

PROGRAM

MONDAY, May 8—7:00 PM

Welcome Remarks

David Stewart, on behalf of Cold Spring Harbor Laboratory
Hailan Hu, on behalf of Organizing Committee

SESSION 1 KEYNOTE SESSION

Chairperson: **Alcino Silva**, University of California, Los Angeles, USA

The influence of enclosure shape on the entorhinal grid cells

John O'Keefe [35'+10']

Presenter affiliation: University College London, London, United Kingdom; University College London, London, United Kingdom.

1

Development and organization of the medial-entorhinal space network

Edvard I. Moser [35'+10']

Presenter affiliation: Kavli Institute for Systems Neuroscience, Trondheim, Norway.

2

Break

Voltage dependence of spatial coding in hippocampal pyramidal neurons supported by persistent sodium current

Ching-Lung Hsu, Xinyu Zhao, Nelson Spruston [10'+3']

Presenter affiliation: Janelia Research Campus, Ashburn, Virginia.

3

Micro-organization of grid cells in layer 2 of the medial entorhinal cortex

Yi Gu, Amina A. Kinkhabwala, Cristina Domnisoru, Kijung Yoon, Jeff L. Gauthier, David W. Tank [10'+3']

Presenter affiliation: Princeton University, Princeton, New Jersey.

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TUESDAY, May 9—9:00 AM

SESSION 2 MEMORY AND SYNAPSE

Chairperson: **Bai Lu**, Tsinghua University, Beijing, China

Molecular, cellular, and circuit mechanisms that link memories across time

Denise J. Cai, Daniel Aharoni, Tristan Shuman, Justin Shobe, Jeremy Biane, Weilin Song, Brandon Wei, Michael Veshkini, Mimi La-Vu, Sergio E. Flores, Isaac Kim, Yoshitake Sano, Miou Zhou, Ayal Lavi, Alcino J. Silva [20'+10']

Presenter affiliation: University of California, Los Angeles, Los Angeles, California.

5

Cell type-specific *de novo* translation in memory consolidation

Eric Klann [20'+10']

Presenter affiliation: New York University, New York, New York.

6

Cell type-specific RAS signaling networks in learning disabilities

Hyun-Hee Ryu, TaeHyun Kim, Minkyung Kang, Chul-Hong Kim, Jung-Woong Kim, Bong-Kiun Kaang, Yong-Seok Lee [10'+3']

Presenter affiliation: Seoul National University College of Medicine, Seoul, South Korea.

7

Coffee / Tea Break

Deconstructing fear

Andreas Lüthi [20'+10']

Presenter affiliation: Friedrich Miescher Institute, Basel, Switzerland.

8

Role of active synaptic protein turnover in cortical synaptic reorganization induced by peripheral nerve injury

Bong-Kiun Kaang [20'+10']

Presenter affiliation: Seoul National University, Seoul, South Korea.

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FLASH TALKS I

SESSION 3 POSTER SESSION I

Odd # posters will be presented this session

Terminating epileptic seizures using spatially focused transcranial electrical stimulation of the brain - from animal experiments to human studies

Antal Berenyi, Yuichi Takeuchi, Kitti Brinyiczki, Tamas Zombori, Azahara Oliva, Antonio Fernandez-Ruiz, Gabor Kozak, Zsigmond T. Kincses, Bela Ivanyi, Gyorgy Buzsaki, Mihaly Voroslakos
Presenter affiliation: University of Szeged, Szeged, Hungary; New York University, New York City, New York.

10

Simultaneous optogenetic manipulations and cellular resolution calcium imaging during active behavior using a head-mountable miniaturized microscope

Alice M. Stamatakis, Mike Schachter, Srishti Gulati, Sam Malanowski, Arash Tajik, Chris Fritz, Mark Trulson, Vania Cao, Stephani Otte
Presenter affiliation: Inscopix, Palo Alto, California.

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Soft substrate environment facilitates growth cone turning through a paxillin-drebrin interaction

Chen Chen, Der-Yao Wang, Ting-Ya Chang, Pei-Lin Cheng
Presenter affiliation: Academia Sinica, Taipei, Taiwan; National Yang-Ming University, Taipei, Taiwan.

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Modulation of habit formation by pharmacological blockade of adenosine A2A receptors but not A1 receptors

Xinran Pan, Yang Ruan, Chaoxiang He, Yan Li, Yan He, Mozi Chen, Jiang-Fan Chen
Presenter affiliation: Wenzhou Medical University, Wenzhou, China.

