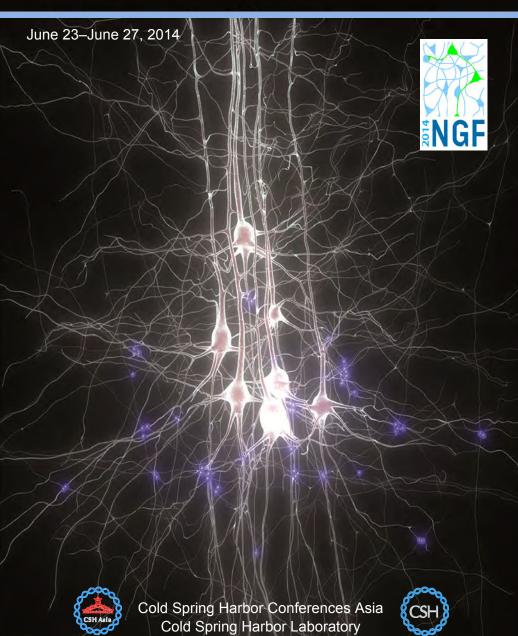
NERVE GROWTH FACTOR & RELATED NEUROTROPHIC FACTORS: EMERGING CONCEPTS, NEW MECHANISMS, NOVEL TECHNOLOGIES



NERVE GROWTH FACTOR & RELATED NEUROTROPHIC FACTORS: EMERGING CONCEPTS, NEW MECHANISMS, NOVEL TECHNOLOGIES

June 23–June 27, 2014



Arranged by

Bai Lu, *Tsinghua University Medical School, Beijing, China* Tadaharu Tsumoto, *RIKEN Brain Science Institute, Wako, Japan* Moses Chao, *Skirball Institute NYU, New York, USA* Brian B. Rudkin, *CNRS/Ecole Normale Supérieure de Lyon, France & East China Normal University, Shanghai, China*

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Cover: This image is a 3-dimensional reconstruction of cells (the 7 white cells). The blue dots indicate synapses between two cells. The synapses are points at which neurotransmitters (chemical messengers) as well as neurotrophins are released from one cell to another to communicate and modulate neuronal activity.

Courtesy Oisin McArdle, Human Brain Project Communications Coordinator. Copyright, Blue Brain Project, Ecole Polytechnique Fédérale de Lausanne (EPFL).







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Fifty years ago, General de Gaulle had the daring to draw from the tradition and history of our two countries and to make France the first Western nation to renew dialogue with China.

President François Hollande's visit last spring has generated a new momentum in the relationship between the two countries. The fiftieth anniversary is a part of this ambitious movement. More than 400 projects in China and France will celebrate the anniversary in all areas in which both nations excel and share common ground: from scientific cooperation to cutting-edge technology, from health to environment, from art of living to artistic creation and from tourism to economy.

Throughout 2014, France-China 50 will present events aimed to enforce and strengthen the diversity and depth in the relationship between our two countries. To meet this challenge, we have selected numerous projects which will take place in the spirit of frankness and reciprocity.

We hope that young Chinese and French people will participate together in the events in Paris as well as in the provinces, in Beijing as well as in many Chinese cities. May these young people continue to cultivate the Franco-Chinese relationship in future!

The commemoration of the fiftieth anniversary of diplomatic relations between the French Republic and the People's Republic of China "France-China 50" is organized and implemented by the Institut français, an organization of the French Ministry of Foreign Affairs and International Development to promote French culture outside of France and by the French Embassy in China.

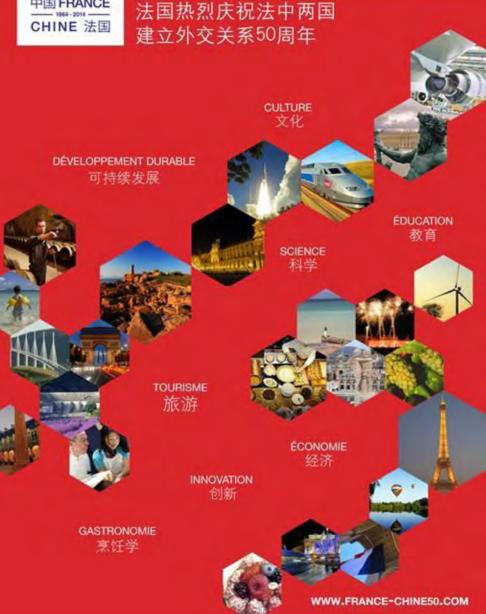
Find the full program on: www.france-chine50.com www.chinafrance50.org







