

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

FRONTIERS IN SINGLE-CELL AND SPATIAL OMICS

October 19–October 23, 2026

Arranged by

Woong-Yang Park, *Samsung Medical Center*

Fuchou Tang, *Peking University*

Thierry Voet, *University of Leuven*

Siyuan (Steven) Wang, *Yale University School of Medicine*



Cold Spring Harbor Conferences Asia
Cold Spring Harbor Laboratory



FRONTIERS IN SINGLE-CELL AND SPATIAL OMICS

Monday, October 19 – Friday, October 23, 2026

TOPICS:

Single cell omics technologies

Spatial omics technologies

AI and virtual cells

Algorithms and data analytics

Applications for development and diseases

Monday	7:00 pm	Session 1 Keynote Speakers
Tuesday	9:00 am	Session 2
Tuesday	2:00 pm	Poster Session
Tuesday	7:00 pm	Session 3
Wednesday	9:00 am	Session 4
Wednesday	1:30 pm	<i>Visit to Old Suzhou</i>
Wednesday	7:00 pm	Session 5
Thursday	9:00 am	Session 6
Thursday	2:00 pm	Session 7
Thursday	6:00 pm	<i>Cocktails and Banquet</i>
Friday		<i>Departure</i>

Oral presentation sessions are located in the CSHA Auditorium

Poster session is in the Lake Front Hall.

Cocktail social hour is held outside in the Suz Garden

Old Suzhou visits depart from the CSHA lobby

**optional tour requires additional fee.*

Meal locations and times are as follows:

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

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

Banquet: Suz Garden 7:00 pm

More information will be available at CSHA office.

(Map at the end of this abstract book)

PROGRAM

MONDAY, October 19—7:00 PM

SESSION 1

Chairperson: Fuchou Tang, Peking University, Beijing, China

KEYNOTE SPEAKER

Decoding human transcriptional factor footprints

Xiaoliang Sunney Xie. [35'+10']

Presenter affiliation: Changping Laboratory, Beijing, China; Peking University, Beijing, China.

1

Decode mosaic mutations in time and space—Detection of somatic point mutations directly from spatial transcriptomics enables in vivo spatiotemporal lineage tracing

Zhirui Yang, Mengdie Yao, Qing Yang, Jinhong Lu, Yanmei Dou. [15'+5']

Presenter affiliation: Westlake University, Hangzhou, China.

2

Decoding spatially resolved cell-cell communication at cellular resolution

Suogin Jin, Caiwei Zhen, Ye Su, Xiangzheng Cheng, Maksim V. Plikus, Lihua Zhang, Qing Nie. [15'+5']

Presenter affiliation: Wuhan University, Wuhan, China.

3

Launch of ASTRA—An attempt to generate a spatial catalogue of Asia-Pacific cancers

Yutaka Suzuki. [20'+10']

Presenter affiliation: The University of Tokyo, Kashiwa, Japan.

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SESSION 2

Chairperson: **Siyuan (Steven) Wang**, Yale University School of Medicine, New Haven, Connecticut

AI-powered histopathology—Dissecting the TME to predict patient response using spatial single-cell and H&E images

Sanghyuk Lee. [20'+10']

Presenter affiliation: Ewha Womans University, Seoul, South Korea. 5

Mapping and modeling cell landscapes at single-cell level

Guoji Guo. [20'+10']

Presenter affiliation: Zhejiang University School of Medicine, Hangzhou, China. 6

Building AI models for cells' spatial contexts

Xuegong Zhang, Lei Wei. [20'+10']

Presenter affiliation: Tsinghua University, Beijing, China. 7

Break

Single-cell tools to decode dynamic DNA chemical information across the lifespan

Dongsheng Bai. [15'+5']

Presenter affiliation: Center for Excellence in Molecular Cell Science, CAS, Beijing, China. 8

NicheForge enables pooled functional screening across interacting cell populations

Kai Huang, Chun Chu, Yifei Liu, Xiwen Li, Jiankun Liang, Kaosheng Lv, Xiaoshan Shi, Wanze Chen. [15'+5']

Presenter affiliation: Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China. 9

Spatial quantitative metabolomics and its application in biological research

Gangqi Wang. [15'+5']

Presenter affiliation: Fudan University, Shanghai, China. 10

Spatio-DARLIN enables robust and efficient in situ lineage tracing in mice at single-cell resolution

Jianing Gao, Zhanhao Zhang, Shou-Wen Wang, Li Li. [15'+5']

Presenter affiliation: Westlake Laboratory of Life Sciences and Biomedicine, Hangzhou, China; School of Life Sciences, Hangzhou, China. 11

Co-mapping Cell-Surface and intracellular RNAs to identify antitumor targets

Hu Zeng. [15'+5']

Presenter affiliation: Peking University, Beijing, China.