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Selective modulation of the maintenance and retrieval of spatial working memory by the cortico-striatal adenosine A2A receptor

Zihui Li, Hangjun Chen, Tao Wang, Ying Gao, Fei Li, Long Chen, Feng Yue, Piu Chan, Jiangfan Chen
Presenter affiliation: Wenzhou Medical University, Wenzhou, China; Boston University School of Medicine, Boston, Massachusetts.

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- Control of itch processing by the periaqueductal gray**
Wenzhen Chen, Zhengrun Gao, Yangang Sun
 Presenter affiliation: Chinese Academy of Sciences, Shanghai, China. 15
- Primary auditory cortex is required for anticipatory motor response**
 Jingcheng Li, Xiang Liao, Jianxiong Zhang, Meng Wang, Xingyi Li,
Xiaowei Chen
 Presenter affiliation: Brain Research Center, Chongqing, China. 16
- Loss of CREST induces microglia activation by neuronal signals and ALS-like motor deficits**
Cheng Cheng, Xiao Sang, Zilong Qiu
 Presenter affiliation: Institute of Neuroscience, Shanghai Chinese Academy of Sciences, Shanghai, China. 17
- Suppressing lateral orbitofrontal cortex improved the learning of delayed paired associative learning task in mice**
Qi Cheng, Rui Qing Hou, Zhao Qin Chen, Hong Mei Fan, Cheng Yu Li
 Presenter affiliation: Institute of Neuroscience and Key Laboratory of Primate Neurobiology, Shang Hai, China; University of Chinese Academy of Sciences, Bei Jing, China. 18
- BDNF and trkB in epileptogenic rat hippocampal neurons—A preliminary data**
Pei Nei Chong, Jong Huat Tee, Muthuraju Sangu, Abdul Aziz Yusoff, Jafri Malin Abdullah, Hasnan Jaafar, Tahamina Begum, Faruque Reza
 Presenter affiliation: Academic, Kota Bahru, Kelantan , Malaysia. 19
- The GiD mouse, a novel animal model of reactive astrocytes, reveals the non-cell autonomous mechanism of neurodegeneration via MAOB-mediated nitrosative stress**
Heejung Chun, Yunha Kim, Yeonha Ju, Jaekwang Lee, Junsung Woo, Yujin Hwang, Woojin Won, Byung Ju Gwak, YoungSoo Kim, Ki Duk Park, Hoon Ryu, C. Justin Lee
 Presenter affiliation: Korea Institute of Science and Technology (KIST), Seoul, South Korea. 20
- The control of action selection by cell-type specific circuits of the striatum in auditory-guided decision task**
Lele Cui, Ninglong Xu
 Presenter affiliation: Institute of Neuroscience, State Key Laboratory of Neuroscience, Shanghai, China; University of Chinese Academy of Sciences, Shanghai, China. 21

<p>Central amygdala mediates negative reinforcement learning <u>YuTing Cui</u>, Sen Jin, GuangHui Lv, Jie Peng, ZiQian Jin, Jing Yuan, XiaoBin He, Hui Gong, FuQiang Xu, TongHui Xu, HaoHong Li Presenter affiliation: Huazhong University of Science and Technology, Wuhan, China.</p>	22
<p>Default model network mechanism in the current and remitted depression depression <u>Qin Dai</u>, Xuntao Yin, Zhengzhi Feng Presenter affiliation: The Third Military Medical University, Chongqing, China.</p>	23
<p>Rewarding network mechanism of left orbito-frontal cortex transcranial magnetic stimulation in depression <u>Qin Dai</u>, Xuntao Yin, Zhengzhi Feng Presenter affiliation: The Third Military Medical University, Chongqing, China.</p>	24
<p>Neural mechanism of inhibition of return in current and remitted depression <u>Qin Dai</u>, Xuntao Yin, Zhengzhi Feng Presenter affiliation: The Third Military Medical University, Chongqing, China.</p>	25
<p>Pharmacological inactivation of dorsal hippocampus enhances responses and induces adaptation to sound in midbrain <u>Celia M Dong</u>, Russell W. Chan, Alex TL Leong, Ed X. Wu Presenter affiliation: Laboratory of Biomedical Imaging and Signal Processing,, Hong Kong, Hong Kong.</p>	26
<p>Brain computation is organized via power-of-two-based permutation logic <u>Grace E. Fox</u>, Kun Xie, Jun Liu, Joe Z. Tsien Presenter affiliation: Medical College of Georgia, Augusta University, Augusta, Georgia.</p>	27
<p>Tac1⁺ neurons in the periaqueductal gray facilitate itch signal processing <u>Zhengrun Gao</u>, Yuan Lei, Xinyan Zhang, Mingzhe Liu, Xiaojun Chen, Wenzhen Chen, Yangang Sun Presenter affiliation: Institute of Neuroscience, Shanghai, China; University of Chinese Academy of Sciences, Shanghai, China.</p>	28

