
Activated Signaling Receptors*

13:00-14:00 Lunch

14:00-15:00 **Adi Mizrahi** (The Hebrew University)
*Plasticity of Olfactory and Auditory Circuits Following
Motherhood*

15:00-16:00 **Michal Rivlin** (Weizmann Institute)
Retinal Adaptation: Physiology Challenges Anatomy

16:00-16:30 Coffee break

16:30-18:00 **Short lectures chosen from abstracts**

Vered Shacham (Dept. of Biological Chemistry,
Weizmann Institute)
*Hosphatidylserine Exposure Marks Degenerating
Axons*

Eilon Sherman (Racah Institute for Physics, The Hebrew University)
Resolving the Hierarchical Organization and Cooperativity of Signaling Complexes at the Single Molecule Level

Daniel Gitler (Dept. of Physiology and Cell Biology, Ben-Gurion University)
ATP-Binding to Synapsin IIa Regulates Usage and Clustering of Vesicles in Terminals of Hippocampal Neurons

18:00-18:45 **Special Lecture: Shlomo Avineri** (The Hebrew University)
Middle East Update

(Shlomo Avineri is a political science professor, winner of the 1996 Israel Prize, member of the Israel Academy of Sciences and Humanities, and former director general of Israel's Ministry of Foreign Affairs)

18:45 Reception (light refreshments)

Tuesday, 16 Sept

09:00-10:00 **David J. Anderson** (Caltech)
Neural Circuitry of Innate Social Behaviors in Flies

10:00-11:00 **David Julius** (University of California, San Francisco)
TRP Channels of the Pain Pathway: Connecting Physiology to Atomic Structure II

11:00-11:30 Coffee break

- 11:30-12:15 **Gerald W. Zamponi** (University of Calgary)
Voltage Gated Calcium Channels as Therapeutic Targets for Pain
- 12:15-13:00 **W. Zagotta** (University of Washington)
Molecular Mechanisms of Gating of Cyclic Nucleotide Regulated Ion Channels I
- 13:00-14:00 Lunch
- 14:00-15:00 **Micha Spira** (The Hebrew University)
Overcoming Incompatible Boundaries between Living Cells and Manmade Electronics: Towards Man-Machine Hybrids
- 15:00-17:30 Poster Session
- 17:30-18:45 Archaeology Lecture**
Isaiah Gafni (The Hebrew University)
- (Isaiah Gafni is a Professor of Jewish History. He specializes in the Second Temple period, focusing on the reshaping of Judaism following the Temple's destruction)
- 19:00 Israel Museum
20:15 Dinner at the Museum

Wednesday, 17 Sept

- 09:00-10:00 **Ofer Yizhar** (Weizmann Institute)
Optogenetic Dissection of Prefrontal Cortical Circuits

- 10:00-11:00 **Gerald W. Zamponi** (University of Calgary)
Regulation of NMDA Receptors by Cellular Prion Protein and Copper: Implications for AD
- 11:00-11:30 Coffee break
- 11:30-12:30 **William N. Zagotta** (University of Washington)
Molecular Mechanisms of Gating of Cyclic Nucleotide-Regulated Ion Channels II
- 12:30-13:30 **David J. Anderson** (Caltech)
Neural Circuitry of Innate Social Behaviors in Mice
- 13:30-14:00 Lunch
- 14:00 Departure for Old City Tour (from campus main pedestrian gate)

Thursday, 18 Sept

- 09:00-10:00 **Robert C. Malenka** (Stanford University)
Neural Mechanisms of Reward and Aversion I
- 10:00-10:30 Coffee break
- 10:30-11:30 **Ami Citri** (The Hebrew University)
Transcriptional Networks Provide Insight into the Neural Circuitry of Reward
- 11:30-12:30 **Robert C. Malenka** (Stanford University)
Neural Mechanisms of Reward and Aversion II
- 12:30-13:30 Concluding Remarks
- 13:30-14:30 Lunch