

PROGRAM

MONDAY, October 10—7:00 PM

SESSION 1 COMPUTATIONAL BIOLOGY I

Chairperson: **Huck-Hui Ng**, Genome Institute of Singapore, Singapore

The immune system of bacteria—CRISPR and beyond

Rotem Sorek [25']

Presenter affiliation: Weizmann Institute of Science, Rehovot, Israel. 1

A systems approach to reverse engineer lifespan extension by dietary restriction

Jing-Dong Han [25']

Presenter affiliation: Chinese Academy of Sciences, Shanghai, China. 2

Characteristic arrangement of nucleosomes is predictive of chromatin interactions at kilobase resolution

Hui Zhang, Feifei Li, Yan Jia, Bingxiang Xu, Yiqun Zhang, Xiaoli Li, Zhihua Zhang [10']

Presenter affiliation: Beijing Institute of Genomics, Chinese Academy of Sciences, Beijing, China; University of Chinese Academy of Sciences, Beijing, China. 3

TUESDAY, October 11—9:00 AM

SESSION 2 GENOMIC TECHNOLOGY I

Chairperson: **Len Pennacchio**, Lawrence Berkeley National Laboratory, Berkeley, California, USA

An integrative platform to uncover the mechanisms of genetic associations with type-2 diabetes

Marcelo A. Nobrega [25']

Presenter affiliation: University of Chicago, Chicago, Illinois. 4

Immune repertoire profiling by high-throughput sequencing and single cell analysis
Ning J. Jiang [25']
Presenter affiliation: The University of Texas at Austin, Austin, Texas. 5

Detecting RNA intra- and intermolecular interactions through deep sequencing
Yue Wan [25']
Presenter affiliation: Genome Institute of Singapore, Singapore. 6

Construction and analysis of a minimal bacterial genome
Clyde A. Hutchison [25']
Presenter affiliation: J. Craig Venter Institute, La Jolla, California. 7

Parallel reverse genetic screening in mutant human cells using transcriptomics
Bianca V. Gapp, Tomasz Konopka, Thomas Penz, Vineet Dalal, Tilmann Bürckstümmer, Christoph Bock, Sebastian M. Nijman [10']
Presenter affiliation: Ludwig Cancer Research Ltd., Oxford, United Kingdom. 8

TUESDAY, October 11—2:00 PM

SESSION 3 POSTER SESSION

Targeted AID-mediated mutagenesis (TAM) enables efficient genomic diversification in mammalian cells
Yunqing Ma, Jiayuan Zhang, Weijie Yin, Xing Chang
Presenter affiliation: Institute of Health Sciences, Shanghai Institute for Biological Sciences, Chinese Academy of Sciences, Shanghai, China. 9

Epigenetic regulation of gene structure and function with improved cell-permeable Cre (iCP-Cre) recombinase for site-specific recombination in genetically engineered animals
Youngsil Choi, Kuysook Lee, Soyeong Lee, Jihye Kim, Chohyun Kim, Eunkyung Lee, Daewoong Jo
Presenter affiliation: Cellivry Therapeutics, Inc., Seoul, South Korea. 10

