

PROGRAM

MONDAY, October 8—7:00 PM

Welcome Remarks

Bin Ren

University of California, San Diego

Maoyen Chi

Cold Spring Harbor-Asia

SESSION 1 COMPUTATIONAL BIOLOGY

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

ENCODE Phase III—Building an encyclopedia of candidate cis-regulatory elements for human and mouse

Zhiping Weng [20'+10']

Presenter affiliation: UMass Medical School, Worcester,
Massachusetts.

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Genetic basis of alternative polyadenylation (3'QTL) is an emerging molecular phenotype for human traits and diseases

Wei Li [20'+10']

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

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Allelic binding of human transcription factors

Jian Yan, Yunjiang Qiu, André M Ribeiro dos Santos, Jussi Taipale,
Bing Ren [10'+5']

Presenter affiliation: Ludwig Institute for Cancer Research, La Jolla,
California; Northwest University, Xi'an, China; Karolinska Institutet,
Solna, Sweden.

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Endogenous retroviruses HERV-H delineate chromatin domains in human embryonic stem cells

Yanxiao Zhang, Sebastian Preissl, Ting Li, Hongbo Yang, Jonathan
Grinstein, Eugin Destici, Ah-Young Lee, Sora Chee, Yunjiang Qiu,
Kaiyue Ma, Zhen Ye, Neil Tedeschi, Samantha Kuan, Jennifer
Veevers, Sylvia M. Evans, Neil C. Chi, Bing Ren [10'+5']

Presenter affiliation: Ludwig Institute for Cancer Research, San Diego,
California.

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TUESDAY, October 9—9:00 AM

SESSION 2 GENOMICS

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

**Genome-wide analysis of enhancers in the human and mouse
genomes**

Bing Ren [20'+10']

Presenter affiliation: Ludwig Institute for Cancer Research, La Jolla,
California; University of California, San Diego School of Medicine, La
Jolla, California. 5

The dark matter in genomics

Ting Wang [20'+10']

Presenter affiliation: Washington University, St. Louis, Missouri. 6

**Single-cell transcriptomics—New techniques and application to
lung and colorectal cancer**

Shyam Prabhakar [20'+10']

Presenter affiliation: Genome Institute of Singapore, Singapore. 7

Coffee / Tea Break

Timothy Reddy [20'+10']

Presenter affiliation: Duke University, Durham, North Carolina.

**Multi-scale 3D genome analyses in human neurogenesis and
brain tissues with easy Hi-C**

Leina Lu, Xiaoxiao Liu, Wei-Kai Huang, Shanshan Zhang, Paola
Giusti, Zhexing Wen, Cynthia Bartels, Zheng Xu, Ming Hu, Yun Li,
Peter Scacheri, Patrick F. Sullivan#, Hongjun Song, Guo-li Ming, Yan
Li, Fulai Jin [10'+5']

Presenter affiliation: Case Western Reserve University, Cleveland,
Ohio. 8

SESSION 3 POSTER SESSION

- Tagmentation on microbeads—Restore long-range DNA sequence information using surface-immobilized transposomes**
He Chen, Jiacheng Yao, Yusi Fu, Yuhong Pang, Jianbin Wang, Yanyi Huang
Presenter affiliation: Biodynamic Optical Imaging Center (BIOPIC), School of Life Sciences, Beijing, China. 9
- Dissecting the role of transposable elements (TEs) in the evolution of higher-order chromosomal structures in mammals**
Mayank Choudhary, Ting Wang
Presenter affiliation: Washington University School of Medicine, St. Louis, Missouri. 10
- A visual workflow for detecting temporal gene regulatory cascades in the context of human cardiac development**
Rayan Daou, Martin Haubrock, Edgar Wingender
Presenter affiliation: University of Göttingen, Medical School, Goettingen, Germany. 11
- Regulator inference from gene expression based on Large scale *In-Silico* Analysis of chromatin profile**
Jingyu Fan, Qian Qin, Clifford A. Meyer, X. Shirley Liu
Presenter affiliation: Tongji University, Shanghai, China. 12
- A cross-organism framework for supervised enhancer prediction with epigenetic pattern recognition and targeted validation**
Mengting Gu, Anurag Sethi, Emrah Gumusgoz, Landon Chan, Koon-Kiu Yan, Joel S. Rozowsky, Iros Barozzi, Veena Afzal, Jennifer Akiyama, Ingrid Plajzer-Frick, Chengfei Yan, Catherine Pickle, Axel Visel, Diane E. Dickel, Kevin Yip, Richard Sutton, Len A. Pennacchio, Mark Gerstein
Presenter affiliation: Yale University, New Haven, Connecticut. 13
- Modular regulation of gene expression by genome position and *cis*-regulatory sequences**
Clarice Hong, Jeff Hansen, Hemangi Chaudhari, Brett Maricque, Barak Cohen
Presenter affiliation: Washington University in St Louis, St Louis, Missouri. 14

