

Abstracts of papers presented  
at the 2024 Cold Spring Harbor Asia Conference

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# CHROMATIN, EPIGENETICS & TRANSCRIPTION

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May 13–May 17, 2024

Arranged by

Genevieve Almouzni, *Curie Institute*

Hiroyuki Sasaki, *Kyushu University*

Yang Shi, *Ludwig Cancer Research, University of Oxford*

Bing Zhu, *Institute of Biophysics, CAS*



Cold Spring Harbor Conferences Asia  
Cold Spring Harbor Laboratory



## CHROMATIN, EPIGENETICS & TRANSCRIPTION

Monday, May 13 – Friday, May 17, 2024

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Monday	7:00 pm	<b>1</b> Opening / Keynote Session
Tuesday	9:00 am	<b>2</b> Chromatin Assembly and Dynamics
Tuesday	2:00 pm	<b>Poster Session</b>
Tuesday	3:00 pm	<i>Chinese Tea and Beer Tasting</i>
Tuesday	7:00 pm	<b>3</b> Epigenetics Inheritance
Wednesday	9:00 am	<b>4</b> Chromatin Modifications and Dynamics I
Wednesday	2:00 pm	<i>Visit to Old Suzhou*</i>
Wednesday	7:00 pm	<b>5</b> Chromatin Modifications and Dynamics II
Thursday	9:00 am	<b>6</b> Chromatin Structure, Remodeling and Organization
Thursday	2:00 pm	<b>7</b> Chromatin Function
Thursday	6:00 pm	Cocktails and Banquet
Friday	9:00 am	<b>8</b> Closing / Keynote Session

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Oral presentation sessions are located in the Watson Auditorium  
Poster session and Chinese Tea & Beer Tasting are in the Poster Hall (E11).

Cocktail social hour is held outside in the Suz Garden.

Old Suzhou visits depart from the hotel lobby

*\*optional tour requires additional fee.*

Meal locations and times are as follows:

Lunch: Suz Garden 12:00pm - 1:30pm

Dinner: Suz Garden 6:00pm - 7:30pm

Banquet: Suz Garden 7:00pm

More information will be available at CSHA office.

*(Map at the end of this abstract book)*

## PROGRAM

MONDAY, May 13—7:00 PM

### SESSION 1 OPENING SESSION / KEYNOTE SPEAKER

**Chairperson:** **Yang Shi**, Ludwig Institute for Cancer Research,  
University of Oxford, Oxford, United Kingdom

#### KEYNOTE SPEAKER

**Shelley L. Berger** [35+10']  
University of Pennsylvania, Philadelphia, USA

**Epigenetic pathways as targets in human disease** 1

#### **Functions of protein phosphatases in transcriptional regulation**

Fei Chen [10'+5']  
Presenter affiliation: Fudan University, Shanghai, China. 2

#### **Histones and beyond—Role of protein methylation signaling in epigenetic regulation and cancer biology**

Or Gozani [20'+5']  
Presenter affiliation: Stanford University, Stanford, California. 3

TUESDAY, May 14—9:00 AM

### SESSION 2 CHROMATIN ASSEMBLY AND DYNAMICS

**Chairperson:** **Azusa Inoue**, RIKEN, Yokohama, Japan

#### **Shaping chromatin and cell fate, a choreography involving histones and partners**

Geneviève Almouzni [20'+5']  
Presenter affiliation: Institut Curie, Paris, France. 4

#### **HMG2A2 directly mediates chromatin condensation in association with neuronal fate regulation**

Yukiko Gotoh [20'+5']  
Presenter affiliation: The University of Tokyo, Tokyo, Japan. 5

**Heterochromatin repatterning facilitates mesenchymal-amoeboid transition under confinement**

Yajun Wang, Bowen Rong, Yiting Zhong, Fei Lan, Yanjun Liu [10'+5']

Presenter affiliation: Fudan University, Shanghai, China.

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**The dynamic regulation of FACT on macroH2A-nucleosome and its function in the cellular response of macrophage**

Dengyu Ji, Xue Xiao, Anfeng Luo, Wei Li, Ping Chen [10'+5']

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

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**Break**

**Epigenetic regulation of early embryo development and somatic cell reprogramming**

Shaorong Gao [20'+5']

Presenter affiliation: Tongji University, Shanghai, China.

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**Epigenetic memory—The tales of erasure, stability and long term maintenance**

Petra Hajkova [20'+5']

Presenter affiliation: Imperial College London, London, United Kingdom.

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**Onco-histone H3.3 K27M/G34R mutations drive chromatin abnormalities by interfering with the functionality of PML nuclear bodies and selection of histone deposition pathways**

Joanna Voon, Linda Hii, Maheshi Udugama, Cody Mutch, Andrew Garvie, Brian krug, Caterina Russo, Jeff Mann, Paul Daniel, Ron Firestein, Philippe Collas, Nada Jabado, Lee Wong [10'+5']

Presenter affiliation: Monash University, Melbourne, Australia.

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**Histone H3.1 is a mitochondrial ROS sensor involved in ROS-driven chromatin remodeling, tumor cell adaptive plasticity and multi-drug resistance**

Flavio R. Palma, Yunping Huang, Ana S. Gomes, Benjamin N. Gantner, Vadim Backman, Marcelo G. Bonini [10'+5']

Presenter affiliation: Northwestern University, Chicago, Illinois.

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TUESDAY, May 14—2:00 PM

**POSTER SESSION**

**Structural and mechanistic basis for nucleosomal H2AK119 deubiquitination by single-subunit deubiquitinase USP16**

Huasong Ai, Zaozhen He, Zhiheng Deng, Guo-Chao Chu, Qiang Shi, Zebin Tong, Jia-Bin Li, Man Pan, Lei Liu

Presenter affiliation: Tsinghua University, Beijing, China; Shanghai Jiao Tong University, Shanghai, China.

