

Abstracts of papers presented
at the 2026 Cold Spring Harbor Asia Conference

AUTISM & NEURODEVELOPMENT DISORDERS: FROM GENETIC DISCOVERIES TO INTERVENTIONS

May 25–May 29, 2026

Arranged by

Thomas Bourgeron, *Institut Pasteur*
Eunjoon Kim, *Korea Advanced Institute of Science and Technology*
Zilong Qiu, *Shanghai Jiao Tong University*
Toru Takumi, *Kobe University School of Medicine*
Xiang Yu, *Peking University*



Cold Spring Harbor Conferences Asia
Cold Spring Harbor Laboratory



**AUTISM & NEURODEVELOPMENT DISORDERS:
FROM GENETIC DISCOVERIES TO INTERVENTIONS**

Monday, May 25 – Friday, May 29, 2026

Monday	7:00 pm	1 Keynote Session
Tuesday	9:00 am	2 Genetics and Genomic Architecture
Tuesday	2:00 pm	Poster Session
Tuesday	7:00 pm	3 Brain Imaging and Network Neuroscience
Wednesday	9:00 am	4 Synaptic and Molecular Mechanisms
Wednesday	1:30 pm	<i>Visit to Old Suzhou*</i>
Wednesday	7:00 pm	5 Circuits of Social Behavior
Thursday	9:00 am	6 Immune, Sensory and Developmental Mechanisms
Thursday	2:00 pm	7 Models, Interventions and Translation
Thursday	5:00 pm	Cocktails and Banquet
Friday		<i>Departure</i>

Oral presentation sessions are located in the CSHA Auditorium
Poster session and Chinese Tea & Beer Tasting are in the Lake Front Hall
Cocktail social hour is held outside in the Grand Ballroom Foyer.

Old Suzhou visits depart from the CSHA lobby

**optional tour requires additional fee.*

Meal locations and times are as follows:

Lunch: Main Cafeteria 12:00pm - 1:30pm

Dinner: Main Cafeteria 6:00pm - 7:30pm

Banquet: Grand Ballroom 6:00 pm

More information will be available at CSHA office.

(Map at the end of this abstract book)

PROGRAM

MONDAY, May 25—7:00 PM

SESSION 1 KEYNOTE SESSION

Chairperson: **Toru Takumi**, Kobe University School of Medicine, Kobe, Japan

KEYNOTE SPEAKER

Reversing fragile X—Synaptic biology meets RNA-based medicine

Claudia Bagni [35'+10']

Presenter affiliation: University of Lausanne, Lausanne, Switzerland; University of Rome Tor Vergata, Rome, Italy.

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The genetic orchestra from medicine to neurodiversity

Thomas Bourgeron [20'+10']

Presenter affiliation: Institut Pasteur, Paris, France.

Genomic landscape of rare variants in a Chinese autism cohort and discovery of novel risk genes

Senwei Tan, Yongqing Lyu, Xiaoyue Sun, Wei Li, Kun Xia, Hui Guo [20'+10']

Presenter affiliation: Center for Medical Genetics, School of Life Sciences, Central South University, Changsha, China.

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TUESDAY, May 26—9:00 AM

SESSION 2 GENETICS AND GENOMIC ARCHITECTURE

Chairperson: **Zilong Qiu**, Shanghai Jiao Tong University School of Medicine, Shanghai, China

Complete genomes and the genetic architecture of autism and developmental delay

Evan E. Eichler [20'+10']

Presenter affiliation: University of Washington, Howard Hughes Medical Institute, Seattle, Washington.