Cell type-specific transcriptome state transition in zebrafish fin regeneration <u>Yiran Hou, Ting Wang</u> Presenter affiliation: Washington University in St Louis, St Louis, Missouri.	15
Widespread transposable element-driven oncogene expression in cancers <u>Hyo Sik Jang, Nakul M. Shah, Ting Wang</u> Presenter affiliation: Washington University School of Medicine, Saint Louis, Missouri.	16
Data-driven inference of gene regulators in a biological process <u>Peng Jiang, Mathew Freedman, Jun Liu, Xiaole Liu</u> Presenter affiliation: Dana Farber Cancer Institute, Boston, Massachusetts; Harvard T.H.Chan School of Public Health, Boston, Massachusetts.	17
The impact of computational modeling on precision medicine <u>Jian Li, Ulrich Mansmann</u> Presenter affiliation: German Cancer Research Center, Munich, Delaware.	18
Clonal evolution and the role of serial liquid biopsies in prostate cancer patients <u>Jing Li, Feng Zhu, Min Qu, Yan Wang, Xu Gao</u> Presenter affiliation: Changhai Hospital, Shanghai, China; Second Military Medical University, Shanghai, China.	19
Imaging-based genome-wide phenomic screens reveal a stress granule formation pathway in yeast <i>Saccharomyces cerevisiae</i> <u>Beidong Liu</u> Presenter affiliation: University of Gothenburg, Gothenburg, Sweden.	20
From protein-protein interaction correlation network to multiple frequency signaling—The principle of a molecular filter bank in <i>E.coli</i> <u>Si-Wei Luo, Zhi Liang, Jia-Rui Wu</u> Presenter affiliation: University of Science & Technology of China, Hefei, China.	21
Numerous non-RNA-editing SNVs in allopolyploid offspring of the goldfish × common carp cross <u>Wanting Qin, Jing Chai, Guoliang Lin, Yaping Zhang, Jing Luo</u> Presenter affiliation: Yunnan University, Kunming, China.	22