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**PRMT1-mediated methylation regulates MLL2 stability and gene expression**

Dongju An, Jihyun Kim, Byul Moon, Hyounghmin Kim, J. Eugene Lee, Jung-Ae Kim, Jaehoon Kim

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

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**C2H2 proteins—Evolutionary aspects of domain architecture and diversification**

Artem N. Bonchuk, Pavel G. Georgiev

Presenter affiliation: Institute of Gene Biology, Moscow, Russia.

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**Transient high glucose exposure induces persistent transcriptional and metabolic alterations associated with NADH production imbalance**

Brandon Bustos-Garcia, Anna L. Gómez-Plchová, Nallely Cano-Domínguez, Víctor Julián Valdés

Presenter affiliation: Institute of Cellular Physiology, Mexico City, Mexico.

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**The dynamic distribution of telomere variant sequences underlies the differences in allele-specific telomere length**

Xiaoran Chai, LaiFong Poon, QiShi Dong, HengRui Liu, Jin Liu, Shang Li

Presenter affiliation: Duke-NUS Medical School, Singapore.

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**N6-Methyladenosine (m6A) modification activates serine synthesis pathway to mediate therapeutic resistance in liver cancer**

For Fan Chan, Chun Ming Wong

Presenter affiliation: State Key Laboratory of Liver Research, Hong Kong, China.

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- The histone H2BE76K mutation disrupts nucleosome stability and promotes breast cancer**  
 Jiaohua Chen, Kui Ming Chan  
 Presenter affiliation: City University of Hong Kong, Hong Kong, China. 18
- TSPYL1 as a critical regulator of TGF $\beta$  Signaling through transcriptional control of TGFBR1**  
 Huiqi Tan, Mia Xinfang Miao, Rylee Xu Luo, Kui Ming Chan, Martin Cheung, Siu Yuen Chan  
 Presenter affiliation: The University of Hong Kong, Hong Kong, China. 19
- Aberrant H3K4me3 modification causes post-implantation developmental defects in mouse somatic cell nuclear transfer embryos**  
Xiyang Chen, Zhifei Shi, Hong Wang, Chong Li, Xiaoyu Liu, Shaorong Gao  
 Presenter affiliation: Tongji University, Shanghai, China. 20
- A CRISPR/Cas9 screening strategy for identifying modifiers of the viral mimicry response**  
Raymond Chen, Ilias Ettayebi, Apollo Wu, Helen Loo Yau, Daniel D. De Carvalho  
 Presenter affiliation: Department of Medical Biophysics, Toronto, Canada; Princess Margaret Cancer Centre, Toronto, Canada. 21
- Spectrally resolving single modifications in short DNA/RNA strands in real space**  
 Yu Han, Li Dong, Luyao Zhu, Gang Li, Chunrui Hu, Yang Zhang, Yao Zhang†, Zhenchao Dong†  
 Presenter affiliation: University of Science and Technology of China, Hefei, China. 22
- Interferon regulatory factor 4 modulates epigenetic silencing and cancer-critical pathways in melanoma cells**  
 Ulduz Sobhiafshar, Betül Çakici, Erdem Yilmaz, Tolga Emre  
 Presenter affiliation: Bogazici University, Istanbul, Turkey. 23
- Sexually dimorphic transcriptomic and proteomic modifications induced by intermittent fasting across multiple organs**  
Yibo Fan, Nishat Tabassum, Xiangyuan Peng, Thiruma V. Arumugam  
 Presenter affiliation: La Trobe University, Melbourne, Australia. 24

**H1.4-mediated chromatin compaction is an essential epigenetic determinant of human forebrain size**

Chenyang Zhang, Chenxi He, Huanwen Rui, Dan Shen, Fei Lan, Weijun Feng

Presenter affiliation: Fudan University, Shanghai, China; Children's Hospital of Fudan University, Shanghai, China.

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**Cell cycle length regulates both erasure and re-establishment of heterochromatin during early development in non-mammalian vertebrates**

Hiroto S. Fukushima, Takafumi Ikeda, Shinra Ikeda, Hiroyuki Takeda

Presenter affiliation: RIKEN, Yokohama, Japan; The University of Tokyo, Tokyo, Japan.

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**Src family kinases-dependent H3K4me3 regulation of *IL-1 $\beta$*  and *CCL2* gene expression in an *ex vivo* mouse trigeminal ganglion model of migraine**

Ziyang Gong, Wenrui Ye, Minyan Wang

Presenter affiliation: Xi'an Jiaotong-Liverpool University (XJTLU), Suzhou, China.

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**GSDME acts as an epigenetic modifier to promote melanoma development via centriole biogenesis regulator PLK4**

Weinan Guo, Juan Du, Yuqi Yang, Chunying Li

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

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**Structural basis of nucleosome deacetylation and DNA linker tightening by Rpd3S histone deacetylase complex**

Shuqi Dong, Huadong Li, Meilin Wang, Nadia Rasheed, William Chong Hang Chao, Jun He

Presenter affiliation: Guangzhou Institutes of Biomedicine and Health, Chinese Academy of Sciences, Guangzhou, China.

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**Single cell multiomics guided mechanistic understanding of Fontan-associated liver disease**

Po Hu, Jack Rychik, Juanjuan Zhao, Huajun Bai, Aidan Bauer, Wenbao Yu, Elizabeth Rand, Kathryn Dodds, David Goldberg, Kai Tan, Benjamin Wilkins, Liming Pei

Presenter affiliation: Children's Hospital of Philadelphia, Philadelphia, Pennsylvania.