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TUESDAY, October 20—2:00 PM

POSTER SESSION

Spatial atlas of the ovary identifies molecular events in primordial follicle activation in humans

James Ashcroft.

Presenter affiliation: Wellcome Sanger Institute, Cambridge, United Kingdom.

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Integrated clinical and spatial transcriptomic characterization of MSI, MSI/EMAST, and MSS colorectal cancers in African American patients

Shweta Dixit, Hassan Brim, Khushi Desai, Elham Azizi, Hassan Ashktorab.

Presenter affiliation: Howard University, Washington, DC.

14

Developmental-like tumor cells orchestrate spatial immunosuppressive niche remodeling in metastasis

Junjia Zhu, Xuezhou Bai, Mengxin Tian, Yichi Xu, Zhaoqing Tang.

Presenter affiliation: Fudan University, Shanghai, China.

15

Spatially resolving tumour-cell identity and state during residual disease in an inducible HER2 breast cancer model

Yuchen Bai, Shom Goel.

Presenter affiliation: Peter MacCallum Cancer Center, Melbourne, Australia.

16

Multi-omics mapping of bisphenol-associated hippocampal vulnerability in Alzheimer's disease and hippocampal sclerosis

Mingkai Chang, Youzhe He, Yuyang Liu, Lifang Wang.

Presenter affiliation: University of Chinese Academy of Sciences, Beijing, China; BGI Research, Hangzhou, China.

17

In-situ virtual sequencing for whole mount tissue

Tianyi Chang, Peng Fei, Yanyi Huang.

Presenter affiliation: Peking University, Beijing, China.

18

Discrete denoising pre-training unifies generative modeling and representation learning for spatial transcriptomics

Mo Chen, Junjie Pang, Shaoshuai Li, Lei Wei, Xuegong Zhang, Qijin Yin.

Presenter affiliation: Tsinghua University, Beijing, China;
Zhongguancun Academy, Beijing, China.

19

From genome to spatial structure—Unveiling the KRAS AMP-driven drug resistance mechanism in high-grade serous carcinoma

Wengqing Chen, Jun Dai, Andreas Hainari, Matias M. Falco, Saundarya Shah, Anni Virtanen, Ulla-Majja Haltia, Anniina Färkkilä, Anna Vähärautio.

Presenter affiliation: University of Helsinki, Helsinki, Finland.

20

YETI—A benchmark-informed agentic framework for transcription factor footprinting

Jiaxiang Zhang, Mingbo Cheng, Jiecong Lin, Zhijian Li, Yajie Zhao.

Presenter affiliation: Changping Laboratory, Beijing, China.

21

Spatiotemporally resolved single-nucleus transcriptomics reveals cellular and regional vulnerability in the midbrain in Parkinson’s disease

Sooyeon Yoo, Kwanghoon Lee, Junseo Seo, Hwisoo Choi, Seong-Ik Kim, Junyoung Chang, Yu-Mi Shim, Junil Kim, Jae-Kyung Won, Sung-Hye Park.

Presenter affiliation: Soongsil University, Seoul, South Korea.

22

Decoding the enteric nervous system at single-cell and spatial resolution in Hirschsprung’s disease and hypoganglionosis

SungRyung Choi, Hyun-Young Kim, Murim Choi.

Presenter affiliation: Seoul National University College of Medicine, Seoul, South Korea; Seoul National University Hospital, Seoul, South Korea.

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Single-cell and spatial genome-plus-transcriptome analyses to understand cellular heterogeneity and cell competition in human embryogenesis with 3D MERFISH

Mengge Cui, Robin Van den Eynde, Christopher Van Hessche, David Wouters, Sergey Abakumov, Asier Antoranz Martinez, Emiel Geeraerts, Jelle Jacobs, Francesca Bosisio, Sophie Debrock, Wim Vandenberg, Alejandro Sifrim, Frederik De Smet, Peter Dedecker, Katy Vandereyken, Thierry Voet.

Presenter affiliation: KU Leuven, Leuven, Belgium.