LA FRANCE CÉLÈBRE 50 ANS DE RELATIONS DIPLOMATIQUES AVEC LA CHINE





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For more info about our research themes, see: http://www.arc2-q2v.rhonealpes.fr/



Shanghai

The NYU-ECNU Institute of Brain and Cognitive Science at NYU Shanghai is a new research institute dedicated to develop a unique research and training environment to advance the understanding of brain function in health and disease. The primary goal of the Institute will be to understand the mechanisms by which neural circuits in the brain generate higher cognition and flexible behavior, and their impairments associated with brain diseases such as autism, schizophrenia and Alzheimer's disease. The institute will be built jointly between NYU Shanghai and ECNU, and will leverage the existing significant strength of neuroscience research at NYU and ECNU: systems and cognitive neuroscience broadly defined, using a range of tools including the development of transgenic primates, molecular and physiological studies of neural circuits, experimental analysis of behavior, microcircuit and large-scale neural circuit modeling, human brain imaging.

A focus will be on the prefrontal cortex (PFC) which plays a central role in many cognitive functions. The core institute research areas include studies of the neural basis of working memory and choice behavior using single-neuron recordings from the PFC of behaving monkeys and rodents; computational modeling of the PFC and its interplay with the rest of the brain in decision-making, memory, selective attention and executive control; imaging research on human Janguage. The Institute will have more than twenty research groups, as well as many collaborating faculty from NYU in New York and elsewhere.



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CSH-Asia / NGF 2014 Joint Conference **NERVE GROWTH FACTOR & RELATED NEUROTROPHIC FACTORS:** EMERGING CONCEPTS, NEW MECHANISMS, NOVEL TECHNOLOGIES Monday, June 23 - Friday, June 27, 2014

Monday	7:00 pm 7:45 pm	Welcome Keynote Speaker
Tuesday	9:00 am	1 Brain Projects
Tuesday	11:30 am	2 Emerging Concepts I: Pro-fragment— Expression, Function, Signaling
Tuesday	2:00 pm	3 Poster Session
Tuesday	4:30 pm	Chinese Tea and Beer Tasting
Tuesday	7:00 pm	4 Emerging Concepts II: Genetics and Epigenetics
Tuesday	9:00 pm	5 Emerging Concepts III: Cancer and Metabolism
Wednesday	9:00 am	6 New Mechanisms: Signaling and Function
Wednesday	2:00 pm	Visit to Old Suzhou
Wednesday	7:00 pm	7 Plasticity, Circuits, Behavior
Thursday	9:00 am	8 Novel Technologies
Thursday	2:00 pm	9 Hot Topics
Thursday	6:00 pm	Cocktails and Banquet
Friday	9:00 am	10 Neurological and Psychiatric Diseases

Oral presentation sessions are located in the Watson Auditorium. Poster session. Chinese Tea & Beer Tasting and Cocktail social hour are in the Poster Hall. Old Suzhou visit departs from the hotel lobby and requires additional fee.

> Mealtimes and locations are as follows: Breakfast Octagon 7:00am - 9:00am Lunch 12:00pm - 1:30pm Octagon Octagon 6:00pm - 7:30pm Supper Banguet Suz Garden 7:00pm

More information will be available at CSHA office.

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PROGRAM

WELCOME and KEYNOTE

Maoyen Chi, CSH –Asia Bai Lu, NGF Brian B. Rudkin, NGF

Tribute to Rita Levi-Montalcini

Moses V. Chao NYU School of Medicine

1

Ralph Bradshaw and the NGF Conference Series

Robert A. RushFlinders University, Adelaide, Australia2

KEYNOTE SPEAKER

Understanding NGF—On the trail for 40 yearsRalph A. Bradshaw[40']Presenter affiliation: UCSF, San Francisco, California.3

SESSION 1	BRAIN PROJECTS	
Chairperson:	B.B. Rudkin, CNRS, Ecole Normale Supérieure de L France and East China Normal University, Shanghai,	•
China's Brain P Bai Lu [20']	roject—Thoughts and discussion	
Presenter affiliation: Tsinghua University, Beijing, China.		
TransmisomeYi Rao[10']Presenter affiliation: Peking University, Beijing, China.5		
A Japanese project "Brain Mapping by Integrated Neurotechnologies for Disease Studies (Brain/MINDS)" <u>Tadaharu Tsumoto</u> [20'] Presenter affiliation: RIKEN Brain Science Institute, Wako, Japan.		
Break		
The EU Human Marc-Oliver Gew Presenter affiliati Lausanne, Switz	<u>raltig</u> [20'] ion: Ecole Polytechnique Federale de Lausanne,	7
The US BRAIN I		
<u>William Mobley</u> Presenter affiliati California.	[20] ion: University of California-San Diego, La Jolla,	8



