

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

RNA BIOLOGY

September 2–September 6, 2024

Arranged by

Javier Caceres, *The University of Edinburgh*

Ling-Ling Chen, *Shanghai Institute of Biochemistry & Cell Biology, CAS*

Adrian Krainer, *Cold Spring Harbor Laboratory*

Yukihide Tomari, *The University of Tokyo*



Cold Spring Harbor Conferences Asia
Cold Spring Harbor Laboratory



RNA BIOLOGY

Monday, September 2 – Friday, September 6, 2024

Monday	7:00 pm	1 Small Non-coding RNAs Keynote Speaker
Tuesday	9:00 am	2 Long Non-coding and Circular RNAs
Tuesday	2:00 pm	Poster Session
Tuesday	3:00 pm	<i>Chinese Tea and Beer Tasting</i>
Tuesday	7:00 pm	3 RNA Processing
Wednesday	9:00 am	4 RNA Surveillance and Translation
Wednesday	2:00 pm	<i>Visit to Old Suzhou*</i>
Wednesday	7:00 pm	5 RNA in Condensates
Thursday	9:00 am	6 RNA and RNP Structures
Thursday	2:00 pm	7 New Technologies in RNA Biology
Thursday	6:00 pm	<i>Cocktails and Banquet</i>
Friday	9:00 am	8 RNA in Disease and Therapeutics Keynote Speaker

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 12:00am - 1:30pm

Dinner: Main Cafeteria 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, September 2—7:00 PM

SESSION 1 SMALL NON-CODING RNAs

Chairperson: **Yukihide Tomari**, The University of Tokyo, Tokyo, Japan

KEYNOTE SPEAKER

Expanding paradigms of tRNA modifications in health and disease

Tsutomu Suzuki [35'+10']

Presenter affiliation: University of Tokyo, Tokyo, Japan.

1

Temporal and spatial partitioning of retrotransposon niches in *Drosophila melanogaster*

Marion Varoqui, Mourdas Mohamed, Bruno Mugat, Maelys Lemoine, Charlotte Grimaud, S  verine Chambeyron [20'+10']

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

2

Mechanism of piRNA-mediated transposon silencing

Mikiko C. Siomi [20'+10']

Presenter affiliation: University of Tokyo, Graduate School of Science, Tokyo, Japan.

3

Break

Autonomous shaping of the piRNA sequence repertoire by competition between adjacent ping-pong sites

Jie Yu, Natsuko Izumi, Yukihide Tomari, Keisuke Shoji [20'+10']

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

4

An endogenous cluster of target-directed miRNA degradation sites induces decay of distinct miRNA families

Nicholas M. Hierns, Lu Li, Peike Sheng, Tianqi Li, Conner M. Traugot, Yuzhi Wang, Michael Yao, Mingyi Xie [10'+5']

Presenter affiliation: University of Florida, Gainesville, Florida.

5

Mammalian PIWI-piRNA-target complexes reveal features for broad and efficient target-silencing

Zhiqing Li, Zhenzhen Li, Chun-Qing Song, Jianping Wu, En-Zhi Shen [10'+5']

Presenter affiliation: Westlake University, Hangzhou, China.

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TUESDAY, September 3—9:00 AM

SESSION 2 LONG NON-CODING AND CIRCULAR RNAs

Chairperson: **Woan-Yuh Tarn**, Academia Sinica, Taipei, Taiwan

The compartmentalization of long non-coding RNA in controlling mitoribosome assembly and its implications for chronic inflammatory diseases in joints

Sangmin Yong, Myeong-Gyun Kang, Hyun-Woo Rhee, Jin-Hong Kim [20'+10']

Presenter affiliation: Seoul National University, Seoul, South Korea; Institute for Basic Science, Seoul, South Korea.

7

Long noncoding RNAs/ribonucleoproteins in DNA damage repair

Woan-Yuh Tarn, Tzu-Wei Chuang, Chun-Hao Su, Hsin-Hong Yeh [20'+10']

Presenter affiliation: Academia Sinica, Taipei, Taiwan, China.

8

LINE-1 RNA is indispensable for LINE-1 to selectively contact and activate distal genes

Nian Liu [10'+5']

Presenter affiliation: Tsinghua University-Peking University Joint Center for Life Sciences, Beijing, China.