Systematic analysis of transcription factor binding at non-coding variants in the human genome	
Jian Yan, <u>Yunjiaqiang Qiu</u> , André R. Santos, Yimeng Yin, Yang E. Li, Nick Vinckier, Naoki Nariai, Anugraha Raman, Joshua Chiou, Kelly A. Frazer, Kyle J. Gaulton, Maike Sander, Jussi Taipale, Bing Ren	
Presenter affiliation: Ludwig Institute for Cancer Research, La Jolla, California; University of California San Diego, Bioinformatics and Systems Biology Graduate Program, California.	23
High throughput mutagenesis of ultraconserved enhancers <i>in vivo</i>	
<u>Valentina Snetkova</u> , Quan T. Pham, Momoe Kato, Stella Tran, Ingrid Plajzer-Frick, Catherine S. Pickle, Anne N. Harrington, Jennifer A. Akiyama, Veena Afzal, Diane E. Dickel, Axel Visel, Len A. Pennacchio	
Presenter affiliation: Lawrence Berkeley National Laboratory, Berkeley, California.	24
Cistrome Data Browser—Expanded datasets and new tools for regulatory cis-element analysis	
<u>Changxin Wan</u> , Rongbin Zheng, Xiaole S. Liu	
Presenter affiliation: Tongji University, Shanghai, China.	25
Drug adaptation influences cardiotoxicity caused by tyrosine kinase inhibitors in iPSC-derived human cardiomyocytes	
<u>Huan Wang</u> , Robert P. Sheehan, Adam C. Palmer, Peter K. Sorger	
Presenter affiliation: Harvard Medical School, Boston, Massachusetts; Peking University Health Science Center, Beijing, China.	26
Self-regulated reaction-diffusion pattern formation from synthetic gene networks	
<u>Xiao Wang</u>	
Presenter affiliation: Arizona State University, Tempe, Arizona; Shenzhen Institutes of Advanced Technology, Shenzhen, China.	27
Genome-wide CRISPR-Cas9 screen reveals selective vulnerability of ATRX-mutant cancers to WEE1 inhibition	
Junbo Liang, Song Liu, Dingding Wang, Yuchen Jiao, <u>Xiaoyue Wang</u>	
Presenter affiliation: Institute of Basic Medical Sciences, Chinese Academy of Medical Sciences, Beijing, China.	28
Base editing with a Cpf1–cytidine deaminase fusion	
Xiaosa Li, <u>Ying Wang</u> , Yajing Liu, Bei Yang, Wei Xue, Xiao Wang, Jia Wei, Zongyang Lu, Yuxi Zhang, Jing Wu, Xingxu Huang, Li Yang, Jia Chen	
Presenter affiliation: CAS-MPG Partner Institute for Computational Biology, Shanghai, China.	29

The role of long non-coding RNAs In DNA damage and repair Yuming Wang, <u>Zhenzhen Wu</u> Presenter affiliation: Zhongshan Ophthalmic Center, Guangzhou, China.	30
Genome-wide prediction of regulatory element in <i>Arabidopsis</i> genome using integrated epigenomic data sets Yue Liu, Jiaotong Yang, Zhongqiu Li, Hengyu Yan, Lingling Da, <u>Wenyong Xu</u> , Zhen Su Presenter affiliation: China Agricultural University, Beijing, China.	31
Widespread enhancer dememorization and promoter priming during parental-to-zygotic transition <u>Bingjie Zhang</u> , Xiaotong Wu, Wenhao Zhang, Weimin Shen, Kaili Liu, Yu Zhang, Qiujun Wang, Yuanyuan Li, Anming Meng, Wei Xie Presenter affiliation: THU-PKU Center for Life Sciences, School of Life Sciences, Tsinghua University, Beijing, China.	32
Clonal evolution and the role of serial liquid biopsies in low PSA and high-grade prostate cancer patients <u>Wenhui Zhang</u> , Jing Li Presenter affiliation: The Second Military Medical University, ShangHai, China.	33
A next generation sequencing parallel biopsy protocol <u>Wenhui Zhang</u> , Jing Li Presenter affiliation: The Second Military Medical University, ShangHai, China.	34
Integrative analysis of pooled CRISPR genetic screens using MAGeCKFlute Binbin Wang, Mei Wang, <u>Wubing Zhang</u> , Wei Li, Xiaole Shirley Liu Presenter affiliation: Shanghai Pulmonary Hospital, Shanghai, China; Tongji University, Shanghai, China.	35
Cell-to-cell variability reveals the dynamic control of transcription at different chromosome positions <u>Siqi Zhao</u> , Hemangi G. Chaudhari, Brett B. Maricque, Marc S. Sherman, Barak A. Cohen Presenter affiliation: Washington Univeristy School of Medicine, St. Louis, Missouri.	36

Transcriptome-wide survey of tomato (*Solanum Lycopersicum*) seeds in response to fast neutron irradiation followed by Tomato yellow leaf curl virus (TYLCV) infection

Yujie Zhou, Vivek Chavan, Hee-Seong Byun, Eui-Joon Kil, Sukchan Lee, Seung-Woo Hong
Presenter affiliation: Sungkyunkwan University, Suwon, South Korea. 37

