

Abstracts of papers presented
at the 2025 Cold Spring Harbor Asia Conference

YEAST AND LIFE SCIENCES

June 2–June 6, 2025

Arranged by

Brenda Andrews, *University of Toronto*

Marco Foiani, *The FIRC Institute of Molecular Oncology*

Daochun Kong, *Peking University*

Hisao Masai, *Tokyo Metropolitan Institute of Medical Science*

Frank Uhlmann, *The Francis Crick Institute*



Cold Spring Harbor Conferences Asia
Cold Spring Harbor Laboratory



YEAST AND LIFE SCIENCES
Monday, June 2 – Friday, June 6, 2025

Monday	7:00 pm	1 Keynote Session
Monday	8:45 pm	2 Synthetic Biology
Tuesday	9:00 am	3 Genomics
Tuesday	2:00 pm	Poster Session
Tuesday	3:00 pm	<i>Chinese Tea and Beer Tasting</i>
Tuesday	7:00 pm	4 Centromere, Cohesion and Heterochromatin
Wednesday	9:00 am	5 Replication
Wednesday	10:45 am	6 Repair
Wednesday	1:30 pm	<i>Visit to Old Suzhou</i>
Wednesday	7:00 pm	7 Stress Responses, Transcription
Thursday	9:00 am	8 Membrane
Thursday	2:00 pm	9 Human Diseases and Aging
Thursday	3:15 pm	10 Evolution
Thursday	5:30 pm	<i>Cocktails and Banquet</i>
Friday	9:00 am	11 New Technology

Oral presentation sessions are located in the CSHA Auditorium
Poster session and Chinese Tea & Beer Tasting are 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 12:00pm - 1:30pm
Dinner: Main Cafeteria 6:00pm - 7:30pm
Banquet: Suz Garden 6:30pm

More information will be available at CSHA office.
(Map at the end of this abstract book)

PROGRAM

MONDAY, June 2—7:00 PM

SESSION 1 KEYNOTE SESSION

Chairperson: Daochun Kong, Peking University, Beijing, China

Resolution of telomere entanglements—A cytoplasmic mystery with a Top2 twist

Rishi K. Nageshan, Thomas Germe, Julia Promisel Cooper [40'+10']
Presenter affiliation: University of Colorado Anschutz Medical Campus, Aurora, Colorado.

1

When 1+1 is 1—Controls and architecture of the actin fusion focus condensate

Sophie G. Martin [40'+10']
Presenter affiliation: University of Geneva, Geneva, Switzerland.

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MONDAY, June 2—8:45 PM

SESSION 2 SYNTHETIC BIOLOGY

Chairperson: Patrick Yizhi Cai, The University of Manchester, Manchester, United Kingdom

Engineering neochromosomes in yeast

Patrick Yizhi Cai [20'+5']
Presenter affiliation: The University of Manchester, Manchester, United Kingdom.

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Sc3.0—Revamping and minimizing the yeast genome

Junbiao Dai [20'+5']
Presenter affiliation: Agricultural Genomics Institute at Shenzhen, Shenzhen, China.

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TUESDAY, June 3—9:00 AM

SESSION 3 GENOMICS

Chairpersons: **Brenda Andrews**, University of Toronto, Toronto, Canada
 Marco Foiani, IFOM, Milan, Italy

Cascades of subcellular morphology changes resolved through single-cell phenomics of cells with perturbed essential gene function

Brenda J. Andrews [30'+5']

Presenter affiliation: University of Toronto, Toronto, Canada.

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The genetic landscape of a human cell reveals conserved topology and principles of genetic networks

Charles M. Boone [30'+5']

Presenter affiliation: University of Toronto, Toronto, Canada.

6

Topological landscape of the yeast genome

Marco Foiani [30'+5']

Presenter affiliation: IFOM, Milan, Italy; IGM, Pavia, Italy; CSI-NUS, Singapore.

7

The genomic making of yeast metabolic diversity

Chris T. Hittinger [30'+5']

Presenter affiliation: University of Wisconsin-Madison, Madison, Wisconsin.

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TUESDAY, June 3—2:00 PM

SESSION 3 POSTER SESSION

Growth-division coupling is related to respiration mode dictated by given carbon sources in eukaryotic cells

Le Li, Hao Dong, Haojie Li, Kai Li, Xiaojing Yang, Chao Tang

Presenter affiliation: Peking University, Beijing, China.