Dietary interventions modulate global ncRNA expression—A role for microRNA-chromatin-mRNA crosstalk	
Christopher D. Green, Yi Huang, <u>Xiaoyang Dou</u> , Liu Yang, Yong Liu, Jing-Dong J. Han	
Presenter affiliation: Key Laboratory of Computational Biology, CAS Center for Excellence in Molecular Cell Science, Shanghai, China.	11
The 14th Ile residue is essential for Leptin function in regulating energy homeostasis in rat	
<u>Di He</u> , Shuyang Xu, Jinping Zhou, Xianmin Zhu, Guoping Fan	
Presenter affiliation: Tongji University, Shanghai, China.	12
Exploration of EZH2 inhibitor response and resistance mechanism by customer CRISPR/Cas9 high-throughput screen	
<u>Zheng Jiang</u> , Xiaole S. Liu	
Presenter affiliation: Tongji University, Shanghai, China.	13
Nonequilibrium and nonlinear kinetics as key determinants for bistability in fission yeast G2/M transition	
Teng Wang, Jian Zhao, Qi Ouyang, Hong Qian, Yu V. Fu, <u>Fangting Li</u>	
Presenter affiliation: Peking University, Beijing, China.	14
Multifaceted role of chromatin regulator EZH2 in regulating mRNA and lncRNA expression by integrated ChIP sequencing and co-expression analysis	
<u>Yuan Li</u> , Zhiliang Lu, Shouguo Sun, Jianbing Huang, Zhaoli Chen, Jie He	
Presenter affiliation: National Cancer Center/Cancer Hospital, Chinese Academy of Medical Sciences, Beijing, China.	15
Genome-wide CRISPR screening in mammalian cells to identify drug Vemurafenib resistance	
<u>Ziyi Li</u> , Hailing Liu	
Presenter affiliation: Tongji University , Shanghai, China.	16
Transcriptome analysis of rhesus monkey pre-implantation embryos reveal low capacity of DNA double strand breaks repair in primate oocytes and early embryos	
Xinyi Wang, <u>Denghui Liu</u>	
Presenter affiliation: Chinese Academy of Sciences-Max Planck Partner Institute for Computational Biology, Shanghai, China.	17

- Exploring the mechanism of resistance to Gefitinib in lung cancer based on CRISPR/Cas9 high throughput screen**
Hailing Liu, Binbin Wang, Sujun Chen, Xiaoqing Wang, Tengfei Xiao, X Shirley Liu
 Presenter affiliation: Shanghai Pulmonary Hospital, Shanghai, China; Tongji University, Shanghai, China; Dana-Farber Cancer Institute and Harvard T.H. Chan School of Public Health, Boston, Massachusetts. 18
- LRRK2-G2019S related Parkinson's disease modelling with CRISPR-Cas9 and hiPS**
Xiaobing Qing, Jens Schwamborn
 Presenter affiliation: University of Luxembourg, Belval, Luxembourg. 19
- Role of a novel FoxA1 dimer configuration in gene regulation and disease**
Xuecong Wang, Aleksander Jankowski, Weiyang Yuan, Ricardo Cruz-Herrera Del Rosario, Shyam Prabhakar, Ralf Jauch
 Presenter affiliation: Guangzhou Institutes of Biomedicine and Health, Chinese Academy of Sciences, Guangzhou, China. 20
- The landscape of accessible chromatin in mammalian preimplantation embryos**
Jingyi Wu, Bo Huang, He Chen, Qiangzong Yin, Yang Liu, Yunlong Xiang, Bingjie Zhang, Bofeng Liu, Qiujun Wang, Weikun Xia, Wenzhi Li, Yuanyuan Li, Geng Tian, Feng Xu, Zai Chang, Jie Na, Xuerui Yang, Wei Xie
 Presenter affiliation: Tsinghua University, Beijing, China. 21
- Identification of crucial tumor suppressors and its synthetic lethal partners in breast cancer utilizing CRISPR/Cas9 genetic screen**
Qiu Wu, Xujun Wang, Tengfei Xiao, Hailing Liu, Ziyi Li, Yin Liu, Zheng Jiang, Xiaole S. Liu
 Presenter affiliation: Tongji University, Shanghai, China. 22
- Transcriptome difference between faster and slower agers**
Xian Xia, Jing-Dong J. Han
 Presenter affiliation: Chinese Academy of Sciences-Max Planck Partner Institute for Computational Biology, Shanghai, China. 23
- Use of CRISPR/Cas9 formats—From single gene knock-outs to high throughput functional genomics**
Jian-Ping Yang
 Presenter affiliation: Thermo Fisher Scientific, Carlsbad, California. 24

