

# Poster sessions

## 6th International Bonn Brain<sup>3</sup> Conference

7th - 9th August, 2023

### 1. Poster session, 8th August

#### Cellular neuroscience

- 1) Barnstedt, Oliver - MouseFlow: a Python toolbox for quantifying facial and body movements in head-fixed mice
- 3) Bernis, Maria Eugenia - Neuroprotective effect of a Sonic hedgehog agonist in a rat model of neonatal hypoxic-ischemic brain injury by decreasing brain inflammation and enhancing myelination
- 5) Fischer, Philippe - Suppression of optomotor processing during escape saccades in flying *Drosophila*
- 7) Hamzeitaj, Somayyeh - Neuronal and astrocytic sodium-calcium exchanger-1 contribute to ionic changes in both neurons and astrocytes during periinfarct depolarization
- 9) Jung, Jisoo - Illuminating the hippocampal-thalamic-retrosplenial network via prism: a miniature two-photon microscopy study
- 11) Kunz, Lukas - Ripple-locked coactivity of stimulus-specific neurons and human associative memory - Also a short talk!
- 13) Palmisano, Michela - Cell-type-specific rescue of hippocampal CB1 receptor leads to age-related changes in adult and middle-aged mice
- 15) Pätz-Warncke, Christina - Species-specific morphometry of structural compartments of MNTB principal neurons
- 17) Ramunno, Carla Florencia - Role of endothelial-derived TIMP-1 in white matter pathology
- 19) Schelski, Max - Microtubule retrograde flow retains neuronal polarization in a fluctuating state - Also a short talk!
- 21) Álvarez, María Isabel - Neural stem cells regulate vascular properties in the adult subventricular zone neurogenic niche

#### Computational, Modeling, and Technology

- 23) Bergmann, Cornelius - Minimal energy principles determine spatial localization and turn-over of molecules - Also a short talk!
- 25) Durgvanshi, Shantanu - A novel approach to explore degenerate ion channel distributions in cortical dendrites
- 27) Fuhrmann, Falko - Three-photon in vivo imaging: access to previously unreachable brain regions - Also a short talk!
- 29) Kirianov, Daniil - Spiking activity in a *Scn2a* p.A263V epilepsy model
- 31) Leone, Riccardo - Elucidating the role of white matter hyperintensity in cognitive impairment with whole-brain models
- 33) Meulemeester, Bjorge - Characterizing cellular computation in terms of biophysical expression
- 35) Musacchio, Fabrizio - Deep learning based 3D-segmentation of dendritic spines recorded with two-photon in vivo imaging
- 37) Petkovic, Janko - A protein-driven heterosynaptic rule for spiking neural networks
- 39) Ruggieri, Sonia - Role of CKAMP44 in retinogeniculate synapse
- 41) Tillmann, Jens - A-SOID: an active learning platform for expert-guided, data-efficient discovery of behavior - Also a short talk!
- 43) van Susteren, Hannah - A biophysical model for neuronal dynamics during energy deprivation with glutamate recycling

#### Connectomics, Circuits

- 45) Bast, Arco - Thalamus drives active dendritic computations in the cortex
- 47) Buchsbaum, Elhanan - Optogenetic manipulation of freely-flying flies
- 49) Ciftci, Emine - The role of inputs from the hippocampus to the prefrontal cortex in spatial memory impairments in a mouse model of Alzheimer's disease
- 51) Despatin, Alice - Modality specificity of multisensory integration and decision-making in the frontal cortex and superior colliculus
- 53) Ehrhardt, Erica - Organization of ascending pathways from the ventral nerve cord to the brain of adult *Drosophila melanogaster*
- 55) Guha, Shuvrangshu - Multimodal sensory cue-based novelty detection in CA1
- 57) Huang, Ziyang - Ensemble state changes in sensory thalamus represent learned outcomes
- 59) Krabbe, Sabine - Plasticity of amygdala interneurons in associative learning
- 61) Kremers, Leon - Representational stability in the mouse visual system
- 63) Maharjan, Aman - New definition of the whisker motor areas in the rat cerebral cortex
- 65) Narayanamurthy, Rukhmani - Is representational drift regulated by cell-autonomous mechanisms in CA1?