- SESSION 2 EMERGING CONCEPTS I: PRO-FRAGMENT— EXPRESSION, FUNCTION, SIGNALING
- Chairperson: Y.E. Sun, UCLA, Los Angeles, California, USA / Tongji University, Shanghai, China

BDNF proteins—Three forms, many functions

Barbara L. Hempstead, Jianmin Yang, Agustin Anastasia, Lauren Harte, Clay Bracken, Helen Scharfman, Francis Lee [20'] Presenter affiliation: Weill Cornell Medical College, New York, New York.

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BDNF, its pro-peptide and proBDNF: their distinct roles and the modulation of their actions by BDNF polymorphism Val66Met

Masami Kojima [20']

Presenter affiliation: National Institute of Advanced Industrial Science and Technology (AIST), Osaka, Japan; JST, Saitama, Japan.

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Lunch

TUESDAY, June 24-2:00 PM

SESSION 3 POSTER SESSION

The mechanisms behind deficits in BDNF function after phencyclidine exposure

<u>Naoki Adachi</u>, Tadahiro Numakawa, Emi Kumamaru, Chiaki Itami, Shuichi Chiba, Yoshimi Iijima, Misty Richards, Ritsuko Katoh-Semba, Hiroshi Kunugi

Presenter affiliation: National Institute of Neuroscience, National Center of Neurology and Psychiatry, Tokyo, Japan; Core Research for Evolutional Science and Technology Program (CREST), Saitama, Japan.

Antidepressant-like effects of isoflurane anesthesia are mediated via TrkB neurotrophin receptor

Hanna Antila, Ramon Guirado, Pia Sipilä, Dina Popova, Jesse Lindholm, Eero Castrén, Tomi Rantamäki Presenter affiliation: University of Helsinki, Helsinki, Finland.

Site-specific labeling of neurotrophins and their receptors via short versatile peptide tags for imaging in living cells Laura Marchetti, Teresa De Nadai, Fulvio Bonsignore, Giovanni Signore, Maria Antonietta Calvello, Alessandro Viegi, Fabio Beltram, Stefano Luin, <u>Antonino Cattaneo</u> Presenter affiliation: Scuola Normale Superiore, Pisa, Italy; European Brain Research Institute, Rome, Italy.	13
Functional roles of Axin in synapse development <u>Yu Chen</u> , Zhuoyi Liang, Erkang Fei, Weiqun Fang, Wing-Yu Fu, Amy K.Y. Fu, Nancy Ip Presenter affiliation: Molecular Neuroscience Center and State Key Laboratory of Molecular Neuroscience, Hong Kong, China.	14
Identification of novel EphA4 inhibitors as a disease-modifying treatment for Alzheimer's disease <u>Wing-Yu Fu</u> , Kwok-Wang Hung, Shuo Gu, Jzajing Xu, Audrey Su, Fanny C. Ip, Xuhui Huang, Amy K. Fu, Nancy Y. Ip Presenter affiliation: The Hong Kong University of Science and Technology, Hong Kong, China.	15
Aging trends of brain-derived neurotrophic factor in the gray and white matter of schizophrenia patients <u>Elliot Hong</u> Presenter affiliation: University of Maryland School of Medicine, Baltimore, Maryland.	16
Rapid generation of multipotent functional neurons from adherent and non-adherent human pluripotent stem cells Aynun Begum, <u>Yiling Hong</u> Presenter affiliation: Western University, Pomona, California.	17
Differential effects of cytokines on neuroblastoma cells and cultured neurons Chin Wai Hui, Karl Herrup. Presenter affiliation: Hong Kong University of Science and Technology, Hong Kong.	18
Blockade of EphA4 signaling alleviates Alzheimer's disease- associated impairment of hippocampal synaptic plasticity <u>Kwok-Wang Hung</u> , Amy K.Y. Fu, Huiqian Huang, Shuo Gu, Yang Shen, Elaine Y.L. Cheng, Fanny C.F. Ip, Xuhui Huang, Wing-Yu Fu,	
Nancy Y. Ip Presenter affiliation: The Hong Kong University of Science and Technology, Hong Kong, China.	19