9

BESST—A novel LncRNA knockout strategy with minimal genome perturbation

Shikuan Zhang, Yaou Zhang, Qing R. Lyu [10'+5']

Presenter affiliation: Chongqing General Hospital, Chongqing University, Chongqing, China.

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Break

Nuclear export of circular RNA

Vihandha Wickramasinghe [20'+10']

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

11

Altered nucleocytoplasmic export of adenosine-rich circRNAs by PABPC1 contributes to neuronal function

Shi-Meng Cao, Hao Wu, Guo-Hua Yuan, Li Yang, Ling-Ling Chen
[10'+5']

Presenter affiliation: Key Laboratory of RNA Innovation, Science and Engineering, CAS Center for Excellence in Molecular Cell Science, Shanghai, China.

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Squaring the circle?—Mechanistic studies of translation initiation on natural, coding circular RNAs in eukaryotes

Philipp K. Zuber, Xueyan Li, Yifei Du, Yuliya Gordiyenko, Venki Ramakrishnan [10'+5']

Presenter affiliation: MRC-Laboratory of Molecular Biology, Cambridge, United Kingdom.

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TUESDAY, September 3—2:00 PM

POSTER SESSION

TDRD12 is involved in IMC assembly and piRNA pathway in a TDRD1-dependent manner during mouse spermatogenesis

Canmei Chen, Deqiang Ding

Presenter affiliation: Tongji University, Shanghai, China.

14

Divergent functional evolution of sRNA processed from the 3' UTR of conserved hexose phosphate transporter coding gene uhpt

Xiaomin Chen, Chuan Wang

Presenter affiliation: Fudan University, Shanghai, China.

15

Structure and function of m6A methyltransferase

Ting Deng, Shanshan Li, Shichen Su, Minsong Gao, Jianzhao Liu, Jinbiao Ma, Kaiming Zhang

Presenter affiliation: Fudan University, Shanghai, China.

16

Preparation of high purity Cap0, 1, or 2 mRNA by co-transcription with novel photocaged Cap analog

Fumitaka Hashiya, Masahito Inagaki, Naoko Abe, Zhenmin Li, Yuko Nakashima, Susit Acharyya, Zhenyu Meng, Mizuki Tada, Tatsuma Ishida, Pingxue Lyu, Yasuaki Kimura, Satoshi Uchida, Hiroshi Abe

Presenter affiliation: Nagoya University, Aichi, Japan.

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Repulsive property of Shutdown allows its release from cytosolic droplets, Yb bodies, to promote piRISC generation <u>Shigeki Hirakata</u> , Mikiko C. Siomi Presenter affiliation: The University of Tokyo, Tokyo, Japan.	18
PANDORA-seq reveals human sperm sncRNA signature endowed with sperm quality control <u>Ruofan Huang</u> , Yiting Yang, Xiao-Ou Zhang, Yunfang Zhang Presenter affiliation: School of Life Sciences and Technology, Tongji University, Shanghai, China.	19
Beyond measurement artifacts—Validating increased protein heterogeneity in fragmented mitochondria <u>Abdul Haseeb Khan</u> , Tatsuhisa Tsuboi Presenter affiliation: Tsinghua-Shenzhen International Graduate School, Shenzhen, China.	20
Identification of miRNA-driven signaling axis master regulating cellular senescence via the PPP/de novo nucleic acid synthesis <u>Soy Kim</u> , Geunho Yook, Seojung Kim, Jianhong Ching, Jin-Hong Kim Presenter affiliation: Seoul National University, Seoul, South Korea.	21
Extensive deregulation of genes in mouse embryonic germ cells <u>Peilin Li</u> , Haruka Narita, Yuta Uneme, Mikiko C. Siomi, Soichiro Yamanaka Presenter affiliation: University of Tokyo, Graduate School of Science, Tokyo, Japan.	22
Characterization of tRNA epitranscriptome and expression profiles in mouse organs during aging <u>Yun Li</u> , Xin Wang, Yibo Li, Ze Shu, Wenlin Jiang, Zhili Deng, Yunfang Zhang Presenter affiliation: Tongji University, Shanghai, China.	23
Critical roles of the miR-17~92 family in thymocyte development, leukemogenesis, and autoimmunity <u>Kunyu Liao</u> , Pengda Chen, Mengdi Zhang Presenter affiliation: Xiamen University, Xiamen, China.	24
RNASTOP—Prediction and optimization of mRNA stability via deep learning and heuristic search <u>Shenggen Lin</u> , Dong-Qing Wei, Qinghua Jiang, Yi Xiong Presenter affiliation: Shanghai Jiao Tong University, Shanghai, China; Shanghai Artificial Intelligence Laboratory, Shanghai, China.	25