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From genomic variation to autism subtypes—Linking mechanism to phenotype with AI models

Olga Troyanskaya [20'+10']

Presenter affiliation: Princeton University, Princeton, New Jersey. 4

Genomic psychiatry—Implementing precision medicine for autism and neurodevelopmental conditions

Daniel Morena De Luca [20'+10']

Presenter affiliation: University of Alberta, Edmonton, Canada. 5

Break

Toward East Asian autism genomics—Insights from the Korean Autism Research Consortium (K-ARC)

Joon-Yong An [20'+10']

Presenter affiliation: Korea University, Seoul, South Korea. 6

Haplotype-resolved methylomes reveal parent-of-origin DNA methylation imbalance in autism spectrum disorder

Lu Xia, Ruijing Zhang, Hailiang Guo, Zhengmao Hu, Jinchen Li, Kun Xia [10'+5']

Presenter affiliation: Central South University & University of South China, Changsha, China. 7

Indirect genetic effects of polygenic predisposition for educational attainment in autism spectrum disorder

Shilin Gao, Xiaoli Rao, Yue Xu, Panhui Tian, Yingying Meng, Tianyun Wang [10'+5']

Presenter affiliation: Peking University Health Science Center, Beijing, China. 8

Decoding autism spectrum disorder through single-cell functional genomics in brain organoids

Chong Li [10'+5']

Presenter affiliation: Chinese Institute for Brain Research, Beijing, China. 9

Alternative splicing-triggered mRNA decay informs splice-switching targets for neurodevelopmental disorders

Kaining Hu, Runwei Yang, Jiaming Qiu, Xiaochang Zhang [10'+5']

Presenter affiliation: University of Chicago, Chicago, Illinois. 10

POSTER SESSION

Characterizing auditory processing abnormalities and reactivity in *Cntnap2*-knockout mice

Nita Chan, Shane D. Seheult, Paul A. Faure, Susanne Schmid, Katrina Y. Choe

Presenter affiliation: McMaster University, Hamilton, Canada.

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CSNK2B gene replacement rescues autism-related phenotypes and establishes translational biomarkers

Chaodong Ding, Xiaqing Wang, Yiting Yuan, Yuefang Zhang, Yixin Hu, Changhe Wang, Ailian Du, Zilong Qiu

Presenter affiliation: Songjiang Research Institute, Shanghai, China.

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Social deficits from *Ddx3x* haploinsufficiency—Whole-brain c-Fos mapping of social response nodes

Zhuolei Jiao, Chengjie Yu, Tianshu Li, Yuanting Lai, Zilong Qiu

Presenter affiliation: Shanghai Jiao Tong University School of Medicine, Songjiang Research Institute, Shanghai, China.

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Patient-derived TBL1XR1 de novo mutation induces transcriptomic, synaptic, and behavioral abnormalities relevant to autism spectrum disorders

Yewon Jung, Eunjoon Kim

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

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Deficiency of the proton transporter *Slc45a1* triggers female-biased neurodevelopmental deficits via pH-dependent serotonin depletion

Hyunjin Kim, Hyowon Lee, Yeon Ha Ju, Sharon J. Jung, Seung Jae Hyeon, Heejung Kim, Hoon Ryu, Jihye Seong, Minji Go, Gayeong Lim, Bum-Ho Bin, Min-Ho Nam

Presenter affiliation: Korea Institute of Science and Technology (KIST), Seoul, South Korea; Kyung Hee University, Seoul, South Korea.

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Cytokine-mediated restoration of social deficits in Shank2-deficient mice, an animal model of autism