GFRα2-signaling is required for soma size but not cutaneous target innervation in Aβ- and C- low threshold mechanosensory neurons Jussi Kupari, Matti S. Airaksinen Presenter affiliation: University of Helsinki, Helsinki, Finland.	20
PPARγ is upregulated in axons after injury and promotes regeneration in both peripheral and central neurons <u>Juan Pablo Lezana</u> , Shachar Y. Dagan, Miguel Bronfman, Mike Fainzilber, Francisca C. Bronfman Presenter affiliation: MINREB and CARE Center, Santiago, Chile.	21
The role of nuclear Cdk5 in activity-induced gene expression during dendrite development <u>Zhuoyi Liang</u> , Yu Chen, Kwok On Lai, Nancy Ip Presenter affiliation: Hong Kong University of Science and Technology, Hong Kong, China.	22
Cycloastragenol is a potent telomerase activator in neuronal cells—Implications for depression management Yu Pong Ng, Fanny C.F. Ip, Nancy Y. Ip Presenter affiliation: The Hong Kong University of Science and Technology, Hong Kong, China.	23
Cdk5-mediated phosphorylation of RapGEF2 controls neuronal migration in the developing cortex <u>Tao Ye</u> , Jacque P. K. Ip, Amy K. Y. Fu, Nancy Y. Ip Presenter affiliation: The Hong Kong University of Science and Technology, Hong Kong, China.	24
CXCR7 mediates neural progenitor cells migration to CXCL12 in the absence of CXCR4 <u>Min Zhang</u> , Qiang Chen*, Aihong Song, Bing Zhu, Dongsheng Xu, Jialin C. Zheng Presenter affiliation: Shanghai Tenth People's Hospital affiliated to Tongji University School of Medicine, Shanghai, China.	25
The stromal-derived factor-1α (SDF-1α) with vascular endothelial growth factor induced proliferation, migration, and angiogenesis of human umbilical vein endothelial cells <u>Min Zhang</u> , Dongsheng Xu, Li Jiang Presenter affiliation: TongRen Hospital, Affiliated to Shanghai Jiao Tong University School of Medicine, Shanghai, China.	26

B-RAF regulates the specification of itch-transmitting sensory neurons

ZQ Zhao, FQ Huo, J Jeffry, L Hampton, S Demehri, S Kim, XY Liu, DM Barry, L Wan, K Ma, ZF Chen, <u>J Zhong</u> Presenter affiliation: Burke Medical Research Institute, White Plains, New York; Weill Medical College, New York, New York.

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TUESDAY, June 24-4:30 PM

Chinese Tea and Beer Tasting

TUESDAY, June 24-7:00 PM

- SESSION 4 EMERGING CONCEPTS II: GENETICS AND EPIGENETICS
- **Chairperson: Z. Xiong**, Institute of Neuroscience, CAS, Shanghai, China

Mediated gene targeting in monkeys with CRISPR/Cas9 and TALEN

<u>Weizhi Ji</u>. [20'] Presenter affiliation: Yunnan Key Laboratory of Primate Biomedical Research, Kunming, China; Kunming Biomed International, Kunming, China. 28

Genetic regulation of neuronal tetraploidy in the cerebral cortex José M. Frade [20']

Presenter affiliation: Cajal Institute, Madrid, Spain.

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MicroRNA induction by basic fibroblast growth factor in pure astroglial cultures

Shingo Nakajima, Tadahiro Numakawa, Noriko Yamamoto, Yoshiko Ooshima, Haruki Odaka, Kazuo Hashido, Naoki Adachi, Hiroshi Kunugi [10'] Presenter affiliation: National Institute of Neuroscience, Tokyo, Japan. 30

Translational control of neurogenesis and neural stem cell function

Guang Yang, Konstantin Feinberg, Freda D. Miller, <u>David R. Kaplan</u> [20']

Presenter affiliation: Hospital for Sick Children, Toronto, Canada; University of Toronto, Toronto, Canada.

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Break

TUESDAY, June 24-9:00 PM

- SESSION 5 EMERGING CONCEPTS III: CANCER AND METABOLISM
- **Chairperson:** M. Cazorla, CNRS, Institute Curie Paris XI University, Paris, France

TrkC and the dependence receptor paradigm

Patrick Mehlen [20'] Presenter affiliation: CRCL, Laboratoire d'Excellence DEVweCAN, UMR INSERM 1052 CNRS 5286, Université de Lyon, Centre Léon Bérard, Lyon, France.