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Virtual macrophage state-space modelling reveals conserved KLF4-regulon collapse across disease and species <u>Xuefei Guo</u> , Jinmeng Jia, Xuegong Zhang. Presenter affiliation: Tsinghua University, Beijing, China.	25
A single-cell atlas of human fetal adipogenesis reveals early establishment of depot-specific adipose identity <u>Yiming He</u> , Jie Qiao. Presenter affiliation: Peking University Third Hospital, Beijing, China; Peking University, Beijing, China.	26
Spatial profiling of muscle pathology in immune-mediated necrotizing myopathy <u>Soomin Hong</u> , Hyung Jun Park, Murim Choi. Presenter affiliation: Seoul National University College of Medicine, Seoul, South Korea.	27
Comparative analysis of the cellular landscapes of gastrointestinal stromal tumors from distinct anatomical sites using single-cell RNA sequencing <u>Rui Hou</u> , Xiaoduo Dong, XiaoLong Wang, CanHua Zhu, Peiwen Liu, Guangwei Shi, Xiwang Zheng, Chen Wang, Zhensheng Chen, Yankun Liu, Yuanqiao He, Junhua Cen, Chuanfeng Ke, Jimin Yuan, Zhijie Li, Jigang Wang. Presenter affiliation: Shenzhen People's Hospital, Shenzhen, China; The University of Western Australia, Nedlands, Australia.	28
Interaction eQTL mapping prioritizes PTGIS in human visceral adipose tissue <u>Jung Woo Hwang</u> , Cheongji Hwang, Junho Moon, SungHee Choi, Murim Choi. Presenter affiliation: Seoul National University College of Medicine, Seoul, South Korea.	29
From single-cell targets to drug response—Patient-derived HGSC organoids reveal differential ADC responses and acquired resistance <u>Joona Jäntti</u> , Kürsat Birgin, Anna Vähärautio, Anniina Färkkilä, Wenqing Chen. Presenter affiliation: University of Helsinki, Helsinki, Finland.	30
Senescence microenvironment of hair follicle stem cells and mechanism of hair regeneration <u>Jixiang Jia</u> , Jinfang Liu, Yanhui Zheng, Chunxue Zhang, Yi Even Sun. Presenter affiliation: Tongji University, Shanghai, China.	31

A longitudinal single-cell spatial atlas of trastuzumab deruxtecan response and resistance in gastric cancer Mitsuho Imai, <u>Soryung Jung</u> , Jiwoo Moon, Woong-Yang Park, Sanghyuk Lee, Takayuki Yoshino. Presenter affiliation: Ewha Womans University, Seoul, South Korea.	32
Single-cell spatial multi-omics profiling of ovarian cancer reveals “subsister cell” niches associated with clinical outcomes <u>Ada Junquera</u> , Sara Palomino-Echeverria, Nika Mikhailava, Matias M. Falco, Hanna Elomaa, Matilda Salko, Saundarya Shah, Maija Vääriskoski, Anni Härkönen, Anna Vähärautio, Mariike L. Kuijjer, Anniina Färkkilä. Presenter affiliation: University of Helsinki, Helsinki, Finland.	33
ESRRA mediates PNPLA3 rs738409 allele dose effect in the progression of MASLD <u>Jiwoo Kim</u> , Murim Choi. Presenter affiliation: Seoul National University, Seoul, South Korea.	34
Subclone-level analysis of FLOT resistance in gastric cancer using patient-derived organoids <u>Yeongjun Kim</u> , Vivian Mittné, Beatrix Jahnke, Franziska Baenke, Daniel E. Stange, Heetak Lee. Presenter affiliation: Institute for Basic Science (IBS), Center for Genome Engineering, Daejeon, South Korea; Kyung Hee University, Seoul, South Korea.	35
Single-cell immune landscape of the aged ovary <u>Nianyu Li</u> . Presenter affiliation: Shandong University, Jinan, China.	36
Spatial colocalization of neoantigen-expressing tumor cells and cognate T cells in cancer <u>Shugang Li</u> , Adi Nagler, Amit Sud, Jack Y. Ghannam, Kenneth J. Livak, Nir Hacohen, Fei Chen, Catherine J. Wu. Presenter affiliation: Dana Farber Cancer Institute, Boston, Massachusetts; Harvard Medical School, Boston, Massachusetts; Broad Institute, Cambridge, Massachusetts.	37
SpatialZoomer—Multi-scale feature analysis of spatial transcriptomics <u>Xinqi Li</u> , Yuhan Fan, Yue Han, Wenbo Guo, Jingmin Huang, Nan Yan, Zeyu Chen, Yanhong Wu, Yuxin Miao, Lin Hou, Xuegong Zhang, Zeyu Chen, Jin Gu. Presenter affiliation: Tsinghua University, Beijing, China.	38

