

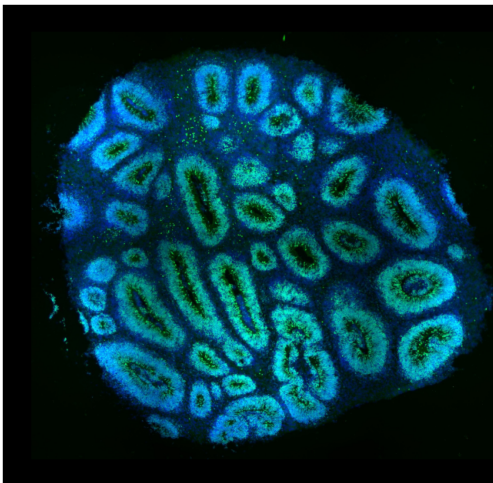
IZN Retreat 2025

Kloster Schöntal

July 13-14



Interdisziplinäres Zentrum für
Neurowissenschaften der
Ruprecht-Karls-Universität Heidelberg



*Human brain organoids:
neurodevelopment, disease models,
drug discovery platforms*



Retreat Program

Sunday, July 13

Bus Departure	8:15	from the Bioquant (Heidelberg) <i>or</i> from the Mannheim Central Bus station (ZOB)	
Welcome Reception	10:00	Banquet hall	
Welcome Address	10:30	Hilmar Bading Managing Director of the IZN, Heidelberg University Heidelberg, Germany	
Introduction	10:40	Moritz Mall German Cancer Research Center Heidelberg, Germany	
Session 1 Chair: John Jbeily	10:55	Marisa Karow Friedrich-Alexander-University Erlangen-Nürnberg (FAU) Erlangen, Germany	<i>Aberrant formation of long-range projections across different neurodevelopmental disorders converges on molecular and cellular nexuses</i>
Session 2 “Poster Jam” Chair: Anna Hertle	11:30	Rebecca Uzzi Monyer Group	<i>Characterization of object-tuned cells in the medial entorhinal cortex</i>
		Julia Dyckow Shirmer Group	<i>Oligodendrocyte encoded Piezo2 regulates myelin integrity in the anterior visual system</i>
Lunch	12:00		
Free Time		Canoeing (meet at 13:15 at the parking lot next to the former train station) <i>or</i> Walk 'n' Talk <i>or</i> Swimming in the Jagst <i>or</i> Guided tour through the monastery (meet at 16:30 at the baroque staircase)	
Dinner	18:00		
Session 3 Plenary Lecture Chair: Ankita Kumar Bhamidipati	19:15	Gray Camp University of Basel Basel, Switzerland	<i>Exploring human neural models at single-cell resolution</i>
Posters & Drinks	20:15	Rooms 203, 204, 207, and the hallway	

Monday, July 14

Breakfast	7:00	<i>Please check out of your room <u>prior to</u> the first session, if possible.</i>	
Session 4 Chairs: Gülcan Demir, Zihong Zhang	8:50	Veronica Krenn University of Milan Bicocca Milan, Italy	<i>Brains under stress: Utilizing brain organoid models to investigate immune challenges in early development</i>
	9:35	Simon T. Schäfer Technical University of Munich Munich, Germany	<i>New approaches to decode human microglia phenotypes in health and disease</i>
Posters & Coffee	10:10	Rooms 203, 204, 207, and the hallway	
Session 5 Chair: Stefanos Loizou	11:15	Dominik Lindenhofer European Molecular Biology Laboratory Heidelberg, Germany	<i>Tissue-mediated growth control in cerebral organoids</i>
Meetings	11:50	Students' Meeting / Science Pub Quiz: Banquet Hall	
Lunch	12:50		
Session 6 Chairs: Ralph Sinn, Anasara Artioli	14:15	Lena Kutscher German Cancer Research Center Heidelberg, Germany	<i>iPSC-derived cerebellar organoids as models for development and disease</i>
	14:50	Alberto Catanese University of Freiburg Freiburg, Germany	<i>Exploiting CNS organoids to link traumatic injuries and genetic predisposition in a "double-hit" model of neurodegeneration</i>
Group Picture	15:25	staircase in front of the church	
Coffee	15:35		
Awards Ceremony	16:05	IZN Students' Poster Prize <i>Recipient TBA</i> Laudatio: Christian Memo Foundation BrainAid/IZN Master Thesis Award <i>Adriana Schneider (Mauceri Group)</i> <i>Selma Saisan (Mall Group)</i> Laudatio: Christoph Schuster Foundation Brain Aid/IZN Dissertation Award <i>Celia Lerma Martin (Schirmer Group)</i> Laudatio: Andreas Draguhn IZN/Chica and Heinz Schaller Young Investigator Neuroscience Award <i>David V.C. Brito and Janina Kupke (Oliveira Group)</i> Laudatio: Ana Oliveira Neuroscience Art Contest Winner <i>Recipient TBA</i> Laudatio: Antje König	
Closing Remarks	16:30	Hilmar Bading Managing Director of the IZN, Heidelberg University Heidelberg, Germany	
Bus Departure	17:00	from the parking lot next to the train station	

