

# Human Genetics and Genomics: Maximizing Power to Address Complexity and Human Health

Oct 9-11, 2024 (Wed-Fri)  
Regent Beijing, 99 Jinbao Street, Dongcheng District, 100005, China

## Program

Oct 9 <sup>th</sup> (Wed)		
12:00	13:00	Registration Check-in 2 <sup>nd</sup> Floor, Regent & Lunch 3 <sup>rd</sup> Floor, Regent
13:00	14:40	<b>Opening Ceremony</b> Ballroom, 2 <sup>nd</sup> Floor, Regent <b>Jianwei Wang</b> Vice President of the Chinese Academy of Medical Sciences and Peking Union Medical College (CAMS & PUMC)
13:00	13:15	<b>Welcome Remarks</b> <b>Xuetao Cao</b> Professor and Director, Center for Immunotherapy, Chinese Academy of Medical Sciences, Member of the Chinese Academy of Engineering, Beijing, China
<b>Keynote Lecture</b>		
13:15	13:55	Single Cell Genomics: Technological Revolution, Scientific Advance and Medical Applications <b>Xiaoliang Sunney Xie</b> Changping Laboratory, Peking University, Beijing, China
13:55	14:35	Statistical Genetics Elucidates Disease Biology, Personalized Medicine, and Drug Discovery <b>Yukinori Okada</b> University of Tokyo, Osaka University Graduate School of Medicine, RIKEN Center for Integrative Medical Sciences, Osaka, Japan
14:35	14:40	Venue Photo
14:40	17:20	<b>Session 1: Human Genetics and Biobanks (Complex Traits and Diversity)</b> <b>Chair:</b> Michelle Trenkmann, <i>Nature</i> Xiaoliang Sunney Xie, Changping Laboratory
14:40	15:10	Harnessing the Power of Genetic Diversity in African Populations <b>Michèle Ramsay</b> University of the Witwatersrand, Johannesburg, South Africa

15:10	15:20	<b>Flash Talk 1:</b> Genomic Complexity in Humans: Genetic Diversity, Evolutionary Origins, and Functional Implications Yafei Mao Shanghai Jiao Tong University, Shanghai, China  <b>Flash Talk 2:</b> Decoding the Genetic Basis of Abdominal Aortic Aneurysm Cuiping Pan Greater Bay Area Institute of Precision Medicine, Guangzhou, China
15:20	16:10	Coffee Break and Posters Review
16:10	16:30	Cross-ancestry Genome-wide Association Study Augments Genetic Insights and Clinical Potentials for Refractive Error  <b>Jian Yang</b> Westlake University, Hangzhou, China
16:30	16:50	Beyond Continental Groups: Unveiling Dynamic Human Genetic Communities with a Novel Network Analysis Pipeline  <b>Mashaal Sohail (Online)</b> National Autonomous University of Mexico, Mexico
16:50	17:20	The Born in Guangzhou Cohort Study Enables Generational Genetic Discoveries  <b>Xiu Qiu</b> Guangzhou Women and Children's Medical Center, Guangzhou, China
18:00	19:00	Reception Dinner 3 <sup>rd</sup> Floor, Hua's Restaurant, Macau Center Wangfujing
<b>Oct 10<sup>th</sup> (Thu)</b>		
09:00	11:20	<b>Session 2: Emerging Technologies in Sequencing, Variation Detection and Analysis</b>  <b>Chair:</b> Lin Tang, <i>Nature Methods</i> Yanyi Huang, PKU
09:00	09:30	Single-Cell & Spatial Omics from Ice Age to Space Adventure  <b>Rong Fan</b> Yale University, New Haven, USA
09:30	09:50	AI-empowered Spatial Transcriptomics and Precision Pathology  <b>Mingyao Li</b> University of Pennsylvania Perelman School of Medicine, Philadelphia, USA

09:50	10:00	<b>Flash Talk 3:</b> Simultaneous Mapping of 3D Genome Structure and Chromatin Modification in Single Cells Jiankun Zhang Changping Laboratory, Beijing, China	
		<b>Flash Talk 4:</b> Measuring the Impact of Every Single Coding Variant on Human Hemoglobin Protein Stability Through Deep Mutational Scanning (DMS) Xiaoyan Jia Greater Bay Area Institute of Precision Medicine, Guangzhou, China	
10:00	10:30	Coffee Break and Posters	
10:30	11:00	Multiplexed Profiling of RNA in-situ Through Single-Round of Imaging in Three-Dimensional Tissue <b>Yanyi Huang</b> Peking University, Beijing, China	
11:00	11:20	Genomics and Microfluidics Technology for Life Sciences Research <b>Angela Wu</b> Hong Kong University of Science and Technology, Hongkong, China	
11:20	11:40	Genetic Diversity and the Pangenome Reference 2.0 of Chinese Populations <b>Shuhua Xu</b> Chinese Pangenome Consortium (CPC) , Fudan University, Shanghai, China	
12:00	14:00	<b>Student Mentor Session/Lunch</b> 3 <sup>rd</sup> Floor, Regent  <b>Mentor:</b> Michèle Ramsay, Wits University      Yanyi Huang, PKU Rong Fan, Yale      Mia Petljak, NYU Mingyao Li, UPenn      Xiu Qiu, BGCS Safia Danovi, <i>Nature Genetics</i> Lin Tang, <i>Nature Methods</i>	
14:30	17:45	<b>Session 3: Genomic Medicine and PRS</b> <b>Chair:</b> Margot Brandt, <i>Nature Communications</i> Xiaoqun Wang, Chinese Academy of Sciences	
14:30	14:50	Spatial Transcriptome Reveals the Region-specific Genes and Pathways in Neocortical Development <b>Xiaoqun Wang</b> Institute of Biophysics, Chinese Academy of Sciences, Beijing, China	