Yu Kyeong Lee, Gi Cheon Kim, Jae Jin Shin, Eunjoon Kim, Hokeun Kwon, Eunee Lee

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

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<p>MMP-9-mediated cadherin-9 proteolysis—Impacts on hippocampal DG-CA3 synaptogenesis and the pathogenesis of autism spectrum disorder Rongjie Chen, Jiajun Sun, Jiaqi Liang, Lingling Shi, Kefei Liu, <u>Wenliang Lei</u> Presenter affiliation: Jinan University, Guangzhou, China.</p>	17
<p>Regulation of cortical neurogenesis by MED13L via transcriptional priming and its implications for MED13L syndrome <u>Jia Li</u>, Nan Wu, Xiao x. Cao, Lan y. Zhao, Bing x. Yuan Presenter affiliation: East China Normal University, ShangHai, China.</p>	18
<p>Spatio-DARLIN enables robust and efficient in situ lineage tracing in mice at single-cell resolution Jianing Gao, Zhanhao Zhang, Daolong Chen, Shou-Wen Wang, <u>Li Li</u> Presenter affiliation: Westlake University, Hangzhou, China.</p>	19
<p>Excitatory cell-specific restoration of <i>Cntnap2</i> reveals reversible social dysfunction <u>Siyao Li</u>, Ye Wu, Lucy Bicks, Daniel H. Geschwind, Katrina Y. Choe Presenter affiliation: McMaster University, Hamilton, Canada.</p>	20
<p>FMRP regulation of STAT3-MYC signaling is critical for adult hippocampal neurogenesis and cognitive flexibility <u>Yue Li</u>, Wenxin Ma, Ruishuang Ma, Shuang Wang, Xu Liu, Xiaomeng Guo, Wenhua Li, Xiaopeng Chen, Yuan-Lu Cui, He Song Presenter affiliation: University of Macau, Macau, China.</p>	21
<p>Neurodevelopmental deficits of <i>Kif1a</i>^{+T99M} mice and potential intervention strategies <u>Yanxi Liu</u>, Yuyang Guo, Xiang Yu Presenter affiliation: Peking University, School of Life Sciences, Beijing, China,</p>	22
<p>Identification of neuroprotective autoantibodies in aged stroke model <u>Ayame Nagafuchi</u>, Mana Iizuka, Ako Matsui, Akihiko Yoshimura, Minako Ito Presenter affiliation: Kyushu University, Fukuoka, Japan.</p>	23
<p>Genome-wide Cas9-mediated screening of essential non-coding regulatory elements via libraries of paired single-guide RNAs <u>Baoxu Pang</u> Presenter affiliation: Leiden University Medical Center, Leiden, Netherlands.</p>	24

- Comprehensive phenotypic analysis of *Tanc2* haploinsufficiency mice across lifespan and sex**
Jeseung Ryu, Yeji Yang, Heesu Jeon, Jin Young Kim, Eunjoon Kim
 Presenter affiliation: Korea Advanced Institute for Science and Technology (KAIST), Daejeon, South Korea. 25
- Mechanisms of protein synthesis homeostasis underlying social behavior and ASD pathogenesis**
Lei Shi
 Presenter affiliation: Jinan University, Guangzhou, China. 26
- Synaptic adhesion molecule-mediated assembly of the social motor axis is essential for vocal communication**
 Yunjeong Lee, In Seo Yeo, Ji Yeon Hong, Cristina Risueno, Dojin Jeong, Chanhyeok Park, Mi-Ryoung Song
 Presenter affiliation: Gwangju Institute of Science and Technology, Gwangju, South Korea; GIST InnoCORE AI-Nano Convergence Institute for Early Detection of Neurodegenerative Diseases, Gwangju, South Korea. 27
- Stress-induced neutrophilic inflammation aggravates allergen-driven asthma**
Kakeru Takenobu, Tomoaki Takao, Takeru Sakaue, Minako Ito
 Presenter affiliation: Kyushu University, Fukuoka, Japan. 28
- ZNF711 missense variant induces autism-like phenotypes by disrupting *Oxt* transcription and synaptic function**
Jingyu Wang, Xinyi Pan, Qu Xu, Mengmeng Yao, Qin Hong, Xia Chi
 Presenter affiliation: Women's Hospital of Nanjing Medical University (Nanjing Women and Children's Healthcare Hospital), Nanjing, China. 29
- Decoding the genetic architecture of autistic traits in the aging population**
 Panhui Tian, Xiaoli Rao, Shilin Gao, Yingying Meng, Xu Han, Tianyun Wang
 Presenter affiliation: Peking University, Beijing, China. 30
- Adult restoration of *Shank2* rescues sociability via synaptic phosphoproteomic remodeling and posterior parietal network recovery**
Yeji Yeo, Eunjoon Kim
 Presenter affiliation: Korea Advanced Institute of Science and Technology (KAIST), Daejeon, South Korea; Institute for Basic Science (IBS), Daejeon, South Korea. 31

Analysis of ILC2 in autism spectrum disorder

Tatsuya Yokota, Natsumi Awata, Nesta Amagiri, Koyomi Shiraisi, Ako Matsui, Minako Ito

Presenter affiliation: Medical Institute of Bioregulation, Kyushu University, Fukuoka, Japan.