Deciphering RNA-RBP interactions and RNA structures by A-to-I RNA editing	
<u>Shan Nan</u> , Xiao Wang, Zhi-Can Fu, Chu-Xiao Liu, Li Yang, Ling-Ling Chen	
Presenter affiliation: Key Laboratory of RNA Innovation, Science and Engineering, CAS Center for Excellence in Molecular Cell Science, Shanghai, China.	26
TDRD9 is essential for transposon silencing and normal spermatogenesis in mice	
<u>Guanyi Shang</u> , Deqiang Ding	
Presenter affiliation: Tongji University, Shanghai, China.	27
RBM4-mediated intron excision of <i>Hsf1</i> induces BDNF for cerebellar foliation	
<u>Chiu-Lun Shen</u> , Yu-Young Tsai, Shen-Ju Chou, Yao-Ming Chang, Woan-Yuh Tarn	
Presenter affiliation: Academia Sinica, Taipei, Taiwan, China.	28
Ultra-low input metabolic RNA-seq reveals dynamic transcriptional reprogramming during mouse MZT	
You Wu, <u>Hanxi Shi</u> , Rushuang Yan, Xiaoou Zhang, Yawei Gao	
Presenter affiliation: Tongji University, Shanghai, China.	29
Distribution of snRNA in cells and its regulatory mechanism	
<u>Ze Shu</u> , Xin Wang, Zheng Cao, Yunfang Zhang	
Presenter affiliation: Tongji University, Shanghai, China.	30
Transforming chondrosarcoma from a cold tumor to a hot tumor using a chondrosarcoma-specific activating synthetic gene circuit	
<u>Jooyeon Suh</u> , Hyeonkyeong Kim, Yi-Jun Kim, Jin-Hong Kim	
Presenter affiliation: Seoul National University, Seoul, South Korea.	31
The ubiquitin-specific protease USP36 SUMOylates EXOSC10 and Las1L and promotes their function in rRNA processing	
<u>Xiao-Xin Sun</u> , Yanping Li, Mushui Dai	
Presenter affiliation: Oregon Health & Sciences University, Portland, Oregon.	32
Identification of functionally-relevant m⁶A modifications in regulating 7SK-mediated RNA Pol II pause release	
<u>Conner M. Traugot</u> , Yuzhi Wang, Nicholas M. Hiers, Tianqi Li, Peike Sheng, Mingyi Xie	
Presenter affiliation: University of Florida, Gainesville, Florida.	33