Single-cell profiling reveals T-cell remodelling with reduced representation of a tissue-adapted CD8 T-cell state in paediatric nasal polyps <u>Youzherui Li</u> , Zichuan Liu, Yang Han, Zhaoyi Duan. Presenter affiliation: Tianjin University, Tianjin, China.	39
A biologically informed heterogeneous graph model for zero-shot pan-cancer prediction of immune checkpoint inhibitor response <u>Yuheng Liang</u> , Anish Sinha, Nona Farbehi, Reza Argha, Hamid Alinejad Rokny. Presenter affiliation: UNSW Sydney, Sydney, Australia.	40
Deciphering the functional impact of noncoding de novo variants in MECP2 mutation-negative Rett syndrome patients <u>Sohyun Lim</u> , Cho-Rong Lee, Jeongeun Lee, Jong-Hee Chae, Murim Choi. Presenter affiliation: Seoul National University, Seoul, South Korea.	41
Single-cell full-length newly synthesized RNA sequencing unveils RNA dynamics in allele-, isoform-, and strand-specific manner <u>Jun'e Liu</u> , Zonggui Chen, Yan Wang, Fuchou Tang. Presenter affiliation: School of Life Sciences, Beijing, China.	42
Single-cell omics of a scalable organoid platform uncovers critical cardiogenesis transitions <u>Honghao Ma</u> , Chenxi Yu, Mengjiao Ni, Minjie Tan, Yanxi Zhu, Tianming Zhang, Kui Han, Yuhong Pang, Yanyi Huang, Guanbo Wang, Chunhong Zheng. Presenter affiliation: Peking University, Beijing, China; Changping Laboratory, Beijing, China.	43
Single-nucleus and spatial transcriptomics reveal ERRy-centred cardiomyocyte state restoration by Danqi Tongxin decoction in myocardial ischaemia–reperfusion injury <u>Yirong Ma</u> , Yu Li, Jianguang Wu, Junyu Lai. Presenter affiliation: Jiangxi University of Chinese Medicine, Nanchang, China; Jiangxi Province Key Laboratory of Cardiovascular Diseases of Chinese Medicine, Nanchang, China.	44
Single-nucleus transcriptomic landscape of juvenile dermatomyositis muscle <u>Hyunchae Moon</u> , Hwajin Choi, Jinsook Lee, Jonghee Chae, Seunghee Hong, Murim Choi. Presenter affiliation: Seoul National University, Seoul, South Korea.	45

ABCT—A cell type annotation tool for in situ spatial single-cell data based on anchor cells of marker genes <u>Jiwoo Moon</u> , Jiwon Yu, Soryung Jung, Eun Seop Seo, Woong-Yang Park, Sanghyuk Lee. Presenter affiliation: Ewha Womans University, Sciences Seoul, South Korea.	46
Cross-species intestinal organoids for comparative vertebrate stem cell and infection biology Sujin Park, <u>Youngchul Oh</u> , Sangmin Lee, Thomas M. Klompstra, Jeongmin Ha, Young-Woong Kim, Hyo-Yeong Oh, Yeongjun Kim, Ohbin Kwon, Ki-Jun Yoon, Ho-Seok Lee, Jong Kyoung Kim, Ji-Hyun Lee, Hyunjoon Kim, Young Ki Choi, Bon-Kyoung Koo, Heetak Lee. Presenter affiliation: Institute for Basic Science, Daejeon, South Korea; Pohang University of Science and Technology (POSTECH), Pohang, South Korea.	47
NeuroHERV—Characterization of endogenous retrovirus expression in Alzheimer’s disease <u>Ninoslav Pandiloski</u> , Johan Jakobsson. Presenter affiliation: Lund University, Lund, Sweden.	48
A heart cell atlas reveals cell-type diversity enabling prediction of disease severity and drug response <u>Jiyeon Park</u> , Heeseon Jo, Taegyu Woo, Chaewon Kim, Cherin Lee, Junyoung Kim, Hyeonkyu Kim, Inuk Jung, Haeseung Lee, Junil Kim. Presenter affiliation: Soongsil University, Seoul, South Korea.	49
Mapping multicellular immune architecture and molecular programs in ovarian cancer via spatial multi-omics <u>Aleksandra Shabanova</u> , Iga Niemiec, Elias Ruuska, Zhihan Liang, Saundarya Shah, Ada Junquera, Ziqi Kang, Maija Tissarinen, Anni Virtanen, Matilda Salko, Ulla-Maija Haltia, Anniina Färkkilä. Presenter affiliation: University of Helsinki, Helsinki, Finland.	50
3D bioprinting of bio-orthogonally crosslinked microporous scaffolds using monodisperse hydrogel microparticles enables mechanotransduction analysis <u>Xinyang Shao</u> , Yifan Wang, Zhizhao Liao, Chunhong Zheng, Guanbo Wang, Yanyi Huang. Presenter affiliation: Peking University, Beijing, China.	51

Prediction of transcription factor DNA binding affinity with high-throughput Kd measurements and deep learning

Zhi Wang, Di Wang, Ke Shen, Junchen Luo, Xinyao Wang, Nan Wu, Yunzhi Lang, Xiangyu Wang, Jun Ren, Wenyang Dong, Lu Pan, Yitong Lyu, Gang Li, Dubai Li, Chen Xie, Zhen Zhang, Shijun Yu, Liuying Shan, Nannan Zhang, Jian Yan, Mingchen Chen, Xiaoliang Sunney Xie.