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Effects of a 10-week combined music and taekwondo training program on engagement, physical fitness, and psychological functions in children with autism spectrum disorder—A randomized controlled trial

Clare Chung Wah Yu, Corliss Hiu Hei Sze, Emma Mak, Kam Ming Mok, Dorothy Fung Ying Chan, Simpson Wai Lap Wong

Presenter affiliation: Hong Kong Polytechnic University, Kowloon, Hong Kong, China

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Neuronal pruning and neurodevelopmental disorders

Fengwei Yu

Presenter affiliation: Temasek Life Sciences Laboratory, Singapore.

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TUESDAY, May 26—7:00 PM

SESSION 3 BRAIN IMAGING AND NETWORK NEUROSCIENCE

Chairperson: **Eunjoon Kim**, Korea Advanced Institute of Science and Technology, Daejeon, Korea

Transdiagnostic neuroanatomical subgroups show distinct white matter—Cortex scaling in neurodevelopmental disorders

Jacob Ellegood, Antoine Beauchamp, Jennifer Crosbie, Elizabeth Kelly, Julia Frei, Jason Lerch, Evdokia Anagnostou [20'+10']

Presenter affiliation: Holland Bloorview Kids Rehabilitation Hospital, Toronto, Canada; University of Toronto, Toronto, Canada.

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Sub-second dopaminergic reinforcement orchestrates juvenile social play and is disrupted in *Shank3* deficiency

Ying Li [20'+10']

Presenter affiliation: Chinese Institute of Brain Research, Beijing, China.

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Cortical networks for social behavior in autism spectrum disorder

Toru Takumi [20'+10']

Presenter affiliation: Kobe University Graduate School of Medicine, Kobe, Japan.

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Thalamic Shank3 is critical for the development of sleep slow waves and social memory

Sheng Li, Jiaying Ni, Wen-Jie Bian [10'+5']

Presenter affiliation: Westlake University, Hangzhou, China; Westlake Laboratory of Life Sciences and Biomedicine, Hangzhou, China.

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Population coding dynamics in the primary visual cortex of autism mouse models

Lewen Zhao, Yifan Zhang, Yang Ming, Dina Cui, Liujie Qin, Kaiming Yang, Minghui Gao, Wei-Qun Fang [10'+5']

Presenter affiliation: Songjiang Research Institute, Songjiang Hospital Affiliated to Shanghai Jiao Tong University School of Medicine, Shanghai, China.

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A dual-mouse virtual reality system reveals impaired multisensory cortical network reconfiguration in autism model mice

Mao Suzuki, Nobuhiro Nakai, Noriko Osumi, Andrew Zalesky, Toru Takumi [10'+5']

Presenter affiliation: Kobe University, Kobe, Japan.

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WEDNESDAY, May 27—9:00 AM

SESSION 4 SYNAPTIC AND MOLECULAR MECHANISMS

Chairperson: **Thomas Bourgeron**, Institut Pasteur, Paris, France

KEYNOTE SPEAKER

Framing ASD pathophysiology—From genetic diversity to network convergence

Daniel Geschwind [35'+10']

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

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Synaptic dysfunctions in mouse models of autism spectrum disorders

Eunjoon Kim [20'+10']

Presenter affiliation: IBS, Daejeon, South Korea; KAIST, Daejeon, South Korea.

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From cell biology to therapy—Development and validation of translatable preclinical molecules in SHANK3-related autism as a model for neuropsychiatric disorders

Zaira Tomasoni, Alessia Stefanoni, Stefania Beretta, Tobias Boeckers, Chiara VerPELLI [20'+10']

Presenter affiliation: CNR Neuroscience Institute Milano Site, Milano, Italy.

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Break

Degraded sensory coding in the *Scn2a*^{+/-} mouse model of autism and its rescue by CRISPRa gene activation

Daniel E. Feldman [20'+10']

Presenter affiliation: Univ. of California Berkeley, Berkeley, California.

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Molecular basis for SYNCRIP-associated neurodevelopmental disorders

Sheng-Jian Ji [10'+5']

Presenter affiliation: Southern University of Science and Technology, Shenzhen, China.