Investigating the neural pathogenesis of congenital myotonic dystrophy type 1 <u>Lee-Hsin Wang</u> , Wan-Hsuan Lee, Yao-Ming Chang, Shen-Ju Chou, Guey-Shin Wang Presenter affiliation: Institute of Biomedical Sciences, Taipei, Taiwan, China.	34
The mechanism of sperm tsRNAs mediates intergenerational inheritance during early embryos development <u>Xin Wang</u> , Zheng Cao, Rushuang Yan, Yawei Gao, Yunfang Zhang Presenter affiliation: Tongji University, Shanghai, China.	35
The landscape of N⁶-methyladenosine in localized primary prostate cancer <u>Xin Xu</u> , Helen Zhu, Rupert Hugh-White, Julie Livingstone, Stefan Eng, Paul C. Boutros, Hansen He Presenter affiliation: University Health Network, Toronto, Canada.	36
Therapeutic application of circular RNA aptamers in a mouse model of psoriasis <u>Yi-Feng Xu</u> , Si-Kun Guo, Chu-Xiao Liu, Xiao Wang, Fang Nan, Jiaquan Liu, Li Yang, Ling-Ling Chen Presenter affiliation: Key Laboratory of RNA Innovation, Science and Engineering, CAS Center for Excellence in Molecular Cell Science, Shanghai, China.	37
The imbalanced interaction of OMM-localized protein and lncRNA exacerbates osteoarthritis pathogenesis through dysregulating mitochondrial homeostasis <u>Sangmin Yong</u> , Myeong-Gyun Kang, Hyun-Woo Rhee, Jin-Hong Kim Presenter affiliation: Seoul National University, Seoul, South Korea; Institute for Basic Science, Seoul, South Korea.	38
Identification for noncanonical function of interferon regulatory factor 1 in cartilage DNA repair and osteoarthritis using integrated ATAC-transcriptome analysis <u>Geunho Yook</u> , Yongsik Cho, Hyeonkyeong Kim, Jin-Hong Kim Presenter affiliation: Seoul National University, Seoul, South Korea.	39
Assessment of the therapeutic efficacy of a potent MYB pre-mRNA targeting small molecule, RTX-049, in cancer models <u>Jiacheng Zhang</u> , Jawad Abid, Tessa Vlacos, Bingying Li, Shilin Chen, Miao Zhao, Xing Tang, Mary McMahon, Sridhar Narayan, Steve Lianoglou, Paul August Presenter affiliation: ReviR Therapeutics, Shenzhen, China.	40

- Ribosomes modulate transcriptome abundance via generalized frameshift and out-of-frame mRNA decay**
Yujie Zhang, Lilit Nersisyan, Eliska Fürst, Ioannis Alexopoulos, Susanne Huch, Claudio Bassot, Elena Garre, Per Sunnerhagen, Ilaria Piazza, Vicent Pelechano
 Presenter affiliation: Karolinska Institutet, Stockholm, Sweden. 41
- ADAT1 controls translation efficiency to promote AML leukaemogenesis**
Yunfang Zhang, Lin Xia, Pan Zhao, Dan Chen, Wei Xu, Xi Zhang
 Presenter affiliation: Tongji University, Shanghai, China. 42
- NaRaDa—A comprehensive nascent RNA database**
 Duo Li, Zhibiao Mai, Peng Tang, Chuanman Zhou, Zhenhua Zhang, Xichen Bao
 Presenter affiliation: Guangzhou Institutes of Biomedicine and Health, Chinese Academy of Sciences, Guangzhou, China. 43
- Kinetics modeling of the translational regulation on the mitochondrial surface**
Jingyi Zhao, Yuping Chen
 Presenter affiliation: Tsinghua Shenzhen International Graduate School, Shenzhen, China. 44
- Centromere transcription and centromere RNAs—Their roles, regulation and function during centromere establishment and maintenance**
Jing Zhu, Karen Wing Yee Yuen
 Presenter affiliation: University of Hong Kong, Hong Kong, China. 45

TUESDAY, September 3—3:00 PM

Chinese Tea and Beer Tasting

SESSION 3 RNA PROCESSING

Chairperson: **Javier F. Caceres**, The University of Edinburgh, Edinburgh, United Kingdom

RNA-quality control of gene expression

Javier F. Caceres [20'+10']

Presenter affiliation: MRC Human Genetics Unit, University of Edinburgh, Edinburgh, United Kingdom.

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PolyT tract in modulating transcription, splicing, and genome stability

Xiang-Dong Fu [20'+10']

Presenter affiliation: Westlake University, Hangzhou, China.

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Transcription directionality is licensed by Integrator at active human promoters

Jiao Yang, Jingyang Li, Langxi Miao, Xu Gao, Wenhao Sun, Shuo Linghu, Guiping Ren, Bangya Peng, Shunkai Chen, Zhongqi Liu, Bo Wang, Ao Dong, Duo Huang, Jinrong Yuan, Yunkun Dang, Fan Lai [10'+5']

Presenter affiliation: State Key Laboratory for Conservation and Utilization of Bio-Resources in Yunnan; School of Life Sciences, Kunming, China; Southwest United Graduate School, Kunming, China.