Epigenetic regulation of centromere establishment in *Caenorhabditis elegans* and holocentric but not everywhere—Determine the localization of centromeric protein A on the genome by single cell DamID

Jing Zhu, Kevin Cheng, Karen Wing Yee Yuen
Presenter affiliation: The University of Hong Kong, Hong Kong SAR. 38

TUESDAY, October 9—4:30 PM

Chinese Tea and Beer Tasting

TUESDAY, October 9—7:00 PM

SESSION 4 RNAs

Chairperson: **Feng Yue**, Pennsylvania State University, Hershey, Pennsylvania, USA

Mitchell Guttman [20'+10']

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

Unconventional RNA form and function

Ling-Ling Chen [20'+10']

Presenter affiliation: Shanghai Institute of Biochemistry and Cell Biology, CAS, Shanghai, China; CAS Center for Excellence in Molecular Cell Science, CAS, Shanghai, China. 39

A-to-I RNA editing as a mechanism of gene regulation in *Drosophila* and humans

Jian Lu [10'+5']

Presenter affiliation: Peking University, Beijing, China. 40

Global regulation mediated by intron retention in immune system

Zhouhao Zeng, Yi Tian, Yunjie Zhao, Robert Hawley, Nanping Weng, Jun Zhu, Weiqun Peng [10'+5']

Presenter affiliation: George Washington University, Washington, DC. 41

Elucidating the role of epigenetic and DNA sequences in centromere establishment and chromosome maintenance

Zhongyang Lin, Jing Zhu, Karen Wing Yee Yuen [10'+5']

Presenter affiliation: The University of Hong Kong, Hong Kong SAR, Hong Kong. 42

WEDNESDAY, October 10—9:00 AM

SESSION 5 EPIGENOMES

Chairperson: **Zhiping Weng**, UMass Medical School, Worcester, Massachusetts, USA

Editing the epigenome

Ryan Lister [20'+10']

Presenter affiliation: The University of Western Australia, Perth, Australia. 43

A generalized data-driven model for transcription factor gene regulation

Chen-hao Chen, Cliff Meyer, Rongbin Zheng, Changxin Wan, Myles Brown, X Shirley Liu [20'+10']

Presenter affiliation: Harvard University, Dana-Farber Cancer Institute, Boston, Massachusetts. 44

Genomic analysis of chromosome position effects

Hemangi Chaudhari, Brett B. Maricque, Barak A. Cohen [20'+10']

Presenter affiliation: Washington University in St. Louis, St. Louis, Missouri. 45

Coffee / Tea Break

In vivo studies of human genome function

Len A. Pennacchio [20'+10']

Presenter affiliation: Lawrence Berkeley Laboratory, Berkeley, California. 46

Interplay between genome and epigenome of prostate cancer

Jing Li [10'+5']

Presenter affiliation: The Second Military Medical University, Shanghai, China.

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WEDNESDAY, October 10—1:30 PM

Visit to Old Suzhou

WEDNESDAY, October 10—Evening

Free Time

THURSDAY, October 11—9:00 AM

SESSION 6 GENE REGULATION I

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

Martha Bulyk [20'+10']

Presenter affiliation: Brigham & Women's Hospital, Harvard Medical School, Boston, Massachusetts.

Genome-wide analysis of protein-DNA interactions

Arttu Jolma, Jian Yan, Martin Enge, Kazuhiro R. Nitta, Teemu Kivioja, Minna Taipale, Ekaterina Morgunova, Gonghong Wei, Kimmo Palin, Dave Kashyap, Inderpreet Sur, Bernhard Schmierer, Jussi Taipale [20'+10']

Presenter affiliation: University of Cambridge, Cambridge, United Kingdom; Karolinska Institutet, Stockholm, Sweden; University of Helsinki, Helsinki, Finland.

