



MEETING AGENDA

Why Does the Neocortex Have Layers and Columns?

The Banbury Center, Cold Spring Harbor Laboratory, New York, USA
October 28-31, 2018

This meeting was funded by **Numenta** and **Cold Spring Harbor Laboratory**

Organizers:

Subutai Ahmad, Numenta
Jeffrey Gavornik, Boston University
Stefan Mihalas, Allen Institute for Brain Science

This Banbury Center meeting convened experts from experimental, computational, and theoretical neurosciences to present their latest findings related to the anatomy, physiology, and function of cortical circuits. The goal was to develop a theoretical framework for understanding the function of stereotypical cortical circuits.

SUNDAY, OCTOBER 28

Afternoon Participant arrivals
6:00 pm Reception, dinner

MONDAY, OCTOBER 29

7:15 am Breakfast

8:30 am **Welcome and Introductory Remarks**
Rebecca Leshan, The Banbury Center
Subutai Ahmad, Numenta
Jeffrey Gavornik, Boston University
Stefan Mihalas, Allen Institute for Brain Science



8:45 am SESSION 1: General Frameworks

Jeffrey Hawkins, Numenta, Redwood City, USA
Michael Berry, Princeton University, Princeton, USA
Rajesh Rao, University of Washington, Seattle, USA
Stefan Mihalas, Allen Institute for Brain Science, Seattle, USA

11:15 am General Discussion

12:00 pm Luncheon

2:00 pm SESSION 2: Anatomy / Thalamus I

Kathleen Rockland, Boston University School of Medicine, Boston, USA
Sara Aton, University of Michigan, Ann Arbor, USA
Anthony Zador, Cold Spring Harbor Laboratory, Cold Spring Harbor, USA
Martin Usrey, University of California, Davis, USA

4:30 pm General Discussion & End of Day Wrap Up

6:00 pm Reception, dinner

TUESDAY, OCTOBER 30

7:15 am Breakfast

8:30 am SESSION 3: Anatomy / Thalamus II

Randy Bruno, Columbia University, New York, USA
Solange Brown, Johns Hopkins University, Baltimore, USA
Murray Sherman, University of Chicago, Chicago, USA
Michael Halassa, Massachusetts Institute of Technology, Cambridge, USA

10:50 am SESSION 4: Sensory Systems

Tatiana Engel, Cold Spring Harbor Laboratory, Cold Spring Harbor, USA
Anitha Pasupathy, University of Washington, Seattle, USA



12:00 pm Luncheon

1:30 pm **(continued) SESSION 4: Sensory Systems**

Alessandra Angelucci, University of Utah, Salt Lake City, USA

Kristina Nielsen, Johns Hopkins University, Baltimore, USA

Andrew Hires, University of Southern California, Los Angeles, USA

3:30 pm **SESSION 5: Sequences, Prediction, and Cognition**

Maria Geffen, University of Pennsylvania, Philadelphia, USA

Jeffrey Gavnornik, Boston University, Boston, USA

David Schneider, New York University, New York, USA

Christine Constantinople, New York University, New York, USA

5:30 pm **General Discussion & End of Day Wrap Up**

6:00 pm Reception, dinner

WEDNESDAY, OCTOBER 31

7:15 am Breakfast

8:30 am **SESSION 6: Hippocampus / Navigation / Sensorimotor**

Michael Hasselmo, Boston University, Boston, USA

Cris Niell, University of Oregon, Eugene, USA

Gordon Shepherd, Northwestern University, Chicago, USA

Subutai Ahmad, Numenta, Redwood City, USA

Georg Keller, Friedrich Miescher Institute for Biomedical Research, Basel, Switzerland

11:30 am **General Discussion**

11:45 am **SESSION 7: Meeting Wrap-Up and Next Steps**

Subutai Ahmad, Numenta

Jeffrey Gavnornik, Boston University

Stefan Mihalas, Allen Institute for Brain Science

12:30 pm Luncheon

— End of Program —



MEETING PARTICIPANTS

Subutai Ahmad, Numenta

Alessandra Angelucci, University of Utah

Sarah Aton, University of Michigan

Michael Berry, Princeton University

Solange Brown, Johns Hopkins University

Randy Bruno, Columbia University

Christine Constantinople, New York University

Tatiana Engel, Cold Spring Harbor Laboratory

Jeffrey Gavornik, Boston University

Maria Geffen, University of Pennsylvania

Michael Halassa, Massachusetts Institute of Technology

Michael Hasselmo, Boston University

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Andrew Hires, University of Southern California

Georg Keller, Friedrich Miescher Institute for Biomedical Research

Stefan Mihalas, Allen Institute for Brain Science

Cris Niell, University of Oregon

Kristina Nielsen, Johns Hopkins University

Anitha Pasupathy, University of Washington

Sachin Ranade, Nature Communications

Rajesh Rao, University of Washington

Kathleen Rockland, Boston University School of Medicine

David Schneider, New York University

Gordon M. G. Shepherd, Northwestern University

Murray Sherman, University of Chicago

Martin Usrey, University of California, Davis

Anthony Zador, Cold Spring Harbor Laboratory