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<p><b>Altered 3D genome reorganization mediates precocious myeloid differentiation of aged hematopoietic stem cells in inflammation</b>  <u>Yixin Huang</u>, Yu Dong, Zhiyi Lin, Jiatong Sun, Chuyu Zhang, Yihan Xiao, Yuwei Liang, Lu Shen, Lichen Ji, Rongrong Le, Shaorong Gao  Presenter affiliation: Tongji University, Shanghai, China.</p>	31
<p><b>Canonical and noncanonical PRC1 complexes acting on nucleosomes</b>  Ying Yu, Dan Cai, Guo Bai, Dong Fang, Zhiyuan Zhang, <u>Jing Huang</u>  Presenter affiliation: Ninth People's Hospital, Shanghai Jiao Tong University School of Medicine, Shanghai, China.</p>	32
<p><b>Enhancing ChIP-grade antibody development—A novel screening method combining flow cytometry and immunofluorescence</b>  <u>Chengyang Huang</u>, Mary A. Jelinek  Presenter affiliation: Active Motif, Carlsbad, California.</p>	33
<p><b>Tissue-specific effect of the TADs border disruption on the <i>Kdr</i> gene expression</b>  <u>Evelyn Kabirova</u>, Nariman Battulin  Presenter affiliation: Novosibirsk State University, Novosibirsk, Russia; Institute of Cytology and Genetics, Novosibirsk, Russia.</p>	34
<p><b>Dissecting the epigenetic memory of <i>Xist</i> by constructing and perturbing a synthetic locus in embryonic stem cells</b>  <u>Eleni Kanata</u>, Daniela Cecalev, Freya Jungen, Verena Mutzel, Veronika Dimitrova, Edda G. Schulz  Presenter affiliation: Max Planck Institute for Molecular Genetics, Berlin, Germany.</p>	35
<p><b>Interaction of the chromatin-architectural DEK oncogene with ribosomal RNA regulates cellular ribosome biogenesis and stress response</b>  Nengwei Xu, Kunqi Chen, <u>Ferdinand Kappes</u>  Presenter affiliation: Xi'an Jiaotong-Liverpool University, Suzhou, China; Duke Kunshan University, Kunshan, China.</p>	36
<p><b>FOXK1-mediated MLL2 chromatin recruitment is controlled by GSK3/mTORC1 and regulates expression of hypoxia-related genes</b>  <u>Hyounghmin Kim</u>, Hyeokjun Yang, Jihyun Kim, Sunghu Park, Daeyoung Lee, Jaehoon Kim  Presenter affiliation: Korea Advanced Institute of Science and Technology, Daejeon, South Korea.</p>	37



<p><b>Single cell discovery of m6A RNA modifications in the hippocampus</b>  Shuangshuang Feng, <u>Magdalena J. Koziol</u>  Presenter affiliation: Chinese Institute for Brain Research, Beijing, 102206, China, Beijing, China; Chinese Academy of Medical Sciences, Beijing, China.</p>	38
<p><b>Transcription directionality is licensed by Integrator at active human promoters</b>  Jiao Yang, Jingyang Li, Yunkun Dang, <u>Fan Lai</u>  Presenter affiliation: Yunnan University, Kunming, China.</p>	39
<p><b>Tumor-selective synthetic lethality between HDAC8 and checkpoint kinases</b>  Ting-Yu Chang, Yan Yan, Nian-Zhe Lee, Moez Rathore, Hui-Ju Tseng, Zih-Yao Yu, Wei-Jan Huang, Wei Zhang, Ernest R. Chan, Yulan Qing, Ming-Lun Kang, Rui Wang, John J. Pink, William E. Harte, Stanton L. Gerson, <u>Sung-Bau Lee</u>  Presenter affiliation: College of Pharmacy, Taipei Medical University,, Taipei, Taiwan.</p>	40
<p><b>Histone crotonylation is a novel epigenetic regulation and a therapeutic vulnerability for liver cancer treatment</b>  <u>Qidong Li</u>, Xiaodan Zhang, Chun Ming Wong  Presenter affiliation: HKU Li Ka Shing Faculty of Medicine, Hong Kong, China.</p>	41
<p><b>Integrative chemical biology approaches to interrogating histone acylation and serotonylation</b>  <u>Xin Li</u>, Sha Liu, Gaofei Tian, Rongsheng Zeng, Yixiang Jiang, Yuanyuan Li, Haitao Li, Xiang David Li  Presenter affiliation: Shenzhen Bay Laboratory, Shenzhen, China.</p>	42
<p><b>TET2 modulates spatial relocalization of heterochromatin in aged hematopoietic stem and progenitor cells</b>  Tingting Hong, <u>Jia Li</u>, Lei Guo, Xiaodong Cheng, Margaret A Goodell, Yun Huang  Presenter affiliation: GuangZhou National Laboratory, GuangZhou, China.</p>	43

**Unravelling the role of non-canonical NF-κB signaling in the epigenome landscapes of blood cancers**

Daniel A. Ang, Jean-Michel Carter, Kamalakshi Deka, Joel H.L. Tan, Jianbiao Zhou, Qingfeng Chen, Wee Joo Chng, Nathan Harmston, Yinghui Li

Presenter affiliation: Nanyang Technological University (NTU), Singapore, Agency for Science, Technology and Research (ASTAR), Singapore.

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**Histone biotinylation—An old but little-known mark**

Yang Zhou, Xiangle Ren, Yuanyuan Li, Haitao Li

Presenter affiliation: Tsinghua University, Beijing, China.

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**Identification of DNA-modulating domains in the mRNA transport factor ALYREF**

Malte Prell, Haihong Guo, Yewei Liu, Ferdinand Kappes

Presenter affiliation: Xi'an Jiaotong-Liverpool University, Suzhou, China; Duke Kunshan University, Suzhou, China.

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**Histone FRET microscopy coupled with SPT reveals the chromatin nanoscale landscape to facilitate nuclear protein dynamics**

Jieqiong Lou, Julissa S. Velasquez, Ashleigh N. Solano, Xiaomeng Zhang, Elizabeth Hinde

Presenter affiliation: University of Melbourne, Melbourne, Australia.

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**Direct visualization of distinct Pol II condensates for transcription initiation and elongation by MINFLUX**

Hong Xie, He Fang, Yi Hu, Xiangnan Wang, Kaiyuan Liu, Ying Feng, Jisong Guan, Min Gu, Hanhui Ma

Presenter affiliation: ShanghaiTech University, Shanghai, China.

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**ADNP modulates SINE B2-derived CTCF-binding sites during blastocyst formation in mice**

Wen Wang, Rui Gao, Dongxu Yang, Mingli Ma, Ruge Zang, Xiangxiu Wang, Chuan Chen, Xiaochen Kou, Yanhong Zhao, Jiayu Chen, Xuelian Liu, Jiayu Lu, Ben Xu, Juntao Liu, Hong Wang, Shaorong Gao, Yong Zhang, Yawei Gao

Presenter affiliation: Tongji University, Shanghai, China.