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A yeast cell without spliceosomal introns

Xin Man, Wenting Zhang, Qianxi Li, Jinqiu Zhou [10'+5']

Presenter affiliation: Key Laboratory of RNA Innovation Science and Engineering, Shanghai, China; CAS Center for Excellence in Molecular Cell Science, Shanghai Institute of Biochemistry and Cell Biology, Shanghai, China; University of Chinese Academy of Sciences, Shanghai, China.

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Break

mRNAs undergo site-specific m⁵C modifications mediated by NSUN6 to promote mRNA stability

Yuan-Yuan Zhang, Cai-Tao Li, You-Jia Zhou, Dan-Dan Zhou, Ru-Juan Liu [20'+10']

Presenter affiliation: ShanghaiTech University, Shanghai, China.

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mRNA 3' end processing and degradation

Yongsheng Shi [20'+10']

Presenter affiliation: University of California, Irvine, Irvine, California. 51

A coding-independent function of mRNA in regulating target gene transcription in plants

Han Lu, Yuxiang Yuan, Yujie Liu, Yan Li, Yijun Qi [10'+5']

Presenter affiliation: Tsinghua University, Beijing, China. 52

WEDNESDAY, September 4—9:00 AM

SESSION 4 RNA SURVEILLANCE AND TRANSLATION

Chairperson: **Thomas Preiss**, The Australian National University, Canberra, Australia

Widespread stable noncanonical peptides identified by integrated analyses of ribosome profiling and ORF features

Haiwang Yang, Qianru Li, Emily Stroup, Sheng Wang, Zhe Ji [20'+10']

Presenter affiliation: Northwestern University, Chicago, Illinois. 53

Substrate diversity of NSUN enzymes and links of 5-methylcytosine to mRNA translation and turnover

Marco Guarnacci, Pei-Hong Zhang, Madhu Kanchi, Yu-Ting Hung, Hanrong Lin, Nikolay E. Shirokikh, Li Yang, Thomas Preiss [20'+10']

Presenter affiliation: Australian National University, Canberra, Australia; Victor Chang Cardiac Research Institute, Sydney, Australia. 54

Mitochondrial protein heterogeneity stems from the stochastic nature of co-translational protein targeting in cell senescence

Abdul H. Khan, Xuefang Gu, Matheus P. Viana, Aidan I. Brown, Brian M. Zid, Tatsuhisa Tsuboi [10'+5']

Presenter affiliation: Tsinghua University, Shenzhen, China. 55

Break

Sex chromosome-encoded homologous helicases in translation regulation

Kathy F. Liu [20'+10']

Presenter affiliation: University of Pennsylvania, Philadelphia, Pennsylvania. 56

Exploiting the immunoregulatory effect of double-stranded RNAs for therapeutic applications

Yoosik Kim [20'+10']

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

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A CSDE1-strap complex regulates plasma cell differentiation by coupling mRNA translation and decay

Pengda Chen, Lianghua Lin, Kunyu Liao, Xinyong Lin, Jiali Qiang, Zhizhang Wang, Yaoyang Zhang, Dan Du, Xing Chang, Changchun Xiao [10'+5']

Presenter affiliation: Xiamen University, Xiamen, China.

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WEDNESDAY, September 4—2:00 PM

Visit to Old Suzhou

WEDNESDAY, September 4—7:00 PM

SESSION 5 RNA IN CONDENSATES

Chairperson: **Tetsuro Hirose**, Osaka University, Suita, Japan

Roles of architectural noncoding RNAs in building and regulating phase-separated nuclear bodies

Tetsuro Hirose, Kensuke Ninomiya, Tomohiro Yamazaki [20'+10']

Presenter affiliation: Osaka University, Suita, Japan.

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Cell size modulates P-body formation by limiting molecular movement

Xuefang Gu, Tatsuhisa Tsuboi [10'+5']

Presenter affiliation: Institute of Biopharmaceutical and Health Engineering, Shenzhen, China.

60

Navigating the wilds of meiosis—RNA stress granules and autophagy

Rudian Zhang, Wenzhi Feng, Shuhong Qian, Shunjin Li, Akshay J. Chellappa, Fei Wang [10'+5']

Presenter affiliation: UT Southwestern Medical Center, Dallas, Texas.