Presenter affiliation: Changping Laboratory, Beijing, China; Peking University, Beijing, China.

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Predicting pre-treatment resistance or post-treatment effect? A systematic benchmarking of single-cell drug response models

Li Shen, Xinliang Sun, Shuyu Zheng, Ali Hashmi, Johanna Eriksson, Harri Mustonen, Bairong Shen, Min Li, Markus Vähä-Koskela, Jing Tang.

Presenter affiliation: University of Helsinki, Helsinki, Finland.

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A single-cell screening approach to explore structure and function of the ribosome

Anna van Oudenaarden, Kseniia Sarieva, Michael VanInsberghe, Euan Joly-Smith, Alexander van Oudenaarden.

Presenter affiliation: Hubrecht Institute, Utrecht, the Netherlands.

54

A whole-embryo cell kinematic equation for the morphogenetic reproducibility of an animal

Jianguo Wang, Long Xiao, Miaoling Yang, Zeqi Yao, Shanjun Deng, Zhuo Du, Xionglei He.

Presenter affiliation: Sun Yat-sen University, Guangzhou, China.

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Single-cell transcriptomics identifies a mechanosensitive macrophage state for selective anti-fibrotic drug discovery

Jin Wang.

Presenter affiliation: Capital Medical University, Beijing, China.

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Confounder-robust quantification of single-cell perturbation responses with CRANE

Jun Cao, Audrey Fu, Xiaoyue Wang.

Presenter affiliation: Peking Union Medical College Hospital, Beijing, China.

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Tracing transcription factor activation history to unravel chemotherapy resistance in HGSC

Yafei Wang, Joonas Jäntti, Rene Wong, Jun Dai, Matias M. Falco, Anna Vähärautio.

Presenter affiliation: University of Helsinki, Helsinki, Finland.

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Linking cell-type-defined cis-regulatory elements to the genetic architecture of psychiatric disorders <u>Yini Wang</u> , Weijie Shan, Songpeng Zu. Presenter affiliation: Fudan University, Shanghai, China.	59
Asymmetric mRNA partitioning generates cell-type diversity in a spiralian embryo <u>Yiqun Wang</u> , Bogdan Bintu, Deirdre Lyons. Presenter affiliation: University of California San Diego, La Jolla, California.	60
Three-dimensional spatial reconstruction and quantitative analysis of TP53 mutant clonal architecture from serial skin sections <u>Song Wen</u> , Sofie Hoogstoel, Eden Pappaert, Jimmy V. Eynden. Presenter affiliation: Ghent University, Ghent, Belgium.	61
Single-cell multiomic lineage tracing reveals non-genetic determinants of treatment adaptation in ovarian cancer <u>Rene Wong</u> , Joonas Jantti, Jun Dai, Matias M. Falco, Yafei Wang, Anna Vähärautio. Presenter affiliation: University of Helsinki, Helsinki, Finland.	62
Spatial and functional mapping of the human pancreas reveals endocrine and exocrine cell states in health and metabolic disease <u>Yike Xie</u> , Sandra Postic, David Pereyra, Roberta Ferrara, Alana Mullins, Johannes Pfabe, Mercedes Dalman, Kajsa Hallin, Sofie Ingvast, Nancy Smith, Marta Gironella-Torrent, Patrick P. Starlinger, Lorella Marselli, Piero Marchetti, Patrick E. MacDonald, Marjan S. Rupnik, Olle Korsgren, Joan Camunas-Soler. Presenter affiliation: University of Gothenburg, Gothenburg, Sweden.	63
scLinkedMethylome—A contiguity-preserving single-cell DNA methylome sequencing method <u>Xiaohui Xue</u> , Kexuan Chen, Xinjie Su, Fuchou Tang. Presenter affiliation: Biomedical Pioneering Innovative Center, Beijing, China; Peking-Tsinghua Center for Life Sciences, Beijing, China.	64
Spatiotemporal and lineage tracing of osteosarcoma progression reveals a directional fate locking toward a pro-metastatic niche <u>Yan Xue</u> , Joshua W.K. Ho Presenter affiliation: The University of Hong Kong, Hong Kong, China.	65

Integrating spatial transcriptomics and genetic variation to resolve context-dependent regulatory effects in MASLD

Hyojin Yeon, Won Kim, Murim Choi.