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**The role of C2H2 architectural proteins in the specific recruitment of the Drosophila dosage compensation complex to the male X chromosome**

Oksana Maksimenko, Evgeniya Tikhonova, Valentin Babosha, Varvara Ryzhkova, Tatyana Karyagina, Pavel Georgiev

Presenter affiliation: Institute of Gene Biology RAS, Moscow, Russia.

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<b>JARID2–PRC2.2 initiates de novo H3K27 methylation in mouse early embryos</b> <u>Masahiro Matsuwaka</u> , Azusa Inoue Presenter affiliation: RIKEN, Yokohama, Japan; Tokyo Metropolitan University, Hachioji, Japan.	51
<b>H2A.Z is essential for maternal epigenome establishment during mouse oogenesis</b> <u>Hailiang Mei</u> , Ryoya Hayashi, Chisayo Kozuka, Mami Kumon, Haruhiko Koseki, Azusa Inoue Presenter affiliation: RIKEN Center for Integrative Medical Sciences, Yokohama, Japan.	52
<b>Transcriptional regulation of FACT involves coordination of chromatin accessibility and CTCF binding</b> <u>Buhe Nashun</u> , Peijun Wang, Na Fan Presenter affiliation: Inner Mongolia University, Huhhot, China.	53
<b>Repeat elements enriched in cis-regulatory regions act in cancer cell transition to estrogen-independence</b> <u>Shengliang Ni</u> , Xufeng Shu, Masaki Kato, Noriko Saitoh, Martin C. Frith, Maierdan Palihati, Piero Carninci Presenter affiliation: Graduate School of Frontier Sciences, University of Tokyo, Chiba, Japan.	54
<b>Interpretation of extrachromosomal DNA stemness properties in glioblastoma from bulk level to single cell resolution</b> <u>Chu Pan</u> , Yiyuan Wu, Christopher Arlidge, Ankit Nand, Lisanne Mout, Mathieu Lupien Presenter affiliation: University Health Network, Toronto, Canada.	55
<b>Multi-organ ATAC-sequencing reveals the impact of intermittent fasting on chromatin accessibility and gene expression</b> <u>Xiangyuan Peng</u> , Yibo Fan, Thiruma V. Arumugam Presenter affiliation: La Trobe University, Melbourne, Australia.	56
<b>The cross-regulation between Set1, Ctr4, and Lsd1/2 in <i>Schizosaccharomyces pombe</i></b> <u>Ke Z. Reid</u> , Haoran Liu, Bahjat F. Marayati Presenter affiliation: Wake Forest University, Winston Salem, North Carolina.	57
<b>Bridging-induced phase separation by SMC complexes</b> <u>Je-Kyung Ryu</u> Presenter affiliation: Seoul National University, Seoul, South Korea.	58

<b>YY1-mediated nucleosome remodeling during early mouse development</b> <u>Mizuki Sakamoto</u> , Takashi Ishiuchi Presenter affiliation: University of Yamanashi, Yamanashi, Japan.	59
<b>Robust and sensitive alignment of RNA and DNA modification sequencing data using BASAL</b> Moping Xu, Xiaoyang Liu, Miao Wang, Yawei Gao, Jun Liu, <u>Jiejun Shi</u> Presenter affiliation: Tongji University, Shanghai, China.	60
<b>Mechanism of communication of p53-dependent enhancer 75C6 with target genes in <i>Drosophila melanogaster</i></b> Alexander V. Konopátov, Ksenia Y. Konova, Margarita K. Popova, Lyubov A. Lebedeva, Paul Schedl, <u>Yulii V. Shidlovskii</u> Presenter affiliation: Institute of Gene Biology, Russian Academy of Sciences, Moscow, Russia; Sechenov University, Moscow, Russia.	61
<b>RADIP identifies H3K27me3-mediated long-range interactions between RNAs and chromatin</b> <u>Xufeng Shu</u> , Masaki Kato, Piero Carninci Presenter affiliation: RIKEN, Yokohama, Japan; The University of Tokyo, Kashiwa, Japan.	62
<b>Biochemical and genomic approaches for high throughput drug discovery in chromatin remodeling research</b> <u>Lu Sun</u> , Tessa M. Firestone, Matthew R. Marunde, Vishnu U. Sunitha Kumary, Allison Hickman, Matthew J. Meiners, Jonathan M. Burg, Bryan J. Venters, Zu-Wen Sun, Martis W. Cowles, Pierre Esteve, Hang Gyeong Chin, Chaithanya Ponnaluri, Sriharsa Pradhan, Michael-Christopher Keogh Presenter affiliation: EpiCypher Inc, Durham, North Carolina.	63
<b>Elucidating the impact of Setdb1 on genome architecture during development</b> <u>Phoebe Lut Fei Tam</u> , Ming Fung Cheung, Lu Yan Chan, Danny Leung Presenter affiliation: Hong Kong University of Science and Technology, Clear Water Bay, Hong Kong, China	64

**Pramel15 facilitates zygotic nuclear DNMT1 degradation and DNA demethylation**

Jiajun Tan, Yingfeng Li, Xiang Li, Xiaoxiao Zhu, Liping Liu, Hua Huang, Jiahua Wei, Hailing Wang, Yong Tian, Zhigao Wang, Zhuqiang Zhang, Bing Zhu

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

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**Trans-splicing in *Drosophila melanogaster***

Maxim Tikhonov, Oguljan Beginyazova, Yulia Soldatova, Oksana Maksimenko, Pavel Georgiev

Presenter affiliation: Institute of Gene Biology, Moscow, Russia.

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**Investigating transcriptomic changes induced by mild traumatic brain injury in the subacute phase**

Geena Wai, Danny Leung, Melinda Fitzgerald

Presenter affiliation: Hong Kong University of Science and Technology, Hong Kong, China; Perron Institute, Perth, Australia; Curtin University, Perth, Australia.

