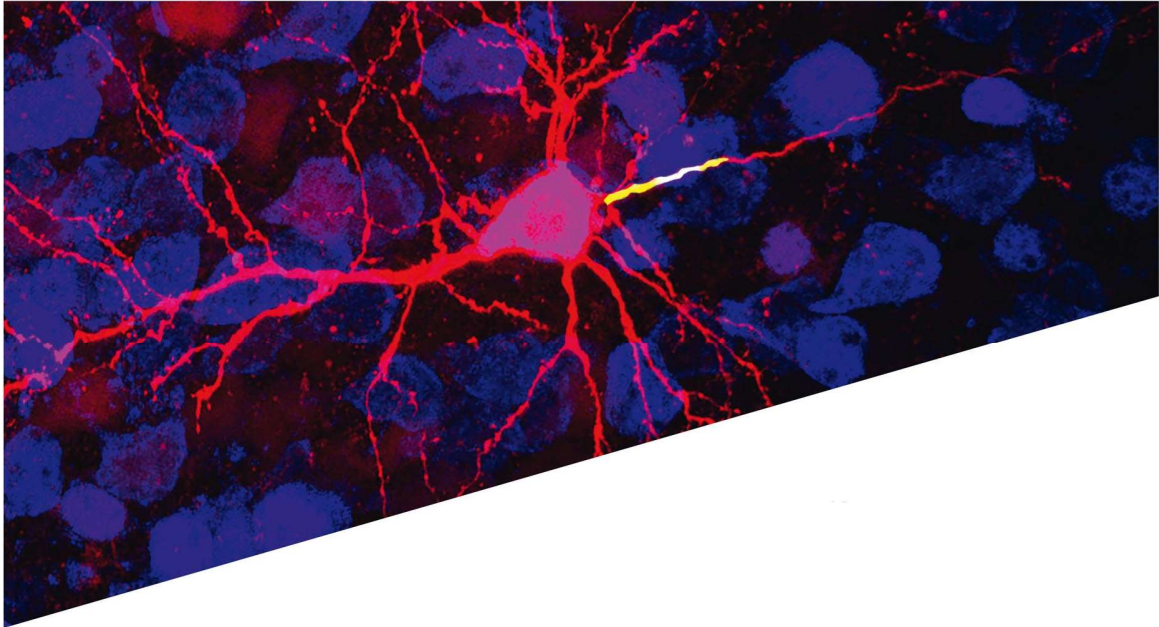


Axons in the hills

October 4/5, 2018

Heidelberg University, Marsilius-Kolleg



Conference Program

Location:

Marsilius Kolleg
Im Neuenheimer Feld 130.1
69120 Heidelberg
Germany

Organizers:

Maren Engelhardt, Mannheim
Maarten Kole, Amsterdam
Andreas Draguhn, Heidelberg
Paul Jenkins, Ann Arbor

Conference Sponsors:



Funded by the German Research Foundation (DFG) and the Collaborative Research Center SFB 1134

Thursday, October 4, 2018

- 8:30 – 9:00 Arrival & registration
9:00 – 9:15 Welcome & opening remarks
9:15 – 10:15 **Keynote lecture** **Matthew Rasband** (Baylor College of Medicine, Houston, USA)
A molecular dissection of the axon initial segment

Session 1: Molecular organization of axons – Chair: Christophe Leterrier

- 10:15 – 10:45 **Dominique Debanne** (Aix-Marseille University, France)
Axonal sodium channels and context-dependent modulation of synaptic transmission
10:45 – 11:15 Coffee break & discussions
11:15 – 11:45 **Juan José Garrido** (Cajal Institute, Spain)
Regulatory mechanisms of axon initial segment development and maintenance
11:45 – 12:00 **Elisa D'Este** (MPI for Medical Research, Germany)
Nanoscale organization of the axonal cytoskeleton and Kv channels
12:00 – 1:30 Lunch break & discussions

Session 2: Axonal ion channels – Chair: Romain Brette

- 1:30 – 2:00 **Ilya Fleidervish** (Ben-Gurion University of the Negev, Israel)
Mechanisms of persistent Na⁺ current generation in the axon initial segment of layer 5 pyramidal neurons
2:00 – 2:30 **Johan Storm** (University of Oslo, Norway)
Kv7/M channel functions in axons
2:30 – 3:00 **Hua Hu** (University of Oslo, Norway)
Subcellular distribution and function of HCN channels in hippocampal parvalbumin-expressing interneurons
3:00 – 3:30 Coffee break & discussions

Session 3: Axonal output and plasticity – Chair: Maren Engelhardt

- 3:30 – 4:00 **Beverley Clark** (University College London, United Kingdom)
Impact of axonal properties on action potential output
4:00 – 4:30 **Hanne Borger Rasmussen** (University of Copenhagen, Denmark)
Regulation of axon initial segment ion channels by neuronal activity
4:30 – 4:45 **Winnie Wefelmeyer** (King's College London, United Kingdom)
The emergence and plasticity of synapses at the axon initial segment
4:45 – 5:15 Coffee break & discussions
5:15 – 6:00 **Focus lecture** **Péter Somogyi** (University of Oxford, United Kingdom)
Cortical axo-axonic cells in brain time and space

6:15 – 9:00 Poster session & dinner

Friday, October 5, 2018

8:30 – 9:00

Arrival & coffee

Session 4: Axonal neuromodulation – Chair: Maarten Kole

9:00 – 9:30

Kevin Bender (UCSF, USA)

Presynaptic mechanisms for modulating the gain of transmission

9:30 – 10:00

Yousheng Shu (Beijing Normal University, China)

Functional autapses in a subpopulation of cortical layer-5 pyramidal cells

10:00 – 10:30

Stefan Hallermann (University of Leipzig, Germany)

Neuromodulation of HCN channels controls action potential velocity in axons

10:30 – 11:30

Industry presentations & Coffee break

Session 5: Axons and disease – Chair: Paul Jenkins

11:30 – 12:00

Jeffrey Dupree (Virginia Commonwealth University, USA)

Altered axon initial segment structure and function in inflammatory disease

12:00 – 12:30

Michael Gutnick (The Hebrew University of Jerusalem, Israel)

Neuronal circuit function and the AIS: insights from pathophysiology

12:30 – 12:45

Andrew Nelson (University of Michigan, USA)

A rare variant in *ANK3* in a family with bipolar disorder leads to altered forebrain circuitry

12:45 – 1:00

Mohit Dubey (NIN-KNAW, Netherlands)

Dissecting the functional roles of parvalbumin interneuron axon myelination

1:00 – 2:15

Lunch break & discussions

Session 6: Axons and networks – Chair: Andreas Draguhn

2:15 – 2:45

Hiroshi Kuba (Nagoya University, Japan)

Tuning of excitable axonal domains in central auditory neurons

2:45 – 3:15

Jun Hee Kim (UT Health San Antonio, USA)

Effects of myelination and sound-evoked activity on structural development of auditory axons in the CNS

3:15 – 3:45

Coffee break & discussions

3:45 – 4:45

Keynote lecture **Peter Jonas** (Institute of Science and Technology, Austria)

Functional properties of interneuronal axons

4:45 – 5:00

Closing remarks & End of conference