Symposium in honour of Michael Frotscher

Registration
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Symposium in honour of Michael Frotscher

1st September 2017
Lecture Hall, Institute of Anatomy, UKE, N61
Neurons, Synapses and Circuits Involved in the Processing of Information from the Entorhinal Cortex

The discovery of grid cells in the entorhinal cortex and place cells in the hippocampus, for which the Nobel Prize was awarded in 2014, was a major advance in our understanding of how information from the environment is conveyed to the hippocampus by characteristic activity patterns. These activity patterns involve distinct neuronal types, neuronal circuits, and synapses, which are undergoing intensive study in the hope of unveiling the specifics of the entorhino-hippocampal network. Despite the pioneering work of May-Britt and Edvard Moser on the grid cells, and of John O’Keefe on the place cells in the hippocampus proper, it still needs to be understood how the representation of space and the activity of grid cells in the entorhinal cortex, representing a “map” of the surrounding environment, is transferred to hippocampal place cells, which fire if the animal is in a specific position in space. This information transfer is likely to involve distinct neurons and their synaptic connections forming specific circuits, which are as yet poorly understood.

The symposium will bring together leading researchers from the field of entorhinal and/or hippocampal neurons and synapses and their functional circuits. We wish to stimulate fruitful discussions, aiming at summarizing the most up-to-date knowledge of leading scientists in the field, and at the same time developing novel concepts and even plans for future experiments.

Gaby Rune, Hamburg  
Thomas Deller, Frankfurt  
Robert Nitsch, Münster

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<td>8.45</td>
<td>Introductory Remarks</td>
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| 9.00 – 9.30 | Neurons | Impaired path integration in mice with disrupted grid cell firing  
Hannah Monyer, Heidelberg |
| 9.30 – 10.00 | Neurons and networks in the entorhinal cortex  
Menno Witter, Trondheim, Norway |
| 10.00 – 10.30 | New insights into mossy cell function based on optogenetics and DREADDs  
Helen Scharfmann, New York, USA |
| 10.30 – 11.00 | Coffee break |
| 11.00 – 11.30 | Synapses & Synaptic Mechanism | An unsung glutamate receptor  
Roger Nicoll, San Francisco, USA |
| 11.30 – 12.00 | Imaging synaptic transmission with single-vesicle resolution  
Thomas Oertner, Hamburg |
| 12.00 – 12.30 | Degraded input feature detection in chronic epilepsy  
Heinz Beck, Bonn |
| 12.30 – 13.00 | On the individuality of hippocampal mossy fiber synapses  
Alexander Drakew, Hamburg |
| 13.00 – 13.30 | Distance-dependent inhibition in the rodent dentate gyrus  
Marlene Bartos, Freiburg |
| 13.30 – 14.00 | Lunch break |
| 14.00 – 14.30 | Bioactive lipid signaling at central synapses: A role for cortical information processing  
Robert Nitsch, Münster |
| 14.30 – 15.00 | The Hungarian (GABAergic) connection  
Peter Somogyi, London, UK |
| 15.00 – 15.30 | I<sub>n</sub> channels in hippocampal mossy fiber boutons  
Jörg Geiger, Berlin |
| 15.30 – 16.00 | Synaptopodin and the spine apparatus organelle – organizers of plasticity at axo-spinous synapses  
Thomas Deller, Frankfurt |
| 16.00 – 16.30 | Coffee break |
| 17.00 – 17.30 | Circuits | From single cells & Single columns to cortical networks – Coincidence detection and synaptic transmission in brain slices and brains  
Bert Sakmann, München |
| 17.30 – 18.00 | The functioning of a cortex without layers  
Jochen Staiger, Göttingen |
| 18.00 – 18.30 | From axons to networks – cooperative neuronal activity in oscillating hippocampal networks  
Andreas Draguhn, Heidelberg |
| 18.30 – 19.00 | Structure-function analysis of microcircuits in medial entorhinal cortex  
Michael Brecht, Berlin |
| 19.30 | Dinner |

Concluding Remarks