Poster Presentations

Nr.	Authors	Group	Title
1	Felix Jose Kavarayil , Beate Throm, Kevin Allen	Allen	Influence of visual cues on grid cell dynamics for enhanced spatial localization during brief, behaviorally relevant events in a navigation task
2	Sophie Lucia Trender , Marina Eliava, Valery Grinevich, Ferdinand Althammer	Althammer	Anatomical assessment of the central oxytocin system in wild and domesticated foxes
3	Zihong Zhang , Anna M. Hagenston, Hilmar Bading	Bading	Restoring excitatory–inhibitory balance to alleviate neuropathic pain
4	Lisa Wolters , Femke Groeneweg, Marcin Luzarowski, Christian Schultz, Nina Bonekamp	Bonekamp	Profiling neuronal mechanisms counteracting progressive mitochondrial dysfunction
5	Stefan Vintila , Matthias Klumpp, Justus Simon, Andreas Draguhn, Martin Both	Both	Evolution of spatial representations in the hippocampus during a learning paradigm
6	Berin Boztepe , Jonas Scheck, Julius Schwarz, Lennart Heinz, Manuel Fischer, Rosa Eurich, Frank Winkler, Sabine Heiland, Martin Bendszus, Michael Platten, Ina Weidenfeld, Michael O. Breckwoldt	Breckwoldt	Assessing the immune microenvironment in glioma models by correlative high field MRI and light sheet microscopy
7	Marta Kowina , Jonas G. Scheck, Yuling Chen, Berin Boztepe, Ralph Sinn, Manuel Fischer, Volker Sturm, Amir Abdollahi, Sabine Heiland, Martin Bendszus, Hai-Kun Liu, Ina Weidenfeld, Michael O. Breckwoldt	Breckwoldt	The effect of CDPN-R848 on TAM-polarization in patient-derived tumor organoids
8	Ralph Sinn , Georgios Samaras, Niklas Grassl, Berin Boztepe, Manuel Fischer, Ina Weidenfeld, Nina Hofmann, Norman Mack, Amir Abdollahi, Sabine Heiland, Martin Bendszus, Michael Platten, Marc Zuckerman, Katharina Sahm, Michael O. Breckwoldt#	Breckwoldt	Advanced imaging, immune profiling and nanoparticle immunotherapy distribution in H3K27M-mutated diffuse midline glioma models: identifying and translating MRI signatures
9	Lars Link , Mirko Sommer, Lars Tapken, Ashish Chouhan, Andreas Draguhn	Draguhn	Conceptual framing of ‘intelligence’ in neuroscience
10	Ana Luiza Dias , Joseph Andrews Belo, Katja Lankisch, Diego Laplagne, Andreas Draguhn, Adriano Tort	Draguhn	The respiratory rhythm coordinates activity in the corticolimbic network across emotional states
11*	Joseph Andrews Belo , Annara Soares, Ana Luiza Alves, Davi Carvalho Drieskens, Elis Herculano Duarte, Adriano Tort, Diego Laplagne	Draguhn	Synchronization of frontal brain networks by the respiratory rhythm during rat social behavior
12	Huma Shaheen , Alan Kania, Ryan Patwell, Quirin Krabichler, Valery Grinevich	Grinevich	Mapping and interrogating brain oxytocin system circuits in social and non-social rewards in rats
13	Konstantinos Afordakos , Alan Kania, Marina Eliava, Valery Grinevich	Grinevich	Anatomical and electrophysiological investigation of the oxytocin sensitive interneuronal network across the hippocampal formation
14	Ana Zovko , Konstantinos Afordakos, Catello Guida, Jahnvi Srinidhi, Sreedevi Raghu, Alan Kania, Sandra Srinidhi, Quirin Krabichler, Philipp Koch, Valery Grinevich	Grinevich/Koch	Modeling the human oxytocin system: From hiPSC-derived neurons to functional integration <i>in vivo</i>
15*	Lars-Lennart Oetli , Filippo Heimbürg, Josephine Timm, Nadin Mari Saluti, Alexander Groh	Groh	Burst activity in the thalamocortical system encodes reward contingencies during learning
16	Giannone Francesco , Demir Gulcan, Graf Akseli, Wissig Erik, Alfahed Razan, Schaefer Claudia, Meinhardt Marcus, Spanagel Rainer, Hansson Anita	Hansson	Receptor-specific modulation of habitual behavior using CB1R loss-of-function and gain-of-function rat models
17	Diego Andrade-Brito , Matthias Janeschik, Daniel Soto Carballo, Kerry Lynn Gendreau, Francisca Hervas-Sotomayor, Bastienne Zaremba, Ana Verbanac, Henrik Kaessmann	Kaessmann	Unravelling the molecular and cellular evolution of the oligodendrocytes with single-cell sequencing methods
18	Lena Noack , Kim Ansaldi, Andrea Lewen, Oliver Kann	Kann	Acute exposure of hippocampal slice cultures to low concentrations of dimethyl sulfoxide (DMSO) alters gamma oscillations
19	Amr Elgez , Andrea Lewen, Lena Noack, Babak Khodaie, Oliver Kann	Kann	Neurotransmission inhibition and metabolic support attenuate microglia-induced neurodegeneration in organotypic hippocampal cultures