- Highly improving precise knock-in efficiency with overlapping sgRNA and KEAP1 inhibition**
 Da-Eun Jang, Ji-Hyun Bae, Woo-Sung Hwang, Yoo-Jin Jang, Yoon-Hoo Lee, Su-Cheong Yeom
 Presenter affiliation: Graduate school of international Agricultural Technology, Pyeongchang, South Korea. 25
- Inserts in 3' UTR of the PMEL gene cause a golden variant in Mozambique tilapia**
 Feng Liu, Fei Sun, Gen Hua Yue
 Presenter affiliation: Temasek Life Sciences Lab, Singapore. 26
- Quantitatively controlled, self-regulating gene expression system**
Ji-Ye Yun, Seul Ki Lee, So-Young Park, Chan Yang Park, Ji Pyo Hong, Yang-Gyun Kim
 Presenter affiliation: Sungkyunkwan University, Suwon, South Korea. 27
- Allelic reprogramming of the histone modification H3K4me3 in early mammalian development**
Bingjie Zhang, Hui Zheng, Bo Huang, Wenzhi Li, Yunlong Xiang, Xu Peng, Jia Ming, Xiaotong Wu, Qianhua Xu, Wenqiang Liu, Xiaochen Kou, Yanhong Zhao, Kehkooi Kee, Anming Meng, Shaorong Gao, Feng Xu, Jie Na, Wei Xie
 Presenter affiliation: Tsinghua University, Beijing, China. 28
- Resetting epigenetic memory by reprogramming of histone modifications in mammals**
Hui Zheng, Bo Huang, Bingjie Zhang, Yunlong Xiang, Zhenhai Du, Qianhua Xu, Yuanyuan Li, Qiujun Wang, Jing Ma, Xu Peng, Feng Xu, Wei Xie
 Presenter affiliation: Tsinghua University, Beijing, China. 29
- What determines the binding profile of P53? —A comparative genomic analysis**
 Ying Li, Varsha Sundaesan, Benedetto DiCiaccio, Victor Lin, Lei Zhou
 Presenter affiliation: UF College of Medicine, Gainesville, Florida. 30
- Simultaneous generation of multi-gene knockouts in human cells**
Yuexin Zhou, Hongmin Zhang, Wensheng Wei
 Presenter affiliation: Peking University, Beijing, China. 31

CRISPR/Cas9-mediated genomic deletion screening for long non-coding RNAs using paired-gRNAs

Shiyu Zhu, Wei Li, Jingze Liu, Chenhao Chen, Qi Liao, Ping Xu, Han Xu, Tengfei Xiao, Zhongzheng Cao, Jingyu Peng, Pengfei Yuan, Myles Brown, Xiaole Liu, Wensheng Wei

Presenter affiliation: Biomedical Institute for Pioneering Investigation via Convergence, Beijing, China; Peking University-Tsinghua University-National Institute of Biological Sciences Joint Graduate Program (PTN), Beijing, China.

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TUESDAY, October 11—4:30 PM

Chinese Tea and Beer Tasting

TUESDAY, October 11—7:00 PM

SESSION 4 GENOMIC TECHNOLOGY II

Chairperson: **Brenda Andrews**, University of Toronto, Toronto, Canada

Functional characterization of gene regulatory elements

Fumitaka Inoue, Martin Kircher, Chenling Xiong, Beth Martin, Daniela M. Witten, Gregory M. Cooper, Walter L. Eckalbar, Nicola Illing, Jay Shendure, Nadav Ahituv [25']

Presenter affiliation: University of California San Francisco, San Francisco, California.

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Sequencing and mapping of RNA molecules in human adult brain

Kun Zhang [25']

Presenter affiliation: University of California at San Diego, La Jolla, California.

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Mouse models for the noncoding genome

Joana A. Vidigal, Yoon-chi Han, Ping Mu, Alexendar R. Perez, Yuri Pritykin, Paul Ogradowski, Sagar Chhangawala, Christina S. Leslie, Andrea Ventura [25']

Presenter affiliation: Memorial Sloan Kettering Cancer Center, New York, New York.