9

Studies on the biosynthesis of nitrogen signaling factors that mediate cell-cell communication in *Schizosaccharomyces pombe*

Huanlin Li, Masaya Usui, Hiroaki Matoba, Go Hirai, Ryo Takita, Minoru Yoshida, Yoko Yashiroda

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

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Global centromere dismantlement by Spo11 and Rec8 in meiosis <u>Ying Liu</u> , Haitong Hou Presenter affiliation: Jiangnan University, Wuxi, China.	11
MelP—A sensitive method for capturing transient DNA-protein interactions in fission yeast Guochen Dong, <u>Li Sun</u> , Haitong Hou Presenter affiliation: Jiangnan University, Wuxi, China.	12
Mechanism of PPR protein-dependent regulation of cellular lifespan via the Sty1 MAPK signaling pathway in <i>Schizosaccharomyces pombe</i> mitochondria <u>Yuhan Zeng</u> , Tingting Li, Zecheng Liu Presenter affiliation: Hubei University of Medicine, Shiyan, China.	13
Nud1p acts as the key determinant of yeast spindle pole body inheritance during meiosis <u>Kai Zhang</u> , Rolf Sternglanz, Aaron M. Neiman Presenter affiliation: Stony Brook University, Stony Brook, New York.	14
Shugoshin holds the potential to inhibit APC/C and thereby prevents separase activation <u>Ke Zhang</u> , Yoshinori Watanabe Presenter affiliation: Jiangnan University, Wuxi, China.	15
Novel roles of chromatin remodelers in xylose metabolism and acetic acid stress tolerance in budding yeast <i>Saccharomyces cerevisiae</i> Wei-Bin Wang, Bing Yuan, <u>Xin-Qing Zhao</u> Presenter affiliation: Shanghai Jiao Tong University, Shanghai, China.	16
A new cis-acting element of alcohol oxidase 1 promoter in <i>Komagataella phaffii</i> <u>Ziwei Zhou</u> , Jianguo Zhang Presenter affiliation: University of Shanghai for Science and Technology, Shanghai, China.	17

TUESDAY, June 3—3:00 PM

Chinese Tea and Beer Tasting

SESSION 4 **CENTROMERE, COHESION AND HETEROCHROMATIN**

Chairpersons: **Elçin Ünal**, University of California, Berkeley,
California, USA
 Chuanhai Fu, University of Science and Technology of
China, Hefei, China

Nuclear remodeling and rejuvenation in meiosis

Elçin Ünal [20'+5']

Presenter affiliation: UC Berkeley, Berkeley, California.

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Sister chromatid cohesion studied with purified budding yeast proteins

Yumiko Kurokawa, Yastuo Murayama [20'+5']

Presenter affiliation: National Institute of Genetics, Mishima, Japan.

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Persistent phosphorylation of kinetochore proteins sustains centromere clustering

Haitong Hou [15'+5']

Presenter affiliation: Jiangnan University, Wuxi, China.

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Protection and deprotection of the Rec8 cohesin complex during meiosis

Yongxin Liu, Ke Zhang, Li Sun, Yoshinori Watanabe [20'+5']

Presenter affiliation: Jiangnan University, Wuxi, China.

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Break

Nuclear condensates formed by the nuclear poly(A)-binding protein Pab2/PABPN1 facilitate constitutive heterochromatin assembly

Ziyue Liu, Xiuyi Song, Gobi Thillainadesan, Tomoyasu Sugiyama [20'+5']

Presenter affiliation: ShanghaiTech University, Shanghai, China.

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Klp2-mediated Rsp1-Mto1 colocalization inhibits microtubule-dependent microtubule assembly

Lingyun Nie, Wenyue Liu, Zhuobi Liang, Fan Zheng, Xing Liu, Xuebiao Yao, Shengqi Xiang, Kai Jiang, Shengnan Zheng, Chuanhai Fu [20'+5']

Presenter affiliation: University of Science and Technology of China, Hefei, China.

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Pds5 regulates chromosome organization and recombination during meiosis

Liangran Zhang, Shunxin Wang, Xiao Yang, Shuxian Zhang, Meihui Song, Binyuan Zhai [20'+5']

Presenter affiliation: Shandong Normal University, Jinan, China; Shandong University, Jinan, China.

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WEDNESDAY, June 4—9:00 AM

SESSION 5 REPLICATION

Chairperson: **Hisao Misai**, Tokyo Metropolitan Institute of Medical Science, Tokyo, Japan

Nuclear membrane association and oligomerization are essential for regulation of DNA replication timing by Rif1

Yutaka Kanoh, Kaho Takasawa, Hisao Masai [20'+5']

Presenter affiliation: Tokyo Metropolitan Institute of Medical Science, Tokyo, Japan.

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The role of the DNA replication machinery in regulation of epigenetic inheritance

Songtao Jia [20'+5']

Presenter affiliation: Columbia University, New York, New York.

