

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

---

# PLANT REPRODUCTIVE DEVELOPMENT AND GENOMICS

---

May 18–May 22, 2025

Arranged by

Amandine Cornille, *Université Paris-Saclay/CNRS*

Tetsuya Higashiyama, *University of Tokyo*

Takeshi Izawa, *University of Tokyo*

Julia Santiago, *University of Lausanne*

Weicai Yang, *Yazhouwan National Laboratory*



Cold Spring Harbor Conferences Asia  
Cold Spring Harbor Laboratory



## PROGRAM

SUNDAY, May 18—7:00 PM

### Welcome Reception

MONDAY, May 19—8:30 AM

#### **SESSION 1a**      EVOLUTION AND ECOLOGY I

**Chairperson:**      **Amandine Cornille**, Université Paris-Saclay / CNRS,  
Paris, France

##### **Evolution of dioecy and hermaphroditism in Vitaceae**

Dario Cantu [20'+10']

Presenter affiliation: University of California Davis, Davis, California. 1

##### **Reduced pollen number—Ribosome biogenesis genes in Arabidopsis and recent evolution in domesticated wheat**

Kentaro K. Shimizu, Taro Takahashi, Naoto-Benjamin Hamaya, Hiroyuki Kakui, Kazuki Fukushima, Afif Hedhly, Ana Marcela Florez-Rueda, Ueli Grossniklaus, Takashi Tsuchimatsu, Moeko Okada, Katharina Jung, Jilu Nie, Miyuki Nitta, Shuhei Nasuda, Thomas Wicker, Beat Keller, Michaela Oborská-Oplová, Vikram Govind Panse [20'+10']

Presenter affiliation: University of Zurich, Zürich, Switzerland;  
Yokohama City University, Yokohama, Japan. 2

##### **