14:50	15:20	<p>Genome-First Cardiovascular Medicine</p> <p><b>Pradeep Natarajan</b> Massachusetts General Hospital, Harvard Medical School, Boston, USA</p>
15:20	15:30	<p><b>Flash Talk 5:</b> Deciphering Immune Predictors of Immunotherapy Response: a Multiplication Approach at the Pan-cancer Xuexin Li China Medical University</p> <p><b>Flash Talk 6:</b> TP53 Biallelic Loss Evades Immune Activation Through RNA Splicing to Promote Esophageal Cancer Development Tao Xiang Chinese Academy of Medical Sciences and Peking Union Medical College</p>
15:30	16:00	Coffee Break and Posters
16:00	16:30	<p>Founder Variants in Arabia: Catalysts of Precision Medicine and Beyond</p> <p><b>Fowzan Sami Alkuraya</b> King Faisal Specialist Hospital, Alfaisal University, Riyadh, Kingdom of Saudi Arabia</p>
16:30	16:50	<p>Translational Genomics of Complex Disease</p> <p><b>Eleftheria Zeggini</b> Helmholtz Munich, Technical University Munich School of Medicine, Munich, Germany</p>
16:50	17:30	<p><b>Panel Discussion: Challenges and Benefits of Data Sharing</b></p> <p><b>Moderator:</b> Michelle Trenkmann, <i>Nature</i></p> <p><b>Panelists:</b> Shuhua Xu, FDU Fan Bai, PKU Eleftheria Zeggini, Helmholtz Michèle Ramsay, Wits University</p>
17:30	17:45	<p><b>Poster Prize Award</b></p> <p><b>Presenter:</b> Margot Brandt, <i>Nature Communications</i> Safia Danovi, <i>Nature Genetics</i> Lin Tang, <i>Nature Methods</i> Michelle Trenkmann, <i>Nature</i> Chen Wu, CAMS</p>
18:30	20:00	<p>Speaker Dinner 3<sup>rd</sup> Floor, Regent</p>

Oct 11 <sup>th</sup> (Fri)		
09:00	11:45	<b>Session 4: Cancer Genomics (Single-cell, Spatial etc.)</b> <b>Chair:</b> Safia Danovi, <i>Nature Genetics</i> Chen Wu, CAMS
09:00	09:30	Towards the Holistic Understanding of the Tumor Microenvironment and Its Impact on Immunotherapies <b>Zemin Zhang</b> Peking University, Beijing, China
09:30	09:50	Deep Whole Genome Analysis of 494 Hepatocellular Carcinomas <b>Fan Bai</b> Peking University, Beijing, China
09:50	10:00	<b>Flash Talk 7:</b> Understanding Tumor Evolution in Hepatocellular Carcinoma Through a Multi-omic Approach Weiwei Zhai Institute of Zoology (IoZ), Chinese Academy of Sciences, Beijing, China <b>Flash Talk 8:</b> Squamous Cell Carcinoma Resistant to Chemotherapy by Evolving Toward a Hybrid Squamous Differentiation State Shaosen Zhang National Cancer Center /Cancer Hospital, Chinese Academy of Medical Sciences (CAMS) and Peking Union Medical College (PUMC), Beijing, China
10:00	10:30	Coffee Break and Posters
10:30	11:00	Spatial Clonal Evolution within Three-Dimensional Tumor Structures <b>Li Ding</b> Washington University, Washington, USA
11:00	11:20	Dissecting Origins and Activities of Mutagenic Processes in Cancer Using Their Mutational Signatures <b>Mia Petljak</b> New York University, New York, USA
11:20	11:40	Dynamic Genomic and Cellular Alterations During Multi-step Cancer Development <b>Chen Wu</b> Cancer Hospital, Chinese Academy of Medical Sciences
11:40	11:45	<b>Closing Remarks</b> <b>Chen Wu</b>
12:00	13:00	Lunch 3 <sup>rd</sup> Floor, Regent