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**Lsd1 safeguards T-cell development via suppressing endogenous retroelements and interferon responses**

Miaoran Xia, Bingbing Wang, Wujianan Sun, Dengyu Ji, Hang Zhou, Xuefeng Huang, Minghang Yu, Ziyang Su, Ping Chen, Kun Qu, Xi Wang

Presenter affiliation: Beijing Ditan Hospital, Capital Medical University, Beijing, China.

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**Phase separation of PML/RAR $\alpha$  microspeckles governs transcriptional dysregulation through genomic rewiring of BRD4 in acute promyelocytic leukemia**

Yi Zhang, Jiacheng Lou, Kankan Wang

Presenter affiliation: Shanghai Institute of Hematology, Shanghai, China.

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**Cryo-EM structures of Smc5/6 in multiple states reveal its assembly and functional mechanisms**

Qian Li, Jun Zhang, Cory Haluska, Xiang Zhang, Lei Wang, Guangfeng Liu, Zhaoning Wang, Duo Jin, Tong Cheng, Hongxia Wang, Yuan Tian, Xiangxi Wang, Lei Sun, Xiaolan Zhao, Zhenguo Chen, Lanfeng Wang

Presenter affiliation: Shanghai Institute of Immunity and Infection, Chinese Academy of Sciences, Shanghai, China; College of Life Sciences, University of Chinese Academy of Sciences, Beijing, China.

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<b>Nucleosome wrapping states encode principles of 3D genome organization</b> <u>Zengqi Wen</u> , Xinqian Yu, Ruixin Fang, Haizhen Long Presenter affiliation: Sun Yat-Sen University, Shenzhen, China.	71
<b>Phosphorylation-induced switch in DEK chromatin occupancy in malignant melanoma cells</b> <u>Gongjie Wu</u> , Ruiwen Xu, Ferdinand Kappes Presenter affiliation: Xi'an Jiaotong-Liverpool University, Suzhou, China.	72
<b>Neuronal activity-induced BRG1 phosphorylation regulates enhancer priming and epigenetic memory</b> Bongwoo Kim, Ningyan Cheng, Qian Zhang, Hongtao Yu, Zhenyu Xuan, <u>Jiang Wu</u> Presenter affiliation: University of Texas Southwestern Medical Center, Dallas, Texas.	73
<b>ZCCHC8 governs retrotransposon L1 silencing during spermatogenesis</b> <u>You Wu</u> , Rushuang Yan, Yawei Gao Presenter affiliation: School of Life Sciences and Technology, Shanghai, China.	74
<b>Mapping <i>cis</i>- and <i>trans</i>-regulatory landscape in rice uncovers targets for trait engineering</b> Luchang Ming, <u>Weibo Xie</u> Presenter affiliation: Huazhong Agricultural University, Wuhan, China.	75
<b>Linking genome structures to functions by simultaneous single-cell Hi-C and RNA-seq</b> <u>Dong Xing</u> Presenter affiliation: Peking University, Beijing, China.	76
<b>SOS signaling pathway is involved in epigenetic regulation under salt stress</b> <u>Kexin Xu</u> , Jingrui Li, Yan Guo Presenter affiliation: China Agriculture University, Beijing, China.	77
<b>The interactions with nucleosome and hexasome of transcription factor RFX5</b> Wanqiang Xue, Yaoyao Han, Ying Tian, Zhiyuan Xie, Xin Zheng, Siqi Dong, Huimin Li, Zhen Luo, Siqiu Zhang, Nana Ma, Fangjie Zhu, Yimeng Yin, Yixiao Zhang, <u>Ke Xu</u> Presenter affiliation: Tongji University, Shanghai, China.	78

<b>Disordered epigenetic reprogramming in human PCOS-derived pre-implantation embryos</b> <u>Ruimin Xu</u> , Qianshu Zhu, Chong Li, Xiaoyu Liu, Shaorong Gao Presenter affiliation: Tongji University, Shanghai, China.	79
<b>SMCHD1 compacts DNA directly in an ATP-independent manner</b> Joel Ng, Jie Yan, <u>Shifeng Xue</u> Presenter affiliation: National University of Singapore, Singapore.	80
<b>Co-regulation of mitochondrial function by LSD1 and NMNAT1 in the liver</b> Yang Cao, Xiyu Shen, <u>Qin Yang</u> Presenter affiliation: University of California, Irvine, Irvine, California.	81
<b>Thyroid hormone suppresses medulloblastoma progression through promoting terminal differentiation of tumor cells</b> Yijun Yang, Silvia Valdés-Rives, Tamara Kiryukhina, <u>Zeng-jie Yang</u> Presenter affiliation: Fox Chase Cancer Center, Philadelphia, Pennsylvania.	82
<b>MARTRE1/2 negatively regulate CCR4-NOT activity to protect poly(A) tail length and promote translation of maternal mRNA</b> <u>Jing Yang</u> , Jiachen Bu, Bowen Liu, Falong Lu, Bing Zhu, Yingfeng Li Presenter affiliation: Institute of Biophysics, Beijing, China; University of Chinese Academy of Sciences, Beijing, China.	83
<b>The role of STRN3-RARA in leukemia onset and drug resistance</b> <u>Qi Zhang</u> , He Li, Xuelan Chen, Huihui Hu, Chong Chen, Yu Liu Presenter affiliation: Sichuan University, Chengdu, China.	84
<b>Loss of ZNF408 attenuates STING-mediated immune surveillance in breast carcinogenesis</b> Xiao Cheng, Chunyu Yu, <u>Yan Zhang</u> , Jing Liang, Yongfeng Shang Presenter affiliation: Peking University Health Science Center, Beijing, China.	85
<b>Inseparable RNA binding and chromatin modification activities of a nucleosome-interacting surface in PRC2</b> <u>Qi Zhang</u> , Evan Healy, Emma Gail, Sarena Flanigan, Natasha Jones, Xiao Han Ng, Michael Uckelmann, Vita Levina, Chen Davidovich Presenter affiliation: Monash University, Clayton, Australia; University of Adelaide, Adelaide, Australia.	86