ProNGF in prostate cancer—A biomarker of high-risk tumors and a potential driver of nerve infiltration

Jay Pundavela, Yohann Demont, Lisa L. Lincz, Severine Roselli, Danielle Bond, Marjorie M. Walker, <u>Hubert Hondermarck</u> [10'] Presenter affiliation: University of Newcastle, Callaghan, Australia. 33

What is the brain-cancer connection?

Lei Cao [20'] Presenter affiliation: The Ohio State University, Columbus, Ohio. 34

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Chairperson:	D. Kaplan, University of Toronto, Toronto, Canada	
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Presenter affiliation: University of Helsinki, Helsinki, Finland.		
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	on: The Hong Kong University of Science and	36
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[20']		38
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Oxidative stress promotes signaling by p75NTR and Troy Leslayann C. Schecterson, <u>Mark Bothwell</u> [20']		
Presenter aniliation	on: University of Washington, Seattle, Washington.	40

Lunch

WEDNESDAY, June 25-2:00 PM

Visit to Old Suzhou

WEDNESDAY, June 25-7:00 PM

SESSION 7 PLASTICITY, CIRCUITS AND BEHAVIOR

Chairperson: T. Tsumoto, RIKEN Brain Science Institute, Wako, Japan

Visualizing an emotional valence map in the limbic forebrain by TAI-FISH

Jianbo Xiu, Qi Zhang, Tao Zhou, Tingting Zhou, <u>Hailan Hu</u> [20'] Presenter affiliation: Shanghai Institutes for Biological Sciences, Chinese Academy of Sciences, Shanghai, China.

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Optogenetic decoding of the hippocampal-entorhinal space memory circuit

Sheng-Jia Zhang [20'] Presenter affiliation: Kavli Institute for Systems Neuroscience, Trondheim, Norway.

Break

The role of the dorsal raphe in reward processing

Minmin Luo [20'] Presenter affiliation: National Institute of Biological Sciences, Beijing, China. 43

Painless NGF rescues behavioral deficits and amyloidogenic phenotype in 5xFAD mice by acting on glial cells

Simona Capsoni, Chiara Criscuolo, Nicola M. Carucci, Caterina Rizzi, Nicola Origlia, Maria Elena Fabbri, Maria Antonietta Calvello, Alessandro Viegi, Luciano Domenici, <u>Antonino Cattaneo</u> [10'] Presenter affiliation: Scuola Normale Superiore, Pisa, Italy; European Brain Research Institute, Roma, Italy.

Differential contribution of individual BDNF splice variants to brain and behavioral functions

Keri Martinowich [20'] Presenter affiliation: Lieber Institute for Brain Development, Baltimore, Maryland; Johns Hopkins University School of Medicine, Baltimore, Maryland.

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THURSDAY, June 26-9:00 AM

SESSION 8NOVEL TECHNOLOGIESChairperson:M. Bothwell, University of Seattle, Seattle, Washington,
USA

CRISPR-Cas—Development and applications for mammalian genome engineering

F Ann Ran [20']

Presenter affiliation: Broad Institute of MIT and Harvard, Boston, Massachusetts.

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Single cell transcriptome reveal means to activate neural stem cells in non-neurogenic zones

<u>Yi E. Sun</u>, Yuping Luo, Siguang Li, Volkan Coskun [20'] Presenter affiliation: Tongji University/Tongji Hospital, Shanghai, China; UCLA, Los Angeles, California.

Live imaging of neurotransmitter release

X. Sunney Xie [20'] Presenter affiliation: Harvard University, Cambridge, Massachusetts

Break

Light-mediated kinetic control reveals the temporal effect of ERK and AKT signaling pathways in PC12 cells

<u>Bianxiao Cui</u>, Kai Zhang, Liting Duan, Qunxiang Ong [20'] Presenter affiliation: Stanford University, Stanford, California. 48

Accessing active neuronal ensembles using a <u>R</u>obust <u>A</u>ctivity <u>M</u>arking (RAM) system

Yingxi Lin [10'] Presenter affiliation: Massachusetts Institute of Technology, Cambridge, Massachusetts.