Critical role of global spontaneous activity in population neuronal states and behavior

Xiaowei Gu, Xingyu Ding, Xiaojing Wang, Chengyu Li

Presenter affiliation: Chinese Academy of Sciences, Shanghai, China. 29

Dorsal root ganglion stimulation can prevent disuse bone loss and induce posterolateral spinal fusion in rats

Xia Guo, Yeun Chi Lau, Xing Qian, Lu Ming Li, Kai Ting Po, Yau Ming Lai

Presenter affiliation: The Hong Kong Polytechnic University, Hong Kong. 30

Maintenance of persistent activity in a frontal thalamocortical loop

Zeng-cai V. Guo, Hidehiko K. Inagaki, Kayvon Daie, Shaul Druckmann, Charles R. Gerfen, Karel Svoboda

Presenter affiliation: Janelia Research Campus, Ashburn, Virginia;
Current address: School of Medicine, Beijing, China. 31

Modulation of neuronal excitation/inhibition balance by the light/dark cycle

Kai-Wen He, Michelle Bridi, Fang-Jiao Zong, Guang-Ling Wang, Alfredo Kirkwood

Presenter affiliation: Chinese Academy of Science, Shanghai, China. 32

Engram of the complex conditioned signal: formation, extinction and localization in the mouse brain

Olga Ivashkina, Ksenia Toropova, Marina Roshchina, Konstantin Anokhin

Presenter affiliation: National Research Center "Kurchatov Institute", Moscow, Russia; Moscow State University, Moscow, Russia. 33

Social experience-dependent maturation of parvalbumin-positive interneurons in the orbitofrontal cortex

Daun Jeong, Eunseo Kang, You-Hyang Song, Soo Young Kim, Seung-Hee Lee

Presenter affiliation: Korea Advanced Institute of Science and Technology (KAIST), Daejeon, South Korea. 34

Antidepressant reinstates the plasticity of vestibular-mediated navigation in the adult

Qiufen Jiang, C.W. Ma, D.K.Y. Shum, Y.S. Chan

Presenter affiliation: The University of Hong Kong, Hong Kong, China. 35

- Enhanced empathic fear with thalamocortical dysrhythmia in phospholipase-C beta4 deficient mice**
Sehoon Keum, Charles Latchoumane, Gireesh Gangadharan, Dongmyeong Lee, Min Seol, Joonhyuk Lee, Arie Kim, Bomi Chang, Boyoung Lee, Ji Su Ma, Yong Ryoul Yang, Masahiro Yamamoto, Pann-Ghill Suh, Hee-Sup Shin
 Presenter affiliation: Institute for Basic Science (IBS), Daejeon, South Korea. 36
- Neurexin 3 in somatostatin-expressing inhibitory neurons gates empathic fear in the anterior cingulate cortex**
Arie Kim, Sehoon Keum, Jaejin Shin, Jungjoon Park, Charles V. Latchoumane, Joomin Park, Hee-Sup Shin
 Presenter affiliation: Institute for Basic Science, Daejeon, South Korea; University of Science and Technology, Daejeon, South Korea. 37
- Phospholipase C- β 1 is required for observational fear learning driven by cingulo-amygdala excitatory projection in mice**
Seong-Wook Kim, Minsoo Kim, Jinhee Baek, Taesup Cho, Junweon Byun, Duk-Soo Kim, Yeon-Soo Kim, Hee-Sup Shin
 Presenter affiliation: Institute for Basic Science (IBS), Daejeon, South Korea. 38
- Oculomotor memory induces distinct patterns of gene expression in cerebellum**
Yong Gyu Kim, Sang Jeong Kim
 Presenter affiliation: Seoul National University College of Medicine, Seoul, South Korea. 39
- Tonic release of astrocytic D-serine through Best1 channel is critical for long term depression and behavioral flexibility**
 Jaekwang Lee, Mijeong Park, Young-eun Han, Wuhyun Koh, Heejung Chun, Junsung Woo, Jewon Jo, C. Justin Lee
 Presenter affiliation: Korea Institute of Science and Technology, Seoul, South Korea; University of Science and Technology (UST), Daejeon, South Korea. 40
- Large-scale mapping of mammalian synaptic connectivity with light microscopy**
Dong-Jun Koo, Han-eol Park, Myungmo An, Sung-Yon Kim
 Presenter affiliation: Seoul National University, Seoul, South Korea. 41