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

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HoloCell—A generative foundation model for holistic cellular modeling

Qun Jiang, Zhen Li, Bowen Hu, Yunlong Bie, Keyi Li, Qiuyi Li, Peiran Jin, Yuan He, Pan Deng, Zengyi Wang, Xiaoyang Chen, Tao Qin, Haiguang Liu, Rui Jiang, Qijin Yin.

Presenter affiliation: Zhongguancun Academy, Beijing, China.

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Single-cell spatial transcriptomics reveals microenvironmental remodeling associated with resistance to nivolumab and ipilimumab in rectal cancer

Hideaki Bando, Shogo Kumagai, Jiwon Yu, Sanghyuk Lee, Woong-Yang Park, Takayuki Yoshino.

Presenter affiliation: Ewha Womans University, Seoul, South Korea.

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IFN- γ from CXCL13⁺ CD4 T cells drives CXCL10⁺ TAM reprogramming and mediates immunotherapy benefits in head and neck squamous cell carcinoma

Xu Zhang, Leilie Yang.

Presenter affiliation: Zhengzhou University, Zhengzhou, China.

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Transposase acting on an RNA/DNA hybrid in strand-specific sequencing

Shihui Zhao, Yanyi Huang, Chunhong Zheng.

Presenter affiliation: Peking University, Beijing, China.

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Anti-CD19 CAR-T therapy triggers clonal immune reset and resolution of vascular-fibrotic niches in systemic sclerosis

Zhangyi Zhao, Chenhan Jia, Fenglin Wu, Wanyi Lin, Yuankai Sun, Chang Wei, Zhe Ding, Hanyu Hu, Bingling Liu, Chaoyu Gu, Xuesong Liu, Shaoying Yang, Chunyan Zhang, Bin Li, Liangjing Lu, Hanlin Yin.

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

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Characterising the ovarian ascites ecosystem at single-cell resolution by imaging over 80 protein markers per cell

Ye Zheng, Timothy Mann, Daniel Neumann, Kristina Warton, Caroline Ford, Therese Becker, John Lock.

Presenter affiliation: University of New South Wales, Sydney, Australia.

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MeSIT enables scalable single-cell methylome–transcriptome co-profiling and targeted methylation sequencing

Jingran Zhuo, Fabian Takacs, Siyuan Luo, Federico Ansaloni, Kaisu Hiltunen, Guillermo Tellez, Joao P.A. de Sousa, Ori Bar-Nur, Ferdinand von Meyenn.

Presenter affiliation: ETH Zurich, Zurich, Switzerland.

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TUESDAY, October 20—7:00 PM

SESSION 3

Chairperson: **Woong-Yang Park**, Samsung Medical Center, Seoul, South Korea

Developmental original of adult inhibitory circuits—AI-resolved spatial transcriptomic insights

Mengdi Wang, Rongzhi Wang, Mayueqing Li, Qian Wu, Suijuan Zhong, Xiaoqun Wang. [20'+10']

Presenter affiliation: Beijing Normal University, Beijing, China.

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Learning cellular organization and function across scales

Jian Ma. [20'+10']

Presenter affiliation: Carnegie Mellon University, Pittsburgh, Pennsylvania.

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In vivo multimodal mapping of mammalian development by single-cell barcoding

Chenyu Guo, Junyao Jiang, Xiaomin Wang, Yanxiao Zhang, Duanqing Pei, Weike Pei. [15'+5']

Presenter affiliation: Westlake University, Hangzhou, China.

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Decoding and targeting tumor spatial ecosystems through computational spatial biology

Bin Duan. [15'+5']

Presenter affiliation: Shanghai Jiao Tong University, Shanghai, China.

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High-resolution tracking of antigen-specific b cell memory via single-cell multi-omics and computational modeling

Fan Yang, Ding Chao, Kai Cui. [15'+5']

Presenter affiliation: Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China.