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SoxF factors induce Notch1 expression via arterial-specific enhancers during early vascular development in vertebrates
Ivy Chiang, Martin Fritzsche, Cathy Pichol-Thievend, Alice Neal, Sarah De Val, Mathias Francois [10']
Presenter affiliation: The university of Queensland, Brisbane, Australia. 36

Quantitative profiling of selective Sox-Oct dimerization on hundreds of sequences simultaneously by Coop-seq
Yiming Chang, Yogesh Srivastava, Caizhen Hu, Gary D. Stormo, Ralf Jauch [10']
Presenter affiliation: Guangzhou Institutes for Biomedicine and Health, Chinese Academy of Sciences, Guangzhou, China. 37

WEDNESDAY, October 12—9:00 AM

SESSION 5 GENOME ENGINEERING

Chairperson: **William Greenleaf**, Stanford University, Stanford, California, USA

Genomic views of gene regulation *in vivo*
Len Pennacchio [25']
Presenter affiliation: Lawrence Berkeley National Laboratory, Berkeley, California. 38

High-throughput functional screening of coding and non-coding genes
Wensheng Wei [25']
Presenter affiliation: Peking-Tsinghua Center for Life Sciences , Beijing, China. 39

A CRISPR dropout screen identifies genetic vulnerability in acute myeloid leukaemia
Kosuke Yusa [25']
Presenter affiliation: Stem Cell Genetics, Hinxton, Cambridge, United Kingdom. 40

Cas9 or dCas9? A systematic evaluation of CRISPR-based gene loss-of-function screens

Han Xu, Joseph Rosenbluh, Francisca Vazquez, William Harrington, Aviad Tsherniak, William C. Hahn [20']

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

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An in vitro/in vivo genome-wide CRISPR screen identifies novel tumor suppressors of breast cancer

Xiang Chen, Prasanna K. Vaddi, Mark Stamnes, Patrick Breheny, Songhai Chen [10']

Presenter affiliation: University of Iowa, Carver College of Medicine, Iowa City, Iowa.

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Genetic dissection of enhancers uncovers principles of combinatorial regulation and the dynamic wiring of enhancer-promoter contacts

Verena Thormann, Maika C. Rothkegel, Robert Schöpflin, Martin Vingron, Sebastiaan H. Meijnsing [10']

Presenter affiliation: Max Planck Institute for Molecular Genetics, Berlin, Germany.

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WEDNESDAY, October 12—2:00 PM

Visit to Old Suzhou

WEDNESDAY, October 12—7:00 PM

SESSION 6 KEYNOTE SPEAKERS

Chairperson: **Bing Ren**, University of California-San Diego, La Jolla, California, USA

A global genetic interaction map reveals a wiring diagram of gene regulatory pathways and networks

Brenda J. Andrews, Michael Costanzo, Charles M. Boone, Chad Myers [35']

Presenter affiliation: University of Toronto, Toronto, Canada.

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“Off-label” applications of sequencing for understanding structure and function

Jason D. Buenrostro, Ryan Corces, Evan Boyle, Johan Andreasson, Beijing Wu, Ulrike M. Litzenger, Dave Ruff, Michael L. Gonzales, Michael P. Snyder, Ravi Majeti, Howard Y. Chang, William J. Greenleaf [35’]

Presenter affiliation: Stanford University School of Medicine, Stanford, California. 45

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THURSDAY, October 13—9:00 AM

SESSION 7 GENE REGULATION

Chairperson: **Shyam Prabhakar**, Genome Institute of Singapore, Singapore

Promoters frequently act as enhancers of spatially close genes in human cells

Yarui Diao, Rongxin Fang, Bin Li, Zhipeng Meng, Ryan Marina, Tristin Liu, Inkyung Jung, Yin Shen, Kun-liang Guan, Bing Ren [25’]

Presenter affiliation: Ludwig Institute for Cancer Research, La Jolla, California; University of California, San Diego, Cellular and Molecular Medicine, California. 46

A mammalian long non-coding RNA atlas

Chung-Chau Hon, Jordan Ramilowski, The FANTOM consortium, Yoshihide Hayashizaki, Piero Carninci, Alistair Forrest [25’]

Presenter affiliation: RIKEN, Yokohama, Japan; Harry Perkins Institute for Medical Research, Perth, Australia. 47