Activity-dependent synaptic competition

Shawn Je [20'] Presenter affiliation: Duke-NUS Graduate Medical School, Singapore. 50

Lunch

THURSDAY, June 26-2:00 PM

SESSION	9	HOT	TOPICS

Chairperson: B. Lu, Tsinghua University, Beijing, China

Reelin regulates intramembrane proteolysis signaling to control radial migration of cortical neuron Zhiqi Xiong [20'] Presenter affiliation: Institute of Neuroscience, CAS, Shanghai, China.	
Association of novel brain immune genes with cognitive functions and brain morphology of inbred mice—Novel biomarker for neuropsychiatric diseases Li Ma, Natalia Kulesskaya, Heikki Rauvala, Li Tian [10'] Presenter affiliation: Neuroscience Center, University of Helsinki, Helsinki, Finland.	51
Neuronal activity alters BDNF-TrkB signaling kinetics and downstream functions <u>Wei Guo</u> , Yuanyuan Ji, Shudan Wang, Yun Sun, Bai Lu [10'] Presenter affiliation: Tsinghua University, Beijing, China.	52
A microfluidic system for studying muscle-neuron communication and neuromuscular junction maintenance <u>Eran Perlson</u> [10'] Presenter affiliation: Tel Aviv University, Tel Aviv, Israel.	53
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The Rab5-Rab11 endosomal route is required for BDNF-induced activation of CREB transcription factor and dendritic branching in hippocampal neurons

Andres Gonzalez, <u>Francisca C. Bronfman</u> [20'] Presenter affiliation: P.Universidad Catolica, Santiago, Chile. 54

TrkA and TrkB receptors exist as pre-formed dimers on the surface of living cells Jianying Shen, <u>Ichiro Maruyama</u> [10'] Presenter affiliation: Okinawa Institute of Science & Technology, Okinawa, Japan.	55
Size-based sorting of pinocytic cargoes contributes to antigen processing in microglia Cong Chen, Hui-Quan Li, Yi-jun Liu, Zhi-fei Guo, <u>Zhihua Gao</u> , Shumin Duan [10']	
Presenter affiliation: Zhejiang University, Hangzhou, China.	56
Novel Kidins220/ARMS splice isoforms—Potential specific regulators of neuronal and cardiovascular development Nathalie E. Schmieg, Claire Thomas, Arisa Yabe, Fabrizia Cesca, Giampietro Schiavo [10'] Presenter affiliation: University College London, London, United Kingdom; London Research Institute, London, United Kingdom.	57
B-RAF kinase drives developmental axon growth and promotes axon regeneration in the injured mature CNS Kevin O'Donovan, Kaijie Ma, Hengchang Guo, Chen Wang, Fang Sun, Seung Baek Han, Hyukmin Kim, Jamie Wong, Hongyan Zou, Young- Jin Son, Zhigang He, Jian Zhong [10'] Presenter affiliation: Burke Medical Research Institute, White Plains, New York; Weill Medical College, New York, New York.	58

THURSDAY, June 26-6:00 PM

COCKTAILS and BANQUET

FRIDAY, June 27-9:00 AM

SESSION 10 NEUROLOGICAL AND PSYCHIATRIC DISEASES

Chairperson: T. Mutoh, Fujita Medical School, Japan

Role of BDNF in schizophrenia—From cells to humans <u>Hiroshi Kunugi</u> [20'] Presenter affiliation: National Center of Neurology and Psychiatry, Tokyo, Japan.

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Neural protection/repair strategy for neurodegenerative diseases Xiaoming Guan [20]	
Presenter affiliation: GlaxoSmithKline R&D Center, Shanghai, China.	60
Neurotrophin BDNF delivery nanoparticles <u>Angelina Angelova</u> , Borislav Angelov, Sylviane Lesieur [20'] Presenter affiliation: CNRS UMR8612 Institut Galien Paris-Sud, Châtenay-Malabry, France.	61
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Developing tools for the study of BDNF function in health and disease	
<u>Maxime Cazorla</u> [20'] Presenter affiliation: INSERM, Orsay, France; CNRS, Orsay, France; Institut Curie, Orsay, France.	62
What happens when you start to lose BDNF Abigail Mariga, Jiri Zavadil, Stephen D. Ginsberg, <u>Moses V. Chao</u> [20']	
Presenter affiliation: NYU School of Medicine, New York, New York.	63
Chaperonin-based approaches to restore BDNF trafficking in Huntington disease	
<u>William Mobley</u> [20'] Presenter affiliation: University of California, San Diego, La Jolla, CA.	64