- CRISPR-Cas9 knockout screen identifies DNA damage as the key driver of decitabine cytotoxicity**  
Pinqi Zhang, Zhuqiang Zhang, Yiyi Wang, Wenlong Du, Xingrui Song, Weiyi Lai, Hailin Wang, Bing Zhu, Jun Xiong  
 Presenter affiliation: Key Laboratory of Epigenetic Regulation and Intervention, Beijing, China. 87
- Chromatin remodeling factor CRC1 regulates the salt stress response under the control of SOS pathway**  
Lulu Zhang, Jingrui Li, Yan Guo  
 Presenter affiliation: China Agricultural University, Beijing, China. 88
- LINE1 promotes PRC2-mediated nuclear compartmentalization to prevent developmental reversion of hESCs**  
Juan Zhang, Lamisa Mizan, Liang Wu, Kirti Mittal, Lauren Caldwell, Linh Huynh, Shahil Sarajideen, Md. Abdul Mazid, David P. Cook, Daniel Trcka, Kevin Tse, Jeffrey L. Wrana, Michael M. Hoffman, Miguel A. Esteban, Miguel Ramalho-Santos  
 Presenter affiliation: Lunenfeld-Tanenbaum Research Institute and Department of Molecular Genetics, Toronto, ON, Canada. 89
- Super Pol II domains enhance minor ZGA through 3D-interaction to ensure the integrity of major transcriptional waves in ZGA delayed mammals**  
Jingcheng Zhang, Hengkuan Li, Linmi Li, Gang Ren, Yunxia Zhao, Yong Zhang  
 Presenter affiliation: Northwest A&F University, Yangling, China. 90
- Regulation of nitrogen catabolite repression by the chromatin remodeler Ino80 and development of robust yeast strains**  
 Bing Yuan, Wei-Bin Wang, Xin-qing Zhao  
 Presenter affiliation: State Key Laboratory of Microbial Metabolism, Shanghai, China. 91
- Sequential polyadenylation dictates post-transcriptional m<sup>6</sup>A modification**  
 Peng Tang, Jiayi Yang, Zonggui Chen, Chen Du, Yu Zhou  
 Presenter affiliation: Wuhan University, Wuhan, China. 92
- Sea-ATI unravels novel vocabularies of plant active cistrome**  
 Chenjin Wem, Zhen Yuan, Xiaotian Zhang, Fangjie Zhu  
 Presenter affiliation: Fujian Agriculture and Forestry University, fuzhou, China. 93



**Unveiling the role of m<sup>6</sup>A modification in human pluripotent state transition**

Xuehao Zhu, Zhanhe Chang, Xinbao Zhang, Yan Bi, Mingli Ma, Xiaochen Kou, Yanhong Zhao, You Wu, Xuelian Liu, Jiaying Sun, Hong Wang, Yixuan Wang, Yawei Gao, Shaorong Gao  
Presenter affiliation: School of Life Sciences and Technology, Shanghai, China; Frontier Science Center for Stem Cell Research, Shanghai, China.

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**CTCF depletion uncouples the role of enhancer-promoter interactions and higher-order chromatin hubs in the regulation of gene expression during cellular differentiation**

Magdalena Karpinska, Yi Zhu, Marieke Oudelaar  
Presenter affiliation: Max Planck Institute for Multidisciplinary Sciences, Göttingen, Germany.

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TUESDAY, May 14—3:00 PM

**Chinese Tea and Beer Tasting**

TUESDAY, May 14—7:00 PM

**SESSION 3** EPIGENETIC INHERITANCE

**Chairperson:** Yu-Ying He, University of Chicago, Illinois, USA

**Epigenetic cell memory—How cells copy their epigenome and its consequence for cell plasticity**

Anja Groth [20'+5']  
Presenter affiliation: Center for Protein Research (CPR), Copenhagen, Denmark.

96

**PRC1 counteracts MLL2–H3K4me3 to establish heritable H3K27me3 in mouse oocytes**

Hailiang Mei, Chisayo Kozuka, Mami Kumon, Haruhiko Koseki, Azusa Inoue [10'+5']  
Presenter affiliation: RIKEN, Yokohama, Japan.

97

**Critical role of the ADD-H3K4me0 interaction in DNA methylation deposition by DNMT3A/DNMT3L in mouse germ cells**

Hiroyuki Sasaki, Naoki Kubo [20'+5']

Presenter affiliation: Kyushu University, Fukuoka, Japan.

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**Embryonic genome instability upon somatic DNA replication timing program emergence**

Saori Takahashi, Hirohisa Kyogoku, Takuya Hayakawa, Hisashi Miura, Asami Oji, Yoshiko Kondo, Shin-ichiro Takebayashi, Tomoya S.

Kitajima, Ichiro Hiratani [10'+5']

Presenter affiliation: RIKEN Center for Biosystems Dynamics Research, Kobe, Japan.

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**Novel players in chromatin**

Robert Schneider [20'+5']

Presenter affiliation: Helmholtz Zentrum München, Neuherberg, Germany.

100

**Distinct oncogenic fusions misregulate common transcription networks in initiating astroblastoma**

Yixing Shi, Qianqian Sun, Fuchuan Jia, Wei Shi, Yang Yu [10'+5']

Presenter affiliation: Institute of Basic Medical Sciences, Beijing, China; Chinese Academy of Medical Sciences & Peking Union Medical College, Beijing, China.

101

**SPONSOR TALK**

**EpiFinder™—A new dimension of high-throughput, multiplexed and quantitative profiling or screening of histone and DNA modifications**

Mohamad Takwa [20'+5']

Presenter affiliation: Epigenica AB, Stockholm, Sweden.

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**SESSION 4** CHROMATIN MODIFICATIONS AND DYNAMICS I

**Chairperson:** Fei Chen, Fudan University, Shanghai, China

**Single cell epigenome sequencing technologies—The third generation**

Fuchou Tang [20'+5']

Presenter affiliation: Peking University, Beijing, China.