Dynamic chromatin landscape in early mammalian development
Jingyi Wu, Bo Huang, He Chen, Qiangzong Yin, Yang Liu, Yunlong Xiang, Bingjie Zhang, Bofeng Liu, Qiujuan Wang, Weikun Xia, Wenzhi Li, Yuanyuan Li, Jing Ma, Xu Peng, Feng Xu, Jie Na, Xuerui Yang, Wei Xie [25']
Presenter affiliation: Tsinghua University, Beijing, China. 48

A multi-functional AAV-CRISPR-Cas9 and its host response.
Wei Leong Chew, Mohammadsharif Tabebordbar, Jason K.W. Cheng, Prashant Mali, Elizabeth Y. Wu, Alex H.M. Ng, Kexian Zhu, Amy J. Wagers, George M. Church [20']
Presenter affiliation: Harvard Medical School, Boston, Massachusetts. 49

Dissect transcriptional regulatory circuits controlling tumor-promoting inflammation in human cancers
Zhe Ji, Lizhi He, Aviv Regev, Kevin Struhl [10']
Presenter affiliation: Harvard Medical School, Boston, Massachusetts; Broad Institute of MIT and Harvard, Cambridge, Massachusetts. 50

THURSDAY, October 13—2:00 PM

SESSION 8 COMPUTATIONAL BIOLOGY II

Chairperson: **Marcelo Nobrega**, University of Chicago, Chicago, Illinois, USA

Computational and experimental development for CRISPR screens
X. Shirley Liu [25']
Presenter affiliation: Dana Farber Cancer Institute/Harvard University, Boston, Massachusetts. 51

Experimental assays of protein fitness landscapes
Fyodor A. Kondrashov [25']
Presenter affiliation: Centre for Genomic Regulation, Barcelona, Spain. 52

Reference component analysis of single cell transcriptomes reveals colorectal cancer functional states and likelihood of survival
Shyam Prabhakar [25']
Presenter affiliation: Genome Institute of Singapore, Singapore. 53

Expanding the ENCODE encyclopedia—Applications for annotating non-coding variants

Zhiping Weng, Jill Moore, Michael Purcaro, Arjan van der Velde, Tyler Borrmann [25']

Presenter affiliation: University of Massachusetts Medical School, Worcester, Massachusetts.

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THURSDAY, October 13—6:00 PM

COCKTAILS and BANQUET

FRIDAY, October 14—9:00 AM

SESSION 9 SYSTEMS BIOLOGY

Chairperson: **X. Shirley Liu**, Dana-Farber Cancer Institute, Harvard Medical School, Boston, Massachusetts, USA

Systems biology of stem cells

Huck Hui Ng [25']

Presenter affiliation: Agency for Science, Technology and Research, Singapore, Singapore.

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Personal regulome dynamics of cutaneous T cell lymphoma

Kun Qu, Lisa C. Zaba, Paul G. Giresi, William J. Greenleaf, Youn H. Kim, Howard Y. Chang [20']

Presenter affiliation: School of Life Science, Hefei, China; Center for Personal Dynamic Regulomes and Program in Epithelial Biology, Stanford, California; Department of Dermatology, Stanford University School of Medicine, California.

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Interplay of cis and trans mechanisms driving transcription factor binding, chromatin, and gene expression evolution

Emily Wong, Bianca Schmitt, Duncan Odom, Paul Flicek [10']

Presenter affiliation: University of Queensland, St Lucia, Australia; EMBL-EBI, Hinxton, United Kingdom.

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Epigenome editing with ZFP and CRISPR

Qingzhou Ji [10']

Presenter affiliation: MilliporeSigma, St. Louis, Missouri.

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Multilayered control of alternative splicing regulatory networks by transcription factors

Hong Han, Ulrich Braunschweig, Thomas Gonatopoulos-Pournatzis, Robert J. Weatheritt, Calley L. Hirsch, Kevin C. Ha, Ernest Radovani, Juli Wang, Dave O'Hanlon, Qun Pan, Debashish Ray, Frederick Vizeacoumar, Alessandro Datti, Timothy R. Hughes, Jack F. Greenblatt, Jeffrey L. Wrana, Jason Moffat, Benjamin J. Blencowe [10']

Presenter affiliation: Donnelly Centre, University of Toronto, Toronto, Canada.

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