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Oxytocin improves autistic behaviors by positively shifting GABA reversal potential via NKCC1 in early-postnatal-stage

Zi-Hui Wang, Chang Xu, Yao-Yao Ma, Hao-Yuan Wang, Lin-Yao Fan, Chen-Yu Zhang, Liang Li, Xiao-Yang Zhang, Jing-Ning Zhu, Qi-Peng Zhang [10'+5']

Presenter affiliation: State Key Laboratory of Pharmaceutical Biotechnology, School of Life Sciences, Nanjing University, Nanjing, China; NJU Advanced Institute of Life Sciences (NAILS), Nanjing, China.

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Peripherally-administered oxytocin renormalized oxytocin neuronal firing and rescues global deficits in an autism mouse model

Chuan Xing, Yuyang Guo, Peiyuan Jia, Yixuan Zhang, Dan Zhang, Han Zhang, Rong Zhang, Toru Takumi, Tian-Jia Song, Xiang Yu [10'+5']

Presenter affiliation: Peking University, Beijing, China.

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WEDNESDAY, May 27—1:30 PM

Visit to Old Suzhou

SESSION 5 **CIRCUITS OF SOCIAL BEHAVIOR**

Chairperson: **Eunjoon Kim**, Korea Advanced Institute of Science and Technology, Daejeon, Korea

Oxytocin rescues shared social circuit disruptions across two autism-risk genes to enhance social interactions

Aishwarya Patwardhan, Emily Tse, Atyan Moslemian, Katrina Y. Choe [20'+10']

Presenter affiliation: McMaster University, Hamilton, Canada. 48

Understanding the neural mechanisms mediating social attachment and health and illness

Devanand S. Manoli, Varvara A. Shvareva, Gina Williams, Ruchira Sharma, Kristen M. Berendzen, Kevin J. Bender, Michael Sherman [20'+10']

Presenter affiliation: UCSF, San Francisco, California. 49

Restoring interbrain prefrontal theta synchronization reverses social deficits

Eunkyu Hwang, Soogeun Shin, Anjin Lee, Woohyun Kim, Eunjoon Kim, Eunee Lee [20'+10']

Presenter affiliation: Yonsei University College of Medicine, Seoul, South Korea. 50

Neural circuit activation improves social memory deficits in a mouse model of autism by restoring impaired oxytocin receptor trafficking-mediated poor oxytocin responsiveness

Hu Meng, Xiaoxuan Sun, Mengxue Chen, Kaiyu Guan, Dai Zhang, Lifang Wang, Jun Li [10'+5']

Presenter affiliation: Peking University Sixth Hospital, Beijing, China. 51

Anterior cingulate input tunes striatal dynamics for context-dependent social preference in a mouse model of autism

Yongsheng Zhou, Haoxiang Xiao, Shengxi Wu, Baolin Guo [10'+5']

Presenter affiliation: Fourth Military Medical University, Xi'an, China. 52

Thalamic reticular nucleus—A pivotal node for social behaviors

Feidi Wang, Dongqi Cui, Yan Li [10'+5']

Presenter affiliation: Xi'an Jiaotong University, Xi'an, China. 53

SESSION 6 IMMUNE, SENSORY AND DEVELOPMENTAL MECHANISMS

Chairperson: Xiang Yu, Peking University, Beijing, China

Brain-infiltrating $\gamma\delta$ T cells promote the abnormal behavior in genetic ASD

Minako Ito [20'+10']

Presenter affiliation: Medical Institute of Bioregulation, Kyushu University, Fukuoka, Japan.

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Balance between sensory and social behaviors—Insights from ASD mouse models

Seung-Hee Lee [20'+10']

Presenter affiliation: KAIST, Daejeon, South Korea; IBS, Daejeon, South Korea.

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Early social experience shapes the social brain—From primate models to neurodevelopmental disorders

Pier Francesco Ferrari [20'+10']

Presenter affiliation: CNRS, Bron, France.