61

Short linear motif-mediated interactions play a crucial role in regulating stress granule assembly

Jinjun Wu, Balint Meszaros, Moin Talukder, Hong Joo Kim, M. Madan Babu, J. Paul Taylor [10'+5']

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

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TDRD1 phase separation drives intermitochondrial cement assembly to promote piRNA biogenesis and fertility

Jie Gao, Jiongjie Jing, Guanyi Shang, Deqiang Ding [10'+5']

Presenter affiliation: Tongji University, Shanghai, China.

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From stress adaptation to off-target immune responses—The physiological consequences of modified mRNAs

Anne E. Willis [20'+10']

Presenter affiliation: University of Cambridge, Cambridge, United Kingdom.

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THURSDAY, September 5—9:00 AM

SESSION 6 RNA AND RNP STRUCTURES

Chairperson: **Xinshu Grace Xiao**, University of California-Los Angeles, Los Angeles, California

Crosstalk between dsRNA editing and RNA-binding proteins in cancer immunity

Xinshu Grace Xiao [20'+10']

Presenter affiliation: University of California, Los Angeles, Los Angeles, California.

65

The role of self-derived double-stranded RNA species in tumor immune evasion

Leilei Polly Chen [20'+10']

Presenter affiliation: Cancer Science Institute of Singapore, National University of Singapore, Singapore.

66

Observation of higher-order assemblies controlled by protein one-dimensional movement

Xiao-Peng Han, Ming Rao, Shu-Rui Wu, Qiurong Zhang, Fajian Hou, Shao-Qing Zhang, Ling-Ling Chen, Jiaquan Liu [10'+5']

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

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RIOK3 mediates the degradation of 40S ribosomes

Zixuan Huang, Frances F. Diehl, Rachel Green, Jingdong Cheng [10'+5']

Presenter affiliation: Fudan University, Shanghai, China.

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Break

Unveiling the structural dynamics of group I introns by Cryo-EM

Shanshan Li, Xiaojing Zhang, Kaiming Zhang [20'+10']

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

69

Structures of a natural circularly permuted group II intron reveal back-splicing mechanism to produce circular RNAs

Xiaobin Ling, Yuqi Yao, Jinbiao Ma [10'+5']

Presenter affiliation: Fudan University, Shanghai, China.

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Structural insights into the cross-exon to cross-intron spliceosome switch

Zhenwei Zhang, Vinay Kumar, Olexandr Dybkov, Cindy Will, Jiayun Zhong, Sebastian Ludwig, Henning Urlaub, Berthold Kastner, Holger Stark, Reinhard Lührmann [10'+5']

Presenter affiliation: Max-Planck-Institute for Multidisciplinary Sciences, Göttingen, Germany; Sichuan University, Chengdu, China.

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OLA1 promotes the splitting of ribosome on D/E-rich region

Ting Yu, Xin Li, Wanlin Dong, Fuxing Zeng [10'+5']

Presenter affiliation: Southern University of Science and Technology, Shenzhen, China.

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SESSION 7 NEW TECHNOLOGIES IN RNA BIOLOGY

Chairperson: **Juan Valcárcel**, ICREA and Center for Genomic Regulation (CRG), Barcelona, Spain

Transcriptome-wide splicing network reveals specialized regulatory functions of the core spliceosome

Malgorzata E. Rogalska, Estefania Mancini, Sophie Bonnal, Andre Gohr, Bryan M. Dulyak, Peter G. Smith, Frédéric H. Vaillancourt, Juan Valcárcel [20'+10']

Presenter affiliation: Center for Genomic Regulation (CRG), Barcelona, Spain; Universitat Pompeu Fabra, Barcelona, Spain; Institutio Catalana de Recerca i Estudis Avançats, Barcelona, Spain. 73

Genome-wide nascent RNA kinetics imaging unveils principles for genetic information flow in real-time

Danlin Xie, Xiangyu Wu, Lingling Li, Rui Sun, Hongjian Qi, Yangye Zhang, Tianxin Zhang, Longxi Li, Jiahang Xiong, Xibo Ma, Yanxiao Zhang, Yihan Wan [10'+5']

Presenter affiliation: Westlake University, Hangzhou, China. 74

Enhanced prediction of RNA splicing modulation by small molecules with deep learning