Sustained efficacy of closed loop electrical stimulation for long-term treatment of absence epilepsy in rats <u>Gabor Kozak</u> , Antal Berenyi Presenter affiliation: University of Szeged, Szeged, Hungary.	42
Neurobeachin is required for extinction of contextual fear memory <u>Boyoung Lee</u> , Sujin Kim, Jonghyun Kim, Jinhee Baek, Hee-Sup Shin Presenter affiliation: Institute for Basic Science, Daejeon, South Korea.	43
Feature-specific surround suppression in mouse V1 correlates with figure-ground segregation <u>Fengling Li</u> , Weiqian Jiang, Tianyi Wang, Taorong Xie, Haishan Yao Presenter affiliation: Institute of Neuroscience and State Key Laboratory of Neuroscience, Shanghai, China; University of Chinese Academy of Sciences, Shanghai, China.	44
Visualization of lncRNAs, ion channels, and GPCR expression, within morphological context in the central and peripheral nervous systems <u>Na Li</u> , Annelies Laeremans, Zhifu Zhang, Hongzhe Sun, Yuling Luo, Xiao-Jun Ma, Emily Park Presenter affiliation: Advanced Cell Diagnostics Inc., Newark, California.	45
Clustered, sequentially formed synaptic inputs underlie rapid plasticity of cortical neurons in vivo <u>Xingyi Li</u> , Yu Guang, Shanshan Liang, Ciyu Huang, Xiang Liao, Xiaowei Chen Presenter affiliation: Third Military Medical University, Chongqing, China.	46
Learning-induced transformation of spiking pattern through nonlinear dendritic processing in vivo Meng Wang, Ruijie Li, Ran Ding, <u>Xiang Liao</u> , Xiaowei Chen Presenter affiliation: Third Military Medical University, Chongqing, China.	47
Quantitative mRNA imaging throughout the entire Drosophila brain <u>Xi Salina Long</u> , Jennifer Colonell, Allan M. Wong, Robert H. Singer, Timothee Lionnet Presenter affiliation: Howard Hughes Medical Institute Janelia Research Campus, Ashburn, Virginia.	48

- Dissection of ictal propagation in the hippocampal–entorhinal cortex structures using novel optrode arrays**
Yi Lu, Cheng Zhong, Lulu Wang, Liping Wang
 Presenter affiliation: Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China. 49
- Aversion without emotion—Ventral tegmental area downstream promotes pure aversion behaviors**
Quentin Montardy, Zheng Zhou, Xue-Mei Liu, Li Lei, Pengfei Wei, Zuogui Lei, Pengyu Zeng, Zhijian Zhang, Yuanming Liu, Chen Chen, Kang Huang, Fuqiang Xu, Cornelius Gross, Li-Ping Wang
 Presenter affiliation: Shenzhen Institute of Advanced Technology (CAS), Shenzhen, China. 50
- Parkinsonism through GABA from reactive astrocyte**
Min-Ho Nam, Jun Young Heo, Hyung Ho Yoon, Jeongyeon Kim, Yu Jin Hwang, Woojin Won, Dong Ho Woo, Ji Ae Lee, Hyun-Jung Park, Seonmi Jo, Kyung I. Kim, Sue H. Huh, Jae Y. Jeong, Wuhyun Koh, Neil W. Kowall, Hoon Ryu, Sang Ryong Jeon, C. Justin Lee
 Presenter affiliation: Korea Institute of Science and Technology, Seoul, South Korea; Kyung Hee University, Seoul, South Korea. 51
- Reciprocal connections between cortex and thalamus contribute to retinal axon targeting**
 Yupu Diao, Liyuan Cui, Nan Qin, Yuqing Chen, Timothy J. Burbridge, Wenqi Han, Brunhilde Wirth, Nenad Sestan, Michael C. Crair, Jiayi Zhang
 Presenter affiliation: Fudan University, Shanghai, China. 52
- Developing a sonogenetic toolkit for precise control of neuronal activity**
Zhihai Qiu, Jinghui Guo, Yaoheng Yang, Jingyao Wang, Rui Zhang, Jiejun Zhu, Shashwati Kala, Hsiao C. Chan, Lei Sun
 Presenter affiliation: The Hong Kong Polytechnic University, Hung Hom, Hong Kong. 53
- Modulating CREB activity by ultrasound**
Zhihai Qiu, Rui Zhang, Yaoheng Yang, Shashwati Kala, Jingyao Wang, Jinghui Guo, Quanxiang Xian, Hsiao C. Chan, Lei Sun
 Presenter affiliation: The Hong Kong Polytechnic University, Hung Hom, Hong Kong. 54