103

**A nuclear function of MIWI/piRNA in silencing meiotic genes during mouse spermatogenesis**

Zhi-Tong Li, Tao Yu, Mo-Fang Liu [20'+5']

Presenter affiliation: Shanghai Institute of Biochemistry and Cell Biology, Shanghai, China.

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**Harmony in chaos---Embracing the disorder in transcription regulation**

Yixuan Pan, Jingdong Xue, Bing Li [10'+5']

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

105

**Nucleosome context dictates the histone code**

Matthew R. Marunde, Kanishk Jain, Harrison Fuchs, Brian S. Strahl, Catherine A. Musselman, Michael-Christopher Keogh [10'+5']

Presenter affiliation: EpiCypher Inc, Durham, North Carolina.

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**Break**

**Factors induce DNA hypomethylation and genome instability**

Xiaodong Cheng [20'+5']

Presenter affiliation: University of Texas MD Anderson Cancer Center, Houston, Texas.

107

**H3K4me1 facilitates promoter-enhancer interactions and gene activation during embryonic stem cell differentiation**

Bing Ren, Naoki Kubo, Hiroyuki Sasaki, Benson Chen [20'+5']

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

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**Defining ortholog-specific UHRF1 inhibition by STELLA for cancer therapy**

Wenjing Bai, Jinxin Xu, Wenbin Gu, Danyang Wang, Ying Cui, Linping Wu, Jinsong Liu, Stephen B. Baylin, Xiangqian Kong [10'+5']  
Presenter affiliation: Guangzhou Institutes of Biomedicine and Health, Chinese Academy of Sciences, Guangzhou, China.

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**METTL8 links mt-tRNA m3C modification to the HIF-1 $\alpha$ /RTK/Akt axis to sustain glioblastoma stemness and tumorigenicity**

Bernice Woon Li Lee, You Heng Chuah, Jeehyun Yoon, Oleg V. Grinchuk, Yajing Liang, Jayshree L Hirpara, Yating Shen, Loo Chien Wang, Yan Ting Lim, Tianyun Zhao, Radoslaw M Sobota, Toshio Suda, Tan Boon Toh, Pervaiz Shazib, Zhewang Lin, Derrick Sek Tong Ong [10'+5']  
Presenter affiliation: Yong Loo Lin School of Medicine, National University of Singapore, Singapore.

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WEDNESDAY, May 15—2:00 PM

**Visit to Old Suzhou**

WEDNESDAY, May 15—7:00 PM

**SESSION 5 CHROMATIN MODIFICATIONS AND DYNAMICS II**

**Chairperson:** **Marcelo G. Bonini**, Northwestern University, Chicago, Illinois, USA

**Diffuse midline gliomas—From cell cycle to therapeutic opportunities**

Capucine Van Rechem [20'+5']  
Presenter affiliation: Stanford University School of Medicine, Stanford, California.

111

**H3.3 Ser31 phosphorylation facilitates H3K27me3-to-H3K9me3 heterochromatin consolidation in retrotransposon silencing and X chromosome inactivation**

Guohong Li [20'+5']  
Presenter affiliation: Wuhan University, New Cornerstone Science Laboratory, Wuhan, China; Institute of Biophysics, Chinese Academy of Sciences, Beijing, China; University of Chinese Academy of Sciences, Beijing, China.

112

**A mouse model with high clonal barcode diversity for joint lineage, transcriptomic, and epigenomic profiling in single cells**

Li Li, Shouwen Wang, Fernando Camargo [10'+5']

Presenter affiliation: Westlake University, Hangzhou, China.

113

**Dissecting bivalency-regulated pathways via PRC2 inhibitors**

Dongdong Liu, Liping Chu, Yang An, Jiaqi Zhao, Yuxiu Qu, Wei Qi [10'+5']

Presenter affiliation: ShanghaiTech University, Shanghai, China.

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**Cell fate plasticity and chromatin therapeutics**

Wee-Wei Tee [20'+5']

Presenter affiliation: Laboratory of Chromatin Dynamics and Disease Epigenetics, Institute of Molecular and Cell Biology, ASTAR, Singapore.

115

**Epigenetic and genetic mechanisms underlying intermittent metabolic switching**

Thiruma V. Arumugam [10'+5']

Presenter affiliation: La Trobe University, Melbourne, Australia; Sungkyunkwan University, Suwon, South Korea.

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**SPONSOR TALK**

**Building a proteome-wide resource for protein sciences**

Tao Chen [20'+5']

Presenter affiliation: Absea Biotechnology Ltd., Berlin, Germany

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THURSDAY, May 16—9:00 AM

**SESSION 6** CHROMATIN STRUCTURE, REMODELING AND ORGANIZATION

**Chairperson:** Rhys Allan, WEHI, Parkville, Australia

**Locally controlled chromatin loop extrusion and the function of non-functional DNA sequences in our genome**

Ruiqi Han, Anna-Karina Felder, Yike Huang, Van Verhagen, Rezin Majied, Thijs Verheul, Leonela Luce, Marjon Verstegen, Michelle Robers, Iwan Vaandrager, Kexin Zhang, Adrian Marius Ginghina, Mikhail Magnitov, Elzo de Wit, Sjaak Philipson, Emile van den Akker, Peter Krijger, Wouter de Laat [20'+5']

Presenter affiliation: UMC Utrecht, Utrecht, the Netherlands.

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### **Epigenetic plasticity of heterochromatin 3D structure**

Yoichi Shinkai [20'+5']

Presenter affiliation: RIKEN, Wako, Japan.

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### **Unravelling the hierarchical chromatin landscape of immune memory cells**

Rhys S. Allan [10'+5']

Presenter affiliation: WEHI, Parkville, Australia.

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### **Simultaneous imaging of chromatin loops and active transcription in living cells (SiCLAT)**

Xin Wan, Jie Kong, Xiaodi Hu, Yuanping Yang, Hu Li, Gaoao Liu, Xingchen Niu, Dan Zhang, Yong Zhang, Dahai Zhu [10'+5']

Presenter affiliation: Institute of Basic Medical Sciences, Chinese Academy of Medical Sciences and School of Basic Medicine, Peking Union Medi, Beijing, China.