Daniel Deng, Steve Lianoglou, Yang Liu [10'+5']

Presenter affiliation: ReviR Therapeutics, Shenzhen, China. 75

Stabilizing a mammalian RNA thermometer confers neuroprotection

Min Zhang, Bin Zhang, Chengli Liu, Marco Preußner, Megha Ayachit, Weiming Li, Yafei Huang, Deyi Liu, Quanwei He, Ann-Kathrin Emmerichs, Stefan Meinke, Shu Chen, Lin Wang, Tom Haltenhof, Mario Schubert, Xin Gao, Mingchang Li, Florian Heyd [10'+5']

Presenter affiliation: Freie Universität Berlin, Berlin, Germany; Shenzhen University Medical School, Shenzhen, China. 76

Single molecule detection of hypomodification in mitochondrial tRNA with pathogenic mutation associated with mitochondrial disease by nanopore sequencing

Qiuyu Wang, Ryo Noguchi, Ena Tomoda, Tsutomu Suzuki [10'+5']

Presenter affiliation: the University of Tokyo, Tokyo, Japan. 77

Development of hydrophobic tag purifying monophosphorylated RNA for chemical synthesis of capped mRNA and enzymatic synthesis of circular mRNA

Mami Ototake, Masahito Inagaki, Seigo Kimura, Kaoru Kimura, Daisuke Kawaguchi, Hiroataka Murase, Mizuki Tada, Kosuke Fukuchi, Yinuo Gao, Kengo Kokubo, Susit Acharyya, Zheyu Meng, Tatsuma Ishida, Naoko Abe, Fumitaka Hashiya, Yashuaki Kimura, Hiroshi Abe [10'+5']

Presenter affiliation: Graduate School of Science, Nagoya University, Nagoya, Japan.

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Circular RNA-based protein replacement therapy mitigates osteoarthritis

Jinlong Suo, Ling Li, Wuyuan Tan, Youkui Huang, Guanghua Lei, Lingling Chen, Weiguo Zou [10'+5']

Presenter affiliation: Key Laboratory of RNA Innovation, Science and Engineering, CAS Center for Excellence in Molecular Cell Science, Shanghai, China; School of Life Science and Technology, Shanghai, China.

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THURSDAY, September 5—6:00 PM

COCKTAILS and BANQUET

FRIDAY, September 6—9:00 AM

SESSION 8 RNA IN DISEASE AND THERAPEUTICS

Chairperson: **Ling-Ling Chen**, Shanghai Institute of Biochemistry and Cell Biology, CAS, Shanghai, China

KEYNOTE SPEAKER

Antisense therapy for H3.3K27M-related diffuse midline glioma

Adrian R. Krainer [35'+10']

Presenter affiliation: Cold Spring Harbor Laboratory, Cold Spring Harbor, New York.

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Therapeutic potential of mRNA-based interventions for cardiac rare genetic disease

Yuxiang Dai, Jinzhong Lin [20'+10']

Presenter affiliation: Zhongshan Hospital, Shanghai, China; Fudan University, Shanghai, China.

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PNPT1 promotes viral proliferation by accelerating host RNA turnover in mitochondria and P bodies

Yuhang Dong, Mengyang Li, Fang Wang [10'+5']

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

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Break

Mitochondrial dsRNAs modulate monocytic functionality in Sjögren's disease

Jimin Yoon, Daesong Jang, Myung-Chul Kim, Joon Paek, Rehae Miller, Beatriz Vernonese, Rudy Alvarado, Yoosik Kim, Seunghee Cha [10'+5']

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

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Dysregulated spliceosomal components promote pancreatic cancer progression

Ledong Wan, Kuan-Ting Lin, Yuma Ishigami, Alexander J. Kral, Dillon M. Voss, John E. Wilkinson, Youngkyu Park, David A. Tuveson, Adrian R. Krainer [10'+5']

Presenter affiliation: Stony Brook University, Stony Brook, New York.

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De novo assembly of nuclear stress bodies restrain acute inflammatory responses

Ling-Ling Chen [20'+10']

Presenter affiliation: Chinese Academy of Sciences, Shanghai, China; New Cornerstone Science Laboratory, Guangdong, China.

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