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Systems biology of stem cells

Huck Hui Ng [20'+10']

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

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Impact of cytosine modifications on DNA binding specificities of human transcription factors

Yimeng Yin, Ekaterina Morgunova, Arttu Jolma, Eevi Kaasinen, Biswajyoti Sahu, Syed Khund-Sayeed, Pratyush K. Das, Teemu Kivioja, Kashyap Dave, Fan Zhong, Kazuhiro R. Nitta, Minna Taipale, Paul A. Ginno, Silvia Domcke, Jian Yan, Dirk Schübeler, Charles Vinson, Jussi Taipale [10'+5']

Presenter affiliation: Karolinska Institutet, Stockholm, Sweden.

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Coffee / Tea Break

THURSDAY, October 11—11:00 AM

KEYNOTE SPEAKER

Introduction by: X. Shirley Liu, Harvard University, Cambridge, Massachusetts, USA

Xiaowei Zhuang

Howard Hughes Medical Institute
Harvard University

THURSDAY, October 11—2:00 PM

SESSION 7 EPIGENOMES AND CANCER

Chairperson: Martha Bulyk, Brigham & Women's Hospital, Harvard Medical School, Boston, Massachusetts, USA

3D genome regulators modulate long-term self-renewal in hematopoietic stem cells

Mathieu Lupien [20'+10']

Presenter affiliation: Princess Margaret Cancer Centre, Toronto, Canada.

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Anti-cancer drug discovery by high throughput sequencing based high throughput screening

Dong Wang [20'+10']

Presenter affiliation: Tsinghua University, Beijing, China.

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Germline *GATA3* variants influence chromatin topology and pathogenesis of acute lymphoblastic leukemia

Hongbo Yang, Hui Zhang, Tingting Liu, Kathryn G. Roberts, Mao-xiang Qian, Bo Zhang, Wenjian Yang, Virginia Perez-Andreu, Yu Luan, Julie Gastier-Foster, Ching-Hon Pui, Stephen P. Hunger, Mary V. Relling, Charles G. Mullighan, Mignon L. Loh, Jun J. Yang, Feng Yue [20'+10']

Presenter affiliation: Penn State School of Medicine, Hershey, Pennsylvania; The Pennsylvania State University, University Park, Pennsylvania.

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Coffee / Tea Break

Understanding cancer gene expression abnormality at the bulk and single-cell levels

Zemin Zhang [20'+10']

Presenter affiliation: Peking University, Beijing, China.

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Charting the epigenomic landscape of transposable elements

Erica C. Pehrsson, Mayank Choudhary, Vasavi Sundaram, Ting Wang [10'+5']

Presenter affiliation: Washington University in St. Louis, St. Louis, Missouri.

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THURSDAY, October 11—6:00 PM

COCKTAILS and BANQUET

FRIDAY, October 12—9:00 AM

SESSION 8 GENE REGULATION II

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

X. Sunney Xie [20'+10']

Presenter affiliation: Harvard University, Cambridge, Massachusetts.

Decoding the gene regulation network in human germline cells by single cell functional genomics approaches

Fuchou Tang [20'+10']

Presenter affiliation: ICG, BIOPIC, College of Life Sciences, Beijing, China.

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Conservation and divergence of chromatin reprogramming in early animal development

Wei Xie [20'+10']

Presenter affiliation: Tsinghua University, Beijing, China.

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Coffee / Tea Break

Characterization of regulatory network modulating expression sensitive erythroid genes

Qian Qi, Li Cheng, Peng Xu, Robert Throm, Mitch Weiss, Yong Cheng [10'+5']

Presenter affiliation: St. Jude Children's Research Hospital, Memphis, Tennessee.

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SIRT6 deficiency results in developmental retardation in cynomolgus monkeys

Guanghui Liu [10'+5']

Presenter affiliation: Institute of Biophysics, Chinese Academy of Sciences, Beijing, China.

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Systematic identification of silencers in the human genome

Baoxu Pang, Michael Snyder [10'+5']

Presenter affiliation: Leiden University Medical Center, Leiden, Netherlands; Stanford University, Stanford, California.

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Closing Remarks

Huck Ng

Genome Institute of Singapore

Maoyen Chen

Cold Spring Harbor-Asia