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Break

New gene discovery and pathogenicity of neurodevelopmental disorders associated with Mediator complex genes

Nuermila Yiliyaer, Xiaocheng Li, Tianyu Guo, Haiying Zhou, Shen (Linda) Gu [10'+5']

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

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Probing functional and transcriptomic alterations in human stem-cell derived Dup15q neural networks

Aayush Marishi, Yanxi Chen, Lorenca Sadiraj, Stormy J. Chamberlain, Stefanie Alber, Andreas Hierlamann, Manuel Schroeter [10'+5']

Presenter affiliation: Bioengineering Laboratory (BEL), Basel, Switzerland.

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Deficiency of TNPO2 disrupts neuronal migration and leads to autism-related behaviors through the regulation of mRNA nucleocytoplasmic transport
Kang Yang, Zhonghe Chen, Yiqian Shao, Xiaoxuan Sun, Dai Zhang, Jun Li, Lifang Wang [10'+5']
Presenter affiliation: Peking University Sixth Hospital, Beijing, China. 59

Identifying risk genes associated with neural progenitor cell (NPC) hyperproliferation in macrocephalic 16p11.2 deletion syndrome patients
Mudassar Lodi, James Millonig, Jinchuan Xing [10'+5']
Presenter affiliation: Rutgers University, Piscataway, New Jersey. 60

Anti-asthma drug Montelukast induces autistic behaviors via disrupting neuronal retinoic acid signaling
Zijian Hao, Qionghui Wu, Shan Bian, Tingyu Li, Ronggui Hu [10'+5']
Presenter affiliation: The Second Affiliated Hospital, Zhejiang University School of Medicine, Hangzhou, China; State Key Laboratory of Brain-machine Intelligence, Zhejiang University, Hangzhou, China. 61

Maternal obesity and neurodevelopmental and mental health disorders
Bing Feng, Qianru Zhao, Emily Chen, Vicky Dong, Peiyu Gao, Yanlin He [10'+5']
Presenter affiliation: Pennington Biomedcial Research Center, Baton Rouge, Louisiana. 62

THURSDAY, May 28—2:00 PM

SESSION 7 MODELS, INTERVENTIONS AND TRANSLATION

Chairperson: **Toru Takami**, Kobe University School of Medicine, Kobe, Japan

Phenotype-based rescuing strategies in autism mouse models
Xiang Yu [20'+10']
Presenter affiliation: Peking University, Beijing, China. 63

Mechanisms of TMS intervention in autism from a network neuroscience perspective
Xujun Duan [20'+10']
Presenter affiliation: University of Electronic Science and Technology of China, Chengdu, China. 64

Accelerated continuous theta-burst stimulation targeting the left primary motor cortex improves social communication impairment in children with ASD

Hangyu Tan, Tai Ren, Ti-Fei Yuan, Fei Li [20'+10']

Presenter affiliation: Xinhua Hospital Affiliated to Shanghai Jiao Tong University School of Medicine, Shanghai, China.

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Break

Gene therapy for ASD—From gene replacement to base editing

Zilong Qiu [20'+10']

Presenter affiliation: Shanghai Jiao Tong University, School of Medicine, Shanghai, China.

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Maternal risks trigger neurodevelopmental dysfunction via metabolic reprogramming

Xiaoxu Yan, Erlin Wang, Xing-Lei Song, Mingyang Feng, Hui Wang, Xueling Ma, Tian-Le Xu, Jianxiong Zeng

Presenter affiliation: Songjiang Hospital Affiliated to Shanghai Jiao Tong University School of Medicine, Shanghai, China, ³The Fourth Affiliated Hospital of Harbin Medical University, Harbin, China.

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Modelling neurodevelopmental disorders in flies and mammalian systems

Hongyan Wang [10'+5']

Presenter affiliation: Duke-NUS Medical School, Singapore.

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Cerebrospinal fluid metabolomics in autistic regression reveals dysregulation of sphingolipids and decreased β -hydroxybutyrate

Jinni J. Yan, Velda X. Han, Timothy A. Couttas, Russell C. Dale [10'+5']

Presenter affiliation: University of Technology Sydney, Sydney, Australia.

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THURSDAY, May 28—5:00 PM

COCKTAILS and BANQUET

FRIDAY, May 29

Departure