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The essential role of Mec1 and Rad53 in G1/S transition

Huiqiang Lou [20'+5']

Presenter affiliation: Shenzhen University, Shenzhen, China.

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The intra-S phase checkpoint targets SHREC in response to replication stress

Fei Wu, Daochun Kong [15'+5']

Presenter affiliation: College of Life Sciences, Peking University, Beijing, China

SESSION 6 REPAIR

Chairperson: **Jie Ren**, Beijing Institute of Genomics, CAS, Beijing, China

Dcr1 senses R-loops for RNAPII termination at sites of replication stress and repair pathway choice

Jie Ren, Zihao Wang, Yizheng Zhang, Ting Guo, Ming He, Yingying Xu, Sonali Bhattacharjee, Robert A. Martienssen [20'+5']

Presenter affiliation: China National Center for Bioinformation, Beijing, China; Beijing Institute of Genomics, Chinese Academy of Sciences, Beijing, China; University of Chinese Academy of Sciences, Beijing, China.

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Srs2 binding to PCNA and its sumoylation contribute to RPA antagonism during the DNA damage response

Jiayi Fan, Nalini Dhingra, Tammy Yang, Vicki Yang, Xiaolan Zhao [15'+5']

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

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Evolutionary rewiring of conserved signaling pathways restores fusion through orchestra of epigenomic and genomic changes

Yang Chen, Lin Bi, Xiaoli Fan, Chengyuan Li, Yihong Wang, Sophie Martin, Gaowen Liu [15'+5']

Presenter affiliation: Shenzhen Institutes of Advanced Technology, Shenzhen, China.

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Overcoming the methanol toxicity of methylotrophic yeast by enhancing cellular homeostasis and DNA repair

Yongjin Zhou [20'+5']

Presenter affiliation: Dalian Institute of Chemical Physics, CAS, Dalian, China.

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SESSION 7 **STRESS RESPONSES, TRANSCRIPTION**

Chairperson: **Matthias Peter**, ETH Höggerberg, Zürich, Switzerland

Reversible protein aggregation regulates cell growth in response to environmental stress conditions

Anastasiia Kovalenko, Dorota Pfizenmayer, Caroline Wilson-Zbinden, Izabella Krystkowiak, Gea Cereghetti, Sonja Kroschwald, Norman Davey, Matthias Peter [20'+5']

Presenter affiliation: Institute of Biochemistry, ETH Höggerberg, Zürich, Switzerland.

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Harmony in chaos—Embracing the disorder in transcription regulation

Bing Li [20'+5']

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

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Investigating the cellular response to a mitochondrial complex III inhibiting fungicide in fission yeast

Severina M. Pociunaite, Sharon A. White, Alison Pidoux, Pin Tong, Robin Allshire [15'+5']

Presenter affiliation: Edinburgh University, Edinburgh, United Kingdom.

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Eukaryotic regulation of gene expression by lncRNA and backsplicing

Xiaolin Wang [20'+5']

Presenter affiliation: University of Science and Technology of China, Hefei, China.

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THURSDAY, June 5—9:00 AM

SESSION 8 **MEMBRANE**

Chairperson: **Snezhana Oliferenko**, King's College London and
The Francis Crick Institute, London, United Kingdom

**Three families of selfish killer genes in fission yeasts converge
on plasma membrane disruption as the killing mechanism**

Li-Lin Du [20'+5']

Presenter affiliation: National Institute of Biological Sciences, Beijing,
China.

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**Exploiting divergent biology of two fission yeasts to understand
membrane function**

Snezhana Oliferenko [20'+5']

Presenter affiliation: King's College London, London, United Kingdom;
The Francis Crick Institute, London, United Kingdom.

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**Septin-mediated *de novo* membrane formation revealed by
quantitative analysis using deep learning**

Shodai Taguchi, Keisuke Chagi, Hiroki Kawai, Kenji Irie, Yasuyuki
Suda [15'+5']

Presenter affiliation: University of Tsukuba, Tsukuba, Ibaraki, Japan;
Institute of Medicine in University of Tsukuba, Tsukuba, Ibaraki, Japan;
LPIXEL Inc., Chiyoda, Tokyo, Japan.

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**Rhythmic phospholipid synthesis—A cellular timer for lipid
metabolism**

Cunqi Ye [20'+5']

Presenter affiliation: Zhejiang University, Hangzhou, China.

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THURSDAY, June 5—2:00 PM

SESSION 9 **HUMAN DISEASES AND AGING**

Chairperson: **Reiko Sugiura**, Kindai University, Osaka, Japan

Yeast as a model for human disease

Reiko Sugiura, Ryosuke Satoh, Teruaki Takasaki [20'+5']

Presenter affiliation: Kindai University, Osaka, Japan.