#### Development

- 69) Hänschke, Lea - Ceramide synthase influences function of astrocytes in *Drosophila* and mouse
- 71) Kilo, Lukas - Loss of a cell surface molecule affects dendritic development and interaction with surrounding tissue in *Drosophila* larvae
- 73) Tang, Yan - Deregulated translational control and somatosensory function in genetic models of autism spectrum disorders in *Drosophila*

#### Disease

- 75) Barboni, Michela - Altered dendritic excitability and cell maturation of CA3 pyramidal neurons during development in the *Scn2a*A263V genetic epilepsy model
- 77) Cases Cunillera, Silvia - Released factors from malignant neuroepithelial glioneuronal tumors enhance neuronal network synchronicity
- 79) Doubkova, Karolina - A quantitative model of sporadic axonal degeneration in the *Drosophila* visual system
- 81) Joseph, Antonia - Investigation of hippocampal alterations in mouse models of spinal muscular atrophy and Parkinson's disease
- 83) Mittag, Manuel - Effects of neural synchronization on hippocampal representations in healthy and  $A\beta$ -pathology conditions
- 85) Papazoglou, Panagiota - Sex- and region-specific cortical and hippocampal whole genome transcriptome profiles from control and APP/PS1 Alzheimer's disease mice
- 87) Tsortouktzidis, Despina - Antisense oligonucleotides (ASOs) and CRISPRa/i for the study of *SCN2A*-associated genetic epilepsies

#### Glia

- 89) Gockel, Nala - Microglia-complement interactions mediate synaptic dysfunctions in a mouse model of schizophrenia
- 91) Musacchio, Fabrizio - Remission after stress via enriched environment increases hippocampal dendritic spine density independent of microglia
- 93) Taylor, Stephanie Lauren - The neurovascular unit repair process in an animal model of Alzheimer's disease

#### Synapses

- 95) Bayona, Felipe - Using a deconvolution strategy to analyze high-resolution microscopic time-lapse imaging data of neurons expressing optical reporter proteins to quantitatively reveal neurotransmitter release events
- 97) Kaulhausen, Florian Thomas - Characterization of the synaptic ultrastructure in human epileptic tissue - Also a short talk!
- 99) Nemcova, Paulina - More efficient synaptic vesicle release with smaller active zone protein complexes
- 101) Schuckel, Anna Victoria - Three-dimensional neddylation modification identified from cofilin1
- 103) van Dyk, Gunther - Quantification of the number and mobility of presynaptic RIM1 molecules using single-synapse spectroscopy

### 2. Poster session, 9th August

#### Cellular neuroscience

- 2) Bernis, Maria Eugenia - AMPK/mTOR pathway regulates the neuroprotective effects of caffeine following neonatal hypoxic-ischemic brain injury
- 4) Bernis, Maria Eugenia - Neutrophil extracellular traps released following hypoxic-ischemic brain injury and hypothermia treatment in newborn rats
- 6) Guth, Tim - Theta-phase locking of human single neurons during memory encoding and retrieval
- 8) Imsiecke, Victoria - Short- and long-term consequences of chronic stress on neuronal properties in the mouse motor cortex
- 10) Kuerschner, Lars - Lipid uptake at the neurovascular unit
- 12) Nacarkucuk, Efe - Neuroprotective effect of melatonin in a neonatal hypoxia-ischemia model is regulated by AMPK/mTOR pathway
- 14) Pant, Pallavi - Brain endothelial cell-derived angiocrine factors and their role in neurodevelopment
- 16) Quatraccioni, Anne - Analyzing the mechanism of the Ste20-like kinase in the outgrowth of dendrites and the stabilization of inhibitory synapses
- 18) Rupprecht, Peter - Centripetal integration of past events in hippocampal astrocytes, controlled by the locus coeruleus - Also a short talk!
- 20) Wicke, Kathrin Deborah - Frequency integration in the intermediate nucleus of the lateral lemniscus is based on a biophysically heterogeneous cell population

#### Computational, Modeling, and Technology

- 22) Berdahl, Caleb - Behavioral quantification and multi-photon microscopy during gap crossing in freely moving rodents
- 24) Braganza, Oliver - Phase-to-rate recoding: how phase information is conserved in sparse, synchronous population-rate-codes
- 26) Fruengel, Rieke - Sparse connectivity is a prerequisite for efficient learning in recurrent neural networks
- 28) Keaton, Matthew - Studying sensation and perception utilizing biologically realizable ANNs
- 30) Krenn, Nora - Human single-neuron dynamics during saccadic and smooth-pursuit eye movements
- 32) Liu, Yuhong - Unraveling altered protein turnover dynamics in Huntington's disease: insights into transcription, translation, and degradation processes
- 34) Mohammadi, Ali - DeepFisFis: a novel tool for real-time USV detection
- 36) Narantsratsralt, Ulzii-Utas - Simulating cortical dynamics in anatomically detailed network models
- 38) Royo Cano, Maria - Sensory encoding in cortical output populations
- 40) Saka, Su - Models of neocortical pyramidal neurons with well constrained sub- and suprathreshold dendritic and somatic properties
- 42) Verzelli, Pietro - Astrocytes implement a reward-mediated BCM rule giving rise to flexible learning