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Recovering tumor–immune cell interactions and tumor-reactive TCRs from discarded doublets in droplet-based single-cell RNA sequencing

Gong Wang, Xiaojing Zhao, Daimo Li, Liye Zhang. [15'+5']
Presenter affiliation: ShanghaiTech University, Shanghai, China. 79

RegVelo-guided perturbation reveals redundancy among ETS regulators in cranial neural crest development

Zhiyuan Hu, Yanbo Xu, Sarah Mayes, Weixu Wang, José M. Santos-Pereira, Zhenna Jiao, Fabian Theis, Tatjana Sauka-Spengler. [15'+5']
Presenter affiliation: Medical Research Institute, Wuhan, China; MRC Weatherall Institute of Molecular Medicine, Oxford, United Kingdom. 80

WEDNESDAY, October 21—9:00 AM

SESSION 4

Chairperson: **Thierry Voet**, University of Leuven, Leuven, Belgium

Single-cell inference of structural states of ribosomes

Euan Joly-Smith, Michael VanInsberghe, Kseniia Sarieva, Eugenio Marinelli, Alexander van Oudenaarden. [20'+10']
Presenter affiliation: Hubrecht Institute, Utrecht, the Netherlands. 81

Integrating spatial multiomics with label-free imaging reveals 3D genome remodeling around amyloid plaques in Alzheimer's disease

Tianyang Xu, Zhiliang Bai, Yajuan Li, Junchen Chen, Lingyan Shi, Ming Hu, Rong Fan, Sheng Zhong. [20'+10']
Presenter affiliation: Westlake University, Hangzhou, China. 82

Single cell omics sequencing technologies—The long-read generation

Fuchou Tang. [20'+10']
Presenter affiliation: Biomedical Pioneering Innovation Center, Beijing, China. 83

Break

Sequencing-free whole genome spatial transcriptomics at molecular resolution in intact tissue

Yubao Cheng, Shengyuan Dang, Yuan Zhang, Yanbo Chen, Ruihuan Yu, Miao Liu, Shengyan Jin, Ailin Han, Samuel Katz, Siyuan Wang. [20'+10']
Presenter affiliation: Yale University, New Haven, Connecticut. 84

Spatial architecture of immune checkpoint blockade resistance ecosystems in NSCLC <u>Woong-Yang Park</u> , Yeong Hak Bang, Ji Hye Choi. [20'+10'] Presenter affiliation: Geninus Inc., Seoul, South Korea; Sungkyunkwan University School of Medicine, Seoul, South Korea.	85
Reconstructing tissue dynamics and enabling in silico perturbation from spatial omics multi-modal data <u>Chunman Zuo</u> . [15'+5'] Presenter affiliation: Sun Yat-sen University, Guangzhou, China.	86
FOODIE maps transcription factor occupancy during early mouse development <u>Fangnong Lai</u> , Yuxuan Pang, Muhong Xu, Jingzhi Zhang, Runsheng He, Yuan Yuan, Shuang Liu, Xuechen Zhao, Yinghui Zheng, Chunxian Yang, Ke Shen, Gang Li, Chen Xie, Fuchou Tang, Xiaoliang Xie. [15'+5'] Presenter affiliation: Peking University, Beijing, China; Changping Laboratory, Beijing, China.	87

WEDNESDAY, October 21—1:30 PM

Visit to Old Suzhou

WEDNESDAY, October 21—7:00 PM

SESSION 5

Chairperson: Guoji Guo , Zhejiang University School of Medicine, Hangzhou, China	
Mapping the rules of glioblastoma using single cell and spatial genomics <u>Omer A. Bayraktar</u> . [20'+10'] Presenter affiliation: Wellcome Sanger Institute, Hinxton, United Kingdom; UCL Cancer Institute, London, United Kingdom.	88
<u>Shyam Prabhakar</u> [20'+10'] Presenter affiliation: Genome Institute of Singapore, Singapore	
Ultrahigh-plex sub-cellular in situ RNA quantification and imaging <u>Yanyi Huang</u> . [20'+10'] Presenter affiliation: Peking University, Beijing, China.	89

Integrative profiling of multimodal spatial omics—Co-registration and deep characterization

Fangqing Zhao. [20'+10']

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

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Synchronized //in situ// amplification enables high-plex protein imaging from cells to deep tissues

Kuanwei Sheng, Hanquan Su, Gokul Gowri, Maxwell Furman, Matthew Serrata, Lili Du, Charlotte Goerge, Michel Nofal, Ryan McMillan, Kaibo Ma, Xiaokang Lun, Hiroshi Sasaki, Jiyoun Jeong, Peng Yin. [15'+5']

Presenter affiliation: Harvard University, Boston, Massachusetts; Harvard Medical School, Boston, Massachusetts.

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Spatial imaging identifies a CXCL13⁺ Th1-macrophage niche associated with PD-1 response in colorectal cancer

Yu Zhang, Hu Nie, Zixuan Dai, Liying Zhao, Yihong Wan, Lei Zhang. [15'+5']

Presenter affiliation: Shenzhen Bay Laboratory, Shenzhen, China; Peking University Shenzhen Graduate School, Shenzhen, China.