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### **Break**

### **Epigenetic regulation of genome architecture in development, cell differentiation and cancer**

Giacomo Cavalli [20'+5']

Presenter affiliation: Institute of Human Genetics, Montpellier, France.

122

### **Unique territorial and sub-chromosomal organization revealed in the holocentric moth *Bombyx mori***

Jose Gil, Emily Navarette, Leah F. Rosin, Elissa P. Lei, Leonid A. Mirny, Heloise A. Muller, Ines A. Drinnenberg [20'+5']

Presenter affiliation: Institut Curie, PSL University, Sorbonne Université, CNRS, Paris, France.

123

### **Spatiotemporally controlled function of SMARCA5 distinguishes pancreatic malignancy from tissue regeneration**

Jing Han, Xiaoman Lu, Meilian Zhuo, Saisai Wang, Yong Li, Xiangzheng Liu, Mengmeng Guo, Di Zou, Jiacheng Wang, Ruizhe He, Junya Peng, Wei Xie, Charles David, Mo Chen [10'+5']

Presenter affiliation: Tsinghua University, Beijing, China.

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### **Stepwise *de novo* establishment of inactive X chromosome architecture in early development**

Zhenhai Du, Liangjun Hu, Zhuoning Zou, Meishuo Liu, Zihan Li, Xukun Lu, Clair Harris, Yunlong Xiang, Fengling Chen, Guang Yu, Kai Xu, Feng Kong, Qianhua Xu, Bo Huang, Haifeng Wang, Sundeep Kalantry, Wei Xie [10'+5']

Presenter affiliation: Tsinghua University, Beijing, China.

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**SESSION 7** CHROMATIN FUNCTIONS

**Chairperson:** **Mo Chen**, Tsinghua University, Beijing, China

**LSD2/KDM1B is a key epigenetic regulator of TIME and a potential new target for cancer therapies**

Yujiang G. Shi [20'+5']

Presenter affiliation: Fudan University & Zhongshan Hospital, Shanghai, China; Harvard Medical School, Boston, Massachusetts. 126

**Initiation & restriction of heterochromatin**

Bing Zhu [20'+5']

Presenter affiliation: Institute of Biophysics, Chinese Academy of Sciences, Beijing, China. 127

**LINE-1 transcription activates long-range gene expression**

Xiufeng Li, Luyao Bie, Yang Wang, Yaqiang Hong, Nian Liu [10'+5']

Presenter affiliation: Tsinghua University, Beijing, China. 128

**Three-step mechanism of promoter escape by RNA polymerase II**

Yumeng Zhan, Frauke Grabbe, Elisa Oberbeckmann, Christian Dienemann, Patrick Cramer [10'+5']

Presenter affiliation: Max Planck Institute for Multidisciplinary Sciences, Goettingen, Germany. 129

**Break**

**From DNA to life—Decode the noncoding genome**

Xiaohua Shen [20'+5']

Presenter affiliation: Tsinghua University, Beijing, China. 130

**The ESR1 super-enhancer is associated with a natural antisense long non-coding RNA and reprogrammed in breast cancer**

Noriko Saitoh, Maierdan Palihati, Yuichi Ichikawa, Hiroaki Tachiwana [20'+5']

Presenter affiliation: The Cancer Institute of JFCR, Tokyo, Japan. 131

**Role of RNA modifications in stress response, tumorigenesis, and resistance to immunotherapy**

Yu-Ying He [10'+5']

Presenter affiliation: University of Chicago, Chicago, Illinois. 132

**TWEAKing genome regulation in breast cancer to identify novel drivers of metastasis**

Nicholas Sim, Jean-Michel Carter, Kamalakshi Deka, Benita Kiat Tee Tan, Yirong Sim, Suet-Mien Tan, Yinghui Li [10'+5']

Presenter affiliation: Nanyang Technological University (NTU), School of Biological Sciences (SBS), Singapore.

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**The crucial role of H2A.Z in cell fate decisions—Insights into promoter chromatin architecture regulation in normal and aberrant cellular processes**

David J. Tremethick, Jane Benoit, Yasmin Dijkwel, Jonathan Dennis [10'+5']

Presenter affiliation: The Australian National University, Canberra, Australia.

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THURSDAY, May 16—6:00 PM

**COCKTAILS and BANQUET**

FRIDAY, May 17—9:00 AM

**SESSION 8** CLOSING SESSION / KEYNOTE SPEAKER

**Chairperson:** **Hiroyuki Sasaki**, Kyushu University, Fukuoka, Japan

**KEYNOTE SPEAKER**

**Neil Brockdorff** [35+10']

University of Oxford, Oxford, United Kingdom

**Xist RNA function in X chromosome inactivation**

135

**The Fork Protection Complex collaborates with FACT to guide parental histone recycling**

Qing Li [20'+5']

Presenter affiliation: Peking University, State Key Laboratory of Protein and Plant Gene Research, Beijing, China.

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**DNA cytosine methylation suppresses meiotic recombination at the sex-determining region**

Tong Ge, Xiuqi Gui, Jia-xi Xu, Hui Chen, Zhen Shao, Guo-liang Xu [10'+5']

Presenter affiliation: Chinese Academy of Sciences, Shanghai, China. 137

**Break**

**Binding domain mutations provide insight into CTCF's relationship with chromatin and its ability to act as a chromatin organizer**

Catherine Do, Guimei Jiang, Christos Katsifis, Domenic N. Narducci, Jie Yang, Giulia Cova, Theodore Sakellaropoulos, Raphael Vidal, Priscillia Lhoumaud, Nata Kakabadze, Elphege Nora, Marcus Noyes, Xiaodong Chen, Anders S. Hansen, Jane A. Skok [20'+5']

Presenter affiliation: NYU Langone Health, New York, New York. 138

**A computational tool to interpret polygenetic disease risks with single-cell epigenomic data**

Gefei Zhao, Binbin Lai [10'+5']

Presenter affiliation: Peking University, BeiJing, China. 139