20*	Babak Khodaie , Lennart Söder , Andrea Lewen, Amr Elgez, Alexei V. Egorov , Oliver Kann	Kann	Lactate utilization alters sharp wave-ripple activity in mouse hippocampal slices
21	Danai Nikolantonaki , Jonathan Reinwald, Wolfgang Kelsch, Wolfgang Weber-Fahr	Kelsch	Individualized cognitions and brain reactivity in mice living in an ecological habitat
22	Jessica Jung , Sandra Horschitz, Philipp Koch	Koch	Development of a novel high-throughput screening method for drug target discovery in schizophrenia by means of utilizing co-cultured hiPSC-derived cortical neurons and microglia
23	Raquel Pérez Fernández , Marco T. Siekmann, Annasara Artioli, Philipp Koch, Julia Ladewig	Koch	Modeling reward and addiction: development of an <i>in vitro</i> reward neurocircuitry
24	Christy Yu , Sandra Horschitz, Philipp Koch	Koch	Deciphering psychiatric disease associated changes in human neurons by combinatorial gene knockdown
25	Ankita Kumar Bhamidipati , Anne Hoffrichter, Tessa Fabian, Malin Schmidt, Philipp Koch	Koch	Functional and molecular profiling of iPSC-derived neurons from patients in spanish multiplex families with bipolar disorder
26	Juhyun Kang , Rohini Kuner	R. Kuner	MD-NAC circuit plasticity in chronic neuropathic pain and modulation by the ketamine metabolite 2R,6R-HNK
27	Avi Adlakha , Ivo Sonntag, Simone Pfarr, Janet Barroso-Flores, Wolfgang Sommer, Thomas Kuner	T. Kuner	mPFC ensembles encoding behavioral episodes in an addiction task dynamically adjust and optimize entropy in repeated tasks
28	Sreedevi Raghu , Andrea Carlo Rossetti, Matteo Gasparatto, Philipp Koch, Julia Ladewig	Ladewig	Generating hiPSC-derived cortical organoids with enhanced neuronal maturation, improved functionality, and synchronized network activity
29	Annasara Artioli , Raquel Perez Fernandez, Lea Zillich, Fabio Marsoner, Anne Hoffrichter, Julia Ladewig, Philipp Koch	Ladewig	Human cortical brain organoids to study adaptive changes in alcohol addiction
30	Catello Guida , Matteo Gasparotto, Anne Hoffrichter, Fabio Marsoner, Annasara Artioli, Julia Ladewig	Ladewig	TBR2 directs neuronal subunits switching in ATP-Dependent chromatin remodeling complexes to regulate chromatin accessibility during human cortical development