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**Harnessing cold atmospheric microplasma for healthy aging—
Inhibiting senescence and activating SIR2 pathway**

Farhana Begum, Jaroslav Kristof, Alam Md Jahangir, Abubakar Hamza
Sadiq, Mahedi Hasan, Kinoshita Soichiro, Kazuo Shimizu [15'+5']
Presenter affiliation: Shizuoka University, Hamamatsu, Japan. 41

**Fluconazole-resistant *Candida auris* exploits zinc deficiency to
suppress MMP9-mediated host innate immunity and promote
fungal virulence and commensalism**

Yuemei Hong, Ningning Liu [20'+5']
Presenter affiliation: Shanghai Jiao Tong University School of
Medicine, China, China. 42

THURSDAY, June 5—3:15 PM

SESSION 10 EVOLUTION

Chairperson: **Aleksandar Vještica**, University of Lausanne, Switzerland

**Meiotic cohesin Rec8 imposes fitness costs on fission yeast
gametes to drive evolution of parental bias in gene expression**

Celso Martins, Harry Booth, Clàudia Salat-Canela, Zena Hadjivasiliou,
Aleksandar Vještica [20'+5']
Presenter affiliation: University of Lausanne, Lausanne, Switzerland. 43

**Evolution of inward membrane budding machinery as the first
step towards establishing eukaryotic endomembrane system.**

Zhiping Xie [20'+5']
Presenter affiliation: Shanghai Jiao Tong University, Shanghai, China. 44

**Rapid evolution of yeasts in response to seasonal changes in an
urban environment**

Xiaoru Wen, Lixuan Cui, Xinyu Hong, Xueying Li [15'+5']
Presenter affiliation: Beijing Normal University, Beijing, China. 45

Experimental evolution of cell mass density mutants

Xiaoting Xu, Qian Li, Xiaofang Zhong, Yuping Chen [15'+5']
Presenter affiliation: Shenzhen Institutes of Advanced Technology,
Shenzhen, China. 46

Microhomology-mediated tandem duplications are Ubiquitous Drivers of Genome Evolution with Functional and Pathogenic Potential

Xianfang Wei, Wanxin Gong, Yifan Zheng, Jing Zhang, Xianyuan Wei, Chen Peng, Xiangwei He, Chao Jiang [20'+5']

Presenter affiliation: Zhejiang University, Hangzhou, China.

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THURSDAY, June 5—5:30 PM

COCKTAILS and BANQUET

FRIDAY, June 6—9:00 AM

SESSION 11 NEW TECHNOLOGY

Chairpersons: **Tiannan Guo**, Westlake University, Hangzhou, China
Yuping Chen, Shenzhen Institutes of Advanced Technology, CAS, Shenzhen, China

Simultaneous monitoring of transcriptional and translational activities in single cells with the yeast TRiPoD libraries

Alexander Alexandrov, Meta Heidenreich, Geraldine Silvano, Saurabh Mathur, Uri Weill, Maya Schuldiner, Emmanuel D. Levy [15'+5']

Presenter affiliation: University of Geneva, Geneva, Switzerland; Weizmann Institute of Science, Rehovot, Israel.

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A modular golden gate assembly system for rapid identification of optimal protein secretion elements in *S. cerevisiae*

Anastasiya Kishkevich, Klaudia Ciurkot, Tom Ellis [15'+5']

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

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dCreSIR—A programmable silencing system for modular regulation of functions and chromosomes in yeast

Xinyu Lu, William Shaw, Anima Sutradhar, Giovanni Stracquadanio, Tom Ellis [15'+5']

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

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The WAY project—Westlake AI Virtual Cell – Yeast

Tiannan Guo [15'+5']

Presenter affiliation: Westlake University, Hangzhou, China.

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Break

Prolonged culture of yeast at a high temperature failed at a lower upper temperature limit

Qian Li, Yuping Chen [15'+5']

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

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Genome-wide screening for mutants defective in biomass volume coordination

Qian Li, Xiaoting Xu, Xiaofang Zhong, Yunxiao Dai, Huanlun Li, Yuping Chen [15'+5']

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

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Artificial chromosome reorganization reveals high plasticity of the budding and fission yeast genomes

Xueting Zhu, Shaochun Liu, Tiantian Ye, Jin-Qiu Zhou [20'+5']

Presenter affiliation: Shanghai Institute of Biochemistry and Cell Biology, Chinese Academy of Sciences, Shanghai, China; ShanghaiTech University, Shanghai, China.

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