#### Connectomics, Circuits

- 44) von Falkenhausen, Ian Marten - Alone in the Dark: Illuminating Phototaxis in single *Danionella translucida*
- 46) Benoit, Chloé - Axon initial segment dynamics during associative fear learning - Also a short talk!
- 48) Chan, Ivy Chi Wai - Biased connectivities underlie the different odour preference and odour discrimination capabilities of the *Drosophila* mushroom body - Also a short talk!
- 50) Dalügge, Dennis - Differential contribution of CA1 and EC to spatial and velocity coding of subicular pyramidal neurons
- 52) Dhiman, Neena - Decoding modality-specific function and neuromodulation in the *Drosophila* nociceptive network
- 54) Gschossmann, Lena Johanna - Neural correlates of trace eyeblink conditioning in long-range CA3 projections
- 56) Haubrich, André - Dentate granule cell activity and slow gamma oscillations support the formation of precise memories - Also a short talk!
- 58) Khomyak, Hanna - Deciphering the role of the locus coeruleus for hippocampus-dependent learning and its impairment in a mouse model of Alzheimer's disease
- 60) Krasilshchikova, Natalia - Modulation of thalamocortical transmission in active vision
- 62) Lenzi, Irene - Projection specific information coding in frontal cortical networks
- 64) Mocellin, Petra - A septal-VTA circuit drives exploratory behavior - Also a short talk!
- 66) Wang, Yujie - Acquired avoidance of pathogenic bacteria depends on specific antimicrobial peptides in the nervous system and fat body

#### Development

- 67) Casanueva Reimon, Laura - Fat sensory cues in early life program central response to food and obesity
- 68) Hanaty, Amira - Changes in striatal blood-brain barrier tightness during early development - Also a short talk!
- 70) Iyer, Aditya - Development of locomotion during metamorphosis in the Western clawed frog, *Xenopus tropicalis*
- 72) Liao, Zhenxin - Academic publication of neurodegenerative diseases from a bibliographic perspective: a comparative scientometric analysis
- 74) Wolf, Julia - Göttingen Meeting of the German Neuroscience Society 2023: the axonal vesicle release machinery and myelination

#### Disease

- 76) Behrendt, Elisabeth - Neuron-microglia communication modulates sensorimotor function and resilience to chronic stress - Also a short talk!
- 78) Castro Gomez, Sergio - NLRP3 contributes to microglial morphological changes, ASC aggregation and long-term behavioural phenotypes after traumatic brain injury - Also a short talk!
- 80) Eberhard, Judith - Analysis of neuroinflammation in CCL17-DTR mice post DT-treatment
- 82) Kasemir, Jacquelin - Developmental and epileptic encephalopathy-linked HCN1 mutations cause epilepsy and affect interictal hippocampal and cortical network activities in mice
- 84) Oberländer, Kristin - Inhalative budesonide for treatment of Alzheimer's disease
- 86) Reva, Yana - Network dynamics and early intervention in a *Scn2a* mouse model of developmental and epileptic encephalopathy
- 88) Vorberg, Ina - Accelerated prion-like spreading of protein aggregation by exogenous and endogenous viruses

#### Glia

- 90) Mayer, Marina - Characterization of cultivation methods to improve induced pluripotent stem cell-derived microglia culture
- 92) Roggan, Marie Denise - The cytoskeletal proteins ADF/cofilin1 and their role in microglia morphology and function

#### Synapses

- 94) Antoniou, Anna - Neuronal extracellular vesicles and associated microRNAs induce circuit connectivity downstream of BDNF - Also a short talk!
- 96) Galkov, Maksim - The spatial organization of synaptic proteins in mammalian synapses and *Drosophila* neuromuscular junctions detected by two-photon polarization microscopy
- 98) Mostafa, Aya - Dephosphorylation of the RIM1 $\alpha$  C2B domain impedes homodimerization
- 100) Poguzhelskaya, Ekaterina - Unravelling the impact of synaptic cleft composition on glutamate signalling dynamics
- 102) Voogd, Eva - Effects of temperature on neuronal functionality and the number of synapses in cultured human neuronal networks exposed to hypoxia