31	Adriana Schneider , Alexandra B. Merkel, Nunzio Perta, Lisa Ruff, Netta Ussyshkin, Paula Zimmer, Bahar Aksan, Laura D'Andrea, Silvia Pelucchi, Elena Marcello, Daniele di Marino, Daniela Mauceri	Mauceri	Atp8a2 expression controls structural integrity and survival in mature neurons through spatiotemporal phosphatidylserine regulation
32	Estefania Isabella Leth , Adriana Schneider, Amandine Lepeuve, Bahar Aksan, Daniela Mauceri	Mauceri	Functional characterization of the splicing factor NOVA2 in hippocampal neurons
33	Marvin Urban , Felix Hörner, Wolfgang Weber-Fahr, Rainer Spanagel	Meinhardt	Structural underpinnings of addiction-like behavior in rodent model of cocaine use disorder
34	Rebecca Uzzi , Antonio Caputi, Cemile Kartal, Hannah Monyer	Monyer	Characterization of object-tuned cells in the medial entorhinal cortex
35*	Marcel Weinreich , Nicola Hecht, K. Held, J. Knabbe, Thomas Kuner, Hannah Monyer	Monyer	Longitudinal <i>in vivo</i> imaging reveals region-specific dynamics of connexin36 electrical synapses in cortical interneurons
36	Lena Rehra , Lelia Wagner, Danny Baltissen, Leo König, Gert Fricker, Ulrike C. Müller	Müller	Liposomal delivery of APPs _α derived neurotrophic peptides as a synaptic plasticity enhancing therapeutic strategy for AD
37	Verena Bengelsdorff , Stephan Müller, Laura Diekmann, Carolyn Blümcke, Christian Buchholz, Stefan Lichtenthaler, Ulrike C. Müller	Müller	AAV-Cre mediated triple knockout of the amyloid precursor protein (APP) family: Insights into the role of APP in cell surface and synaptic protein expression
38	Laura Diekmann , Carolyn Blümcke, Lara Kilian, Dominique Fäßler, Christian Buchholz, Ulrike C. Müller, Verena Bengelsdorff	Müller	Regulation of long-term potentiation and memory-related genes by the amyloid precursor protein (APP) family
39	Nekane Balcells Picaza , Janina Kupke, Franziska Mudlaff, Ana M.M. Oliveira	Oliveira	Function and regulation of de novo DNA methyltransferase DNMT3A1 in memory formation
40	Stefanos Loizou , Marlene Rosa Luckow, C. Peter Bengston, Harrison Gabel, Ana M.M. Oliveira	Oliveira	The role of Dnmt3a in neuronal function and its potential for reversing behavioral deficits in TBRS
41	German Ramos Passarello , Edoardo Sozzi, Sara Corsi, Surangrat Thongkorn, Giorgio Scordo, Arto Heiskanen, Samuel Tavares da Silva, Jenny Emneus, Alessandro Fiorenzano, Malin Parmar	Parmar	A regionalized and spatially confined multi-organoid model to study dopaminergic circuitry