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THURSDAY, October 22—9:00 AM

SESSION 6

Chairperson: **Fangqing Zhao**, Beijing Institutes of Life Science, CAS, Beijing, China

Activation of transposable elements in Parkinson's disease

Johan Jakobsson. [20'+10']

Presenter affiliation: Lund University, Lund, Sweden.

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Integrating spatial transcriptomics and proteomics to explore cancer tissue ecosystems

Masataka Amisaki. [20'+10']

Presenter affiliation: National Cancer Center Japan, Chiba Prefecture, Japan.

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Towards a causal map of human cell-state dynamics

Jong-Eun Park. [20'+10']

Presenter affiliation: KAIST, Daejeon, South Korea.

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Break

Oncofetal spatial biology—A new framework for biomarker-driven oncology trials

Ankur Sharma. [20'+10']

Presenter affiliation: Garvan Institute of Medical Research,
Darlinghurst, Australia. 96

Linking disease-associated variants to function in neurons

Yin Shen. [20'+10']

Presenter affiliation: University of California, San Francisco, California. 97

Towards generalizable sequence-to-function AI for human brain regulatory genomics

Songpeng Zu. [15'+5']

Presenter affiliation: Fudan University, Shanghai, China. 98

Single cell genome and transcriptome co-profiling uncovers esophageal cancer evolution and plasticity

Rui Ye, Chia Hsin Lin, Emi Sei, Shanshan Bai, Jianzhuo Li, Chenling Tang, Tuan Tran, Steven H. Lin, Kaile Wang, Nicholas Navin. [15'+5']

Presenter affiliation: UT MD Anderson Cancer Center, Houston, Texas; Center for Excellence in Molecular Cell Science, CAS, Shanghai, China. 99

THURSDAY, October 22—2:00 PM

SESSION 7

Chairperson: **Ankur Sharma**, Garvan Institute of Medical Research,
Darlinghurst, Australia

Single-cell and spatial multi-omics to understand human cell biology from embryogenesis to aging and disease

Thierry Voet. [20'+10']

Presenter affiliation: KU Leuven, Leuven, Belgium; LISCO, Leuven, Belgium. 100

Human T2T pangenome reveals inheritance and epigenetic reprogramming of individual human centromeres

Ting Wang. [20'+10']

Presenter affiliation: Washington University School of Medicine, St. Louis, Missouri. 101

Nondisruptive nanoneedle sampling for spatiotemporal omics of living tissues

Ciro Chiappini. [20'+10']

Presenter affiliation: King's College London, London, United Kingdom;
King' College London, London, United Kingdom.

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Break

Spatial-ATAC-hi-C—Co-profiling chromatin architecture and accessibility in mammalian tissues

Ping Wang, Juan Wang, Qixuan Wang, Mark W. Youngblood, Yang Cheng, Bo Tao, Josiah Hiu-Yuen Wong, Yu Luan, Shaojun Yu, Alok Swaroop, Khizar R. Nandoliya, Hinda Najem, Yihao Fu, Kathleen McCortney, Di Zhang, Yarui Diao, Amy B. Heimberger, Adam M. Sonabend, Craig M. Horbinski, Rong Fan, Feng Yue. [20'+10']

Presenter affiliation: Northwestern University, Chicago, Illinois.

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Understanding genetic origin of human disease heterogeneity

Murim Choi. [20'+10']

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

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Predicting functional transcriptional regulators from single-cell and spatial omics data

Hongpan Zhang, Jingyi Wang, Lei Kang, Katherine Zhang, Kathleen P. Liang, Zhenjia Wang, Kexin Xu, Chongzhi Zang. [15'+5']

Presenter affiliation: University of Virginia, Charlottesville, Virginia.

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Placental invasion and maternal tissue remodeling in tubal ectopic pregnancy revealed by spatial transcriptomics

Erick Armingol, Ana Paredes, Christina Kim, Cecilia Icoresi-Mazzeo, Agnes Oszlanczi, Kenny Roberts, Ambra Buonaguidi, Elena Otero-Romero, Brian Rous, Luz García-Alonso, Miriam Baumgarten, Roser Vento-Tormo. [15'+5']

Presenter affiliation: Wellcome Sanger Institute, Cambridge, United Kingdom.

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Cell type-specific dysregulation of transposable element expression and somatic repeat instability in Huntington's disease

Giorgia Tosoni, Sophie Field, Jenny Johansson, Laura Castilla Vallmanya, Roger Barker, Johan Jakobsson. [15'+5']

Presenter affiliation: Lund University, Lund, Sweden.

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THURSDAY, October 22—7:00 PM

COCKTAILS and BANQUET

FRIDAY, October 23

Departure