Homeostatic plasticity of fast-spiking inhibitory interneurons for the impaired behavioral flexibility	
<u>Jaejin Shin</u> , Sooyong Kim, Yonggyu Kim, Joomin Park, Sangjeong Kim	
Presenter affiliation: Seoul National University, Seoul, South Korea; Institute for Basic Science (IBS), Daejeon, South Korea.	55
A neural circuit for auditory dominance over visual perception	
<u>You-Hyang Song</u> , Jae-Hyun Kim, Hye-Won Jeong, Ilsong Choi, Daun Jeong, Kwansoo Kim, Seung-Hee Lee	
Presenter affiliation: KAIST, Daejeon, South Korea.	56
Parabrachial nucleus is a first central relay essential for itch-induced scratching behavior	
Di Mu, Juan Deng, <u>YanGang Sun</u>	
Presenter affiliation: Chinese Academy of Sciences, Shanghai, China.	57
Deep brain stimulation of the entorhinal cortex or perifornical area in an aged animal model transiently restores memory function	
<u>Shawn Zheng Kai Tan</u> , Sharafuddin Khairuddin, Sarah Hescham, Arjan Blokland, Yasin Temel, Lee Wei Lim	
Presenter affiliation: Li Ka Shing Faculty of Medicine, The University of Hong Kong, Hong Kong.	58
Study the neuronal mechanism of amino acids foraging behavior by using adult fly	
<u>Yinjun Tian</u> , Liming Wang	
Presenter affiliation: Zhejiang University, Hangzhou, China.	59
The critical role of cell-adhesion molecule <i>CNTNAP3</i> in the neurite and synapse development	
<u>Dali Tong</u> , Lingjie He, Ting Dang, Bin Yu, Zilong Qiu	
Presenter affiliation: Institute of Neuroscience, Shanghai, China.	60
Cellular resting state networks in the mouse brain—A large-scale c-Fos mapping study	
<u>Ksenia Toropova</u> , Elena Konovalova, Dmitrii Sukhinin, Olga Ivashkina, Konstantin Anokhin	
Presenter affiliation: National Research Center "Kurchatov Institute", Moscow, Russia; Moscow State University, Moscow, Russia.	61
A multi-regional electrode design with 3D-printed multi-drive system	
Zifang Zhao, Jun Ma, <u>You Wan</u>	
Presenter affiliation: Peking University, Beijing, China.	62

Mammillary body regulates state-dependent learning

Jun Jiang, Guangyu Wang, Wenhan Luo, Yang Lin, Yi Hu, Hong Xie, Jisong Guan

Presenter affiliation: Tsinghua University, Beijing, China.

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Probing the flexibility of avoidance response in *C. elegans*

Yuan Wang, Fan Gao, Xiaoqian Zhang, Mark Alkema, Mei Zhen, Quan Wen

Presenter affiliation: University of science and technology of China, Hefei, China.

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A sexually dimorphic area that drives male-typical copulation and pup care in both sexes

Yichao Wei, Shaoran Wang, Wen Zhang, Junkai Lin, Zhuolei Jiao, Xin Zhang, Xiaohong Xu

Presenter affiliation: Institute of Neuroscience, State Key Laboratory of Neuroscience, Shanghai, China; University of the Chinese Academy of Sciences, Beijing, China.

65

Gap junction between motor neurons facilitates undulatory wave propagation in *Caenorhabditis elegans*

Tianqi Xu, Jing Huo, Min Wu, Shuai Shao, Mei Zhen, Quan Wen

Presenter affiliation: University of Science and Technology of China, Hefei, China.

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Channel-mediated astrocytic volume transient is required for synaptic plasticity and spatial memory

Junsung Woo, Jaekwang Lee, Jieun E. Kim, Jung Moo Lee, Dahee Jeong, Wuhyun Koh, Katsuhiko Mikoshiba, Jaiwon Cho, In Kyoonyoung, C. Justin Lee

Presenter affiliation: Korea Institute of Science and Technology, Seoul, South Korea; University of Science and Technology, Daejeon, South Korea.

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Multimodal, real time neural recording and perturbation in vivo

Fan Wu, Xia Guo, Zifang Zhao, You Wan, Brian G. Jamieson

Presenter affiliation: Diagnostic Biochips, Glen Burnie, Maryland.

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Role of SST+ interneurons in the generation of hippocampal CA1 ripple oscillations

Jiamin Xu, Liqin Gu, Ziyu Shen, Longnian Lin

Presenter affiliation: Institute of Brain Functional Genomics, Shanghai, China.

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Population representation of perceptual decisions regulated by top-down input	
Yu Xin, Yanhe Liu, Ruiming Chai, Lin Zhong, Yuan Zhang, Taotao Zhou, Jingwei Pan, <u>Ninglong Xu</u>	
Presenter affiliation: Institute of Neuroscience, Shanghai, China; CAS Center for Excellence in Brain Science and Intelligence Technology, Shanghai, China.	70
Near infrared imaging vision and non-invasive optogenetics generated by photon upconversion nanoparticles	
Yuqian Ma, Kai An, Huan Zhao, Jin Bao, Gang Han, <u>Tian Xue</u>	
Presenter affiliation: University of Science and Technology of China, Hefei, China.	71
An internal sensor detects post-ingestive amino acids and promotes food consumption in Drosophila	
<u>Zhe Yang</u> , Xin Fu, Gaohang Wang, Wei Qi, Wei Shen, Liming Wang	
Presenter affiliation: Zhejiang University, Hangzhou, China.	72
Dissection and intervention at the neural circuit level in a mouse model of MeCP2 duplication syndrome	
<u>Bin Yu</u> , Bo Yuan, Lingjie He, Ran Zhang, Zilong Qiu	
Presenter affiliation: Institute of Neuroscience, Shanghai, China.	73
Fear erasure facilitated by immature inhibitory neuron transplantation	
<u>Yong-Chun Yu</u>	
Presenter affiliation: Fudan University, Shanghai, China.	74
Brain-inspired integration of movement and sensory for robot navigation	
<u>Taiping Zeng</u> , Bailu Si	
Presenter affiliation: University of Chinese Academy of Sciences, Beijing, China.	75
Oscillatory prefrontal and subcortical interactions during social behavior	
Hongjian Li, Zihao Chen, Yong Tang, Yechao Han, <u>Yang Zhan</u>	
Presenter affiliation: Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China.	76

- The feasibility of acupuncture for large experimental animal model of swine myocardial ischemia based on ERK expression**
Jin-ling Zhang, Yi Tian, Pei-jing Rong, Xun He, Shu-yong Jia, Jin-chao Zhang, Sheng-fang Zhou, Huan Liu, Ming-hong Sun, Feng Zhang, Hong-tao Lei, Ji-liang Fang
 Presenter affiliation: Institute of Acu-moxibustion, China Academy of Chinese Medical Sciences, Beijing, China. 77
- Persistent activity in entorhinal-hippocampal projection supports place memory**
 Han Qin, Wenjun Jin, Jian Lu, Kuan Zhang, Ling Fu, Xiaowei Chen
 Presenter affiliation: Brain Research Center, Chongqing, China. 78
- Physical exercise prevents the loss of dendritic spines in mouse barrel cortex and improves memory function via BDNF-TrkB signal pathway**
 Kai Chen, Li Zhang, Minjie Tan, Cora Sau Wan Lai, Chaoran Ren, Kwok-Fai So
 Presenter affiliation: Jinan University, Guangzhou, China. 79
- Causal analysis of brain-wide dysconnectivity in Schizophrenia patients identifies the frontal cortex as the primary source**
Lu Zhang, Richard Apps, Wei Cheng, Keith M. Kendrick, Jianfeng Feng
 Presenter affiliation: Fudan University, Shanghai, China. 80
- Winning history remodels upstream input to PFC circuit to reinforce mental strength for social dominance**
Tingting Zhou, Hong Zhu, Zhengxiao Fan, Longnian Lin, Yang Zhan, Zheng Wang, Hailan Hu
 Presenter affiliation: ION, Shanghai, China. 81

TUESDAY, MAY 9—4:30 PM

Chinese Tea and Beer Tasting

SESSION 4 **CIRCUIT OF SENSATION AND ACTION**

Chairperson: **Qinghua Liu**, University of Tsukuba, Japan

Circuits, cell types and function in mouse visual cortex

Edward M. Callaway [20'+10']

Presenter affiliation: The Salk Institute, La Jolla, California. 82

Brainstem control of locomotor behavior—Start, speed and stop

Ole Kiehn [20'+10']

Presenter affiliation: Karolinska Institutet, Stockholm, Sweden. 83

Break

Starting new actions and learning from it

Rui Costa [20'+10']

Presenter affiliation: Champalimaud Neuroscience Program, Lisboa, Portugal. 84

The role of orbitofrontal cortex in olfactory learning

Cristian Boboila, Peter Wang, Philip Shamash, Kristen Lawlor, Abigail Zadina, Richard Axel [10'+3']

Presenter affiliation: Columbia University, New York, New York. 85

Subunit-specific G β y mediates distinct modes of GABA_B dependent presynaptic inhibition in an olfactory circuit

Huoqing Jiang, Miao Jing, Jianzhi Zeng, Yulong Li [10'+3']

Presenter affiliation: Peking University, Beijing, China; Peking University School of Life Sciences, Beijing, China; Peking-Tsinghua Center for Life Sciences, Beijing, China. 86

WEDNESDAY, May 10—9:00 AM

SESSION 5 EMOTION AND SOCIAL BEHAVIOR I

Chairperson: **Zilong Qiu**, Institute of Neuroscience, CAS, Shanghai, China

Genetic and neural circuit analysis for observational fear learning, a rodent model of empathic fear

Hee-Sup Shin [20'+10']

Presenter affiliation: Institute for Basic Science (IBS), Daejeon, South Korea. 87

Burst, glia and depression

Hailan Hu [20'+10']

Presenter affiliation: Zhejiang University, Hangzhou, China. 88

A sexually dimorphic area that drives male-typical copulation and pup care in both sexes

Yi-Chao Wei, Shao-Rang Wang, Xiao-Hong Xu [10'+3']

Presenter affiliation: Institute of Neuroscience, Shanghai, China. 89

Coffee / Tea Break

Multiple dopamine systems

Naoshige Uchida [20'+10']

Presenter affiliation: Harvard University, Cambridge, Massachusetts. 90

Activation of the ventral pallidum glutamatergic neurons promotes behavioral aversion

Rongfeng Hu, Fang Wang, Xiaochun Jiang, Juen Zhang, Na Chen, Qiru Feng, Chengyu Fan, Ji Hu [10'+3']

Presenter affiliation: ShanghaiTech University, Shanghai, China. 91

FLASH TALKS II

WEDNESDAY, May 10—2:00 PM

SESSION 6 POSTER SESSION II

See Poster Session I for list of posters

Even # posters will be presented this session

SESSION 7 EMOTION AND SOCIAL BEHAVIOR II

Chairperson: **Hee-Sun Shin**, Institute of Basic Science, Seoul, Korea

KEYNOTE SPEAKER

The neural circuitry of sex and violence

David J. Anderson [35'+10']

Presenter affiliation: California Institute of Technology / HHMI,
Pasadena, California.

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Break

Probing autism with the non-human primate model

Xiao Li, Zilong Qiu [20'+10']

Presenter affiliation: Institute of Neuroscience, CAS, Shanghai, China.

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Overlapping memory trace is indispensable for linking, but not recalling, individual memories

Kaoru Inokuchi [20'+10']

Presenter affiliation: University of Toyama, Toyama, Japan.

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Pavlovian conditioning of memory engram—Prerequisites and cellular imaging of neural substrates

Konstantin Anokhin, Natalia Vorobyeva, Ksenia Toropova, Olga Ivashkina [10'+3']

Presenter affiliation: National Research Center "Kurchatov Institute",
Moscow, Russia; Moscow State University, Moscow, Russia; Institute
of Normal Physiology, Moscow, Russia.

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Distinct hippocampal pathways mediate dissociable roles of context in memory retrieval

Chun Xu, Sabine Krabbe, Jan Gründemann, Paolo Botta, Jonathan Fadok, Fumitaka Osakada, Dieter Saur, Benjamin Grewe, Mark Schnitzer, Edward Callaway, Andreas Lüthi [10'+3']

Presenter affiliation: Friedrich Miescher Institute for Biomedical
Research, Basel, Switzerland; Institute of Neuroscience, CAS,
Shanghai, China.

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SESSION 8 EMOTION AND SOCIAL BEHAVIOR III

Chairperson: **Hailan Hu**, Zhejiang University, Hangzhou, China

Critical roles of presynaptic endosomal Cathepsin D in regulating biogenesis of GABAergic synaptic vesicles

Shumin Duan [20'+10']

Presenter affiliation: Zhejiang University, Hangzhou, China. 97

The amygdala circuits in the regulation of divergent behaviors

Bo Li [20'+10']

Presenter affiliation: Cold Spring Harbor Laboratory, Cold Spring Harbor, New York. 98

Neural circuits underlying positive and negative valence

Kay Tye [20'+10']

Presenter affiliation: Massachusetts Institute of Technology, Cambridge, Massachusetts. 99

Coffee / Tea Break

How do mice learn from their social partners?

Zihui Liu, Zijun Chen, Congping Shang, Fei Yan, Dapeng Li, Peng Cao [20'+10']

Presenter affiliation: Chinese Academy of Sciences, Beijing, China; National Institute of Biological Sciences, Beijing, China. 100

Visualization and correction of social abnormalities-associated neural ensembles in adult *MECP2* duplication mice

Long Li, Le Sun, Bo Yuan, Kun Song, Na Pan, Tian-Lin Cheng, Shiyang Chang, Xiaobin He, Qian Wu, Fuqiang Xu, Zilong Qiu, Xiaoqun Wang [10'+3']

Presenter affiliation: Chinese Academy of Sciences, Beijing, China; University of Chinese Academy of Sciences, Beijing, China. 101

Identification of a new circuits that controls energy expenditure independent of food-intake using BDNF promoter e1-specific mutant mice

Bai Lu [10'+3']

Presenter affiliation: Tsinghua University, Beijing, China. 102

SESSION 9 SLEEP, ATTENTION AND BRAIN RHYTHM

Chairperson: **Kay Tye**, Massachusetts Institute of Technology,
Cambridge, Massachusetts, USA

Why do we need so many neurons?

György Buzsáki [20'+10']

Presenter affiliation: New York University, New York, New York. 103

Thalamic control of functional cortical connectivity

Michael Halassa [20'+10']

Presenter affiliation: New York University School of Medicine, New York, New York.

Thalamic modulation of hippocampal memory through triple coupling of cortical, thalamic and hippocampal rhythms during NREM sleep

Charles-Francois V. Latchoumane, Hong-Viet V. Ngo, Jan Born, Hee-Sup Shin [10'+3']

Presenter affiliation: Institute for Basic Science, Daejeon, South Korea; University of Science and Technology, Daejeon, South Korea. 104

Break

Neural circuits controlling sleep

Yang Dan [20'+10']

Presenter affiliation: UC Berkeley, Berkeley, California. 105

A mechanistic link between synaptic phosphoproteome and homeostatic sleep regulation

Qinghua Liu, Zhiqiang Wang, Jing Ma, Yonghao Yu, Hiromasa Funato, Masashi Yanagisawa [10'+3']

Presenter affiliation: University of Tsukuba, Tsukuba, Japan; UT Southwestern Medical Center, Dallas, Texas. 106

Trafficking of heparanase1 is regulated by neuronal activity during homeostatic synaptic plasticity

Zonghua Li, Yingshing Chan, Daisy Kwok Yan Shum [10'+3']

Presenter affiliation: University of Hong Kong, Hong Kong. 107

Top-down control of working memory through prefrontal-insular circuit

Jia Zhu, Qi Cheng, Zhe Han, Ruiqing Hou, Zhaoqin Chen, Yulei Chen, Hongmei Fan, Chengyu T. Li [10'+3']

Presenter affiliation: ION, Key Laboratory of Primate Neurobiology, CAS Center for Excellence in Brain Science and Intelligence Technology, Shanghai, China; University of Chinese Academy of Sciences, Beijing, China.

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THURSDAY, MAY 11—6:00 PM

COCKTAILS and BANQUET

Followed by Old Town Tour

FRIDAY, May 12—9:00 AM

SESSION 10 TRANSLATIONAL NEUROSCIENCE AND NEW TECHNOLOGY

Chairperson: **Jiayi Zhang**, Fudan University, Shanghai, China

The gut-microbiome-brain axis in neurodevelopmental disorders

Mauro Costa-Mattioli [20'+10']

Presenter affiliation: Baylor College of Medicine, Houston, Texas.

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Bringing gamma back—Using noninvasive sensory stimulation to modify Alzheimer's disease

Li-Huei Tsai, Hannah Iaccarino, Annabelle Singer, Edward Boyden, Emery Brown, Chinnakkaruppan Adaikkan, Anthony Martorell [20'+10']

Presenter affiliation: Massachusetts Institute of Technology, Cambridge, Massachusetts.

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Mechanisms of light facilitated cross modal plasticity of sensory cortices

Jin Bao, Jiayi Hu, Yiming Shi Tian Xue [10'+3']

Presenter affiliation: University of Science and Technology of China, Hefei, China.

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Coffee / Tea Break

Glia finally speaks! Astrocytic volume transients modulate language-associated brain plasticity

C. Justin Lee, In Kyoon Lyoo [20'+10']

Presenter affiliation: KIST, Seoul, South Korea.

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Rapid whole brain imaging of neuronal activities in freely behaving larval zebrafish

Lin Cong, Zeguan Wang, Yuming Chai, Wei Hang, Chunfeng Shang, Wenbin Yang, Lu Bai, Jiulin Du, Kai Wang, Quan Wen [10'+3']

Presenter affiliation: Chinese Academy of Sciences, Shanghai, China; Chinese Academy of Sciences, Beijing, China.

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Fast high-resolution miniature two-photon microscopy for brain imaging in freely-behaving mice at the single-spine level

Weijian Zong, Runlong Wu, Mingli Li, Yunfeng Zhang, Aimin Wang, Heping Cheng, Liangyi Chen [10'+3']

Presenter affiliation: Peking University, Beijing, China.

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