42	Carmen Leibold , Minh Nguyen, Anna M. Hagenston Hertle, Kübra Gülmez Karaca	Roozendaal	Investigating the structural plasticity of memory engram neurons over time
43	John Jbeily , Sarah Janice Hörner, Nathalie Couturier, Mathias Hafner, Rüdiger Rudolf	Rudolf	Correlating metabolism and differentiation: From hiPSCs toward motor neurons
44*	John Jbeily, Kivia Soares, Mario Vitacolonna, Björn van Marwick, Matthias Rädle, Mathias Hafner, Rüdiger Rudolf, Tiziana Cesetti	Rudolf	Three-dimensional human neuromuscular models from hiPSC with myotubes, motor neurons, Schwann cells, and tenocytes
45	Tamara Pöpping , Andre Rupp	Rupp	Top-down and bottom-up processing in the perception of speech and music
46	Janina Müller , Laura Heutehaus, EMSCI study group, Norbert Weidner, Christian Schuld	Rupp	Development of a novel visualization technique for the identification of potential associations between sensory function and the location of nociceptive as well as neuropathic pain
47	Giovanni merolla , Susanne Theiss, Elsa Wassmer, Rachel B. Gilmore, Henning Fröhlich, Christian Schaaf	Schaaf	<i>In vivo</i> model characterization of Bosch-Boonstra-Schaaf optic atrophy syndrome
48*	Rachel B. Gilmore , Tim Schubert, Ferdinand Althammer, Christian P. Schaaf	Schaaf	Investigating antisense oligonucleotides in a rat model of Schaaf-Yang syndrome
49	Natalie Ludwig , Emilia Korhonen, Julia Dyckow, Lucas Schirmer	Schirmer	Experimental autoimmune encephalomyelitis induces focal demyelination in the murine optic nerve
50	Julia Dyckow , Amelie M. Rabitsch, Celine Geywitz, Christina Mayer, Celia Lerma-Martin, Natalie Ludwig, Peter A. Calabresi, Klaus-Armin Nave, Manuel A. Frieze, Wiebke Möbius, Lucas Schirmer	Schirmer	Oligodendrocyte-encoded Piezo2 regulates myelin integrity in the anterior visual system
51	Rangeet Manna , Duncan MacLaren, Shrutaswini Borkakoty, Magdalene Schlesiger	Schlesiger	Activation of VTA dopaminergic neurons modulates spatial coding in MEC
52	Ingrid Kolen , Rebecca Schüle	Schüle	Personalized ASO therapy for ALS-associated KIF5A mutations around exon 27: a multi-strategy approach
53	Adeoye Ewedemi , Marcus Meinhardt, Wolfgang Sommer, Rainer Spanagel	Spanagel	The effect of alcohol exposure on reward and aversion discounting
54	Gülcan Demir , Francesco Giannone, Tobias Buchborn, Anita Hansson, Rainer Spanagel	Spanagel	The role of microglial activation on habitual behaviour in alcohol use disorder
55	Salman Ahmad , Jiehan Lau, Martin Rossmann, Rick Bernardi, Anita Hansson, Rainer Spanagel	Spanagel	Role of OFC neuronal population in drug seeking behavior
56	Ruili Li , Rick E. Bernardi	Spanagel	The role of PDE10A in cocaine addiction
57	Nils Wörner , Minyoung Kim, Marcel Weinreich, Ceren Thier, Marc Thier	Thier	Rapid generation of oligodendrocyte progenitor cells from neural progenitor cells through 3D spheroid culture and small molecule modulation
58	Atefeh Pourkhalili Langeroudi , Svenja K. Tetzlaff, Ekin Reyhan, Nikolas Layer, Varun Venkataramani	Venkataramani	Characterizing neuronal integration into glioblastoma using retrograde tracing
59	Ketrin Dimco , Rüstem Yilmaz, Philipp Koch, Rosanna Parlato, Jochen Weishaupt	Weishaupt	Role of MYORG mutations in primary familial brain calcification (PFBC)
60	Jahnvi Srinidhi , Babak Loghmani, David Brenner, Isabel Loss, Rustem Yilmaz, Philipp Koch, Rosanna Parlato, Jochen Weishaupt	Weishaupt	Comparative analysis of different TBK1-ALS mutations in patient-derived motor neurons
61	Isabel Loss , Rüstem Yilmaz, Babak Loghmani, Francesca Tuorto, Johannes Wilbertz, Elena Cairo, Philipp Koch, Jochen Weishaupt, Rosanna Parlato	Weishaupt	ALS causative KIF5A mutations lead to translational impairment and nucleolar stress in hiPSCs derived motor neurons
62	Umay Tugcu , Isabel Loss, Rüstem Yilmaz, Philipp Koch, Rosanna Parlato, Jochen Weishaupt	Weishaupt	Investigating CRISPR-Cas13 as a therapeutic approach for KIF5A-ALS: Targeting mutant KIF5A mRNA for selective reduction
63	Yilmaz Arda Ates , Niklas Meyer, Johannes Vierock, J. Simon Wiegert	Wiegert	InverseBiPOLES: Expanding the toolkit for bidirectional optogenetic control of neuronal activity
64	Ivan Skorodumov , Florian Walter, Merve Akan, Livia von Ammon, Tobias Buchborn, Yelena le Priault, Vaclav Havel, Dalibor Sames, Rainer Spanagel, Marcus Meinhardt	Meinhardt	Oxa-noribogaine restores aversion resistance in alcohol-dependent rats by altering glutamatergic activity in the mPFC

* Posters marked with an asterisk do not qualify for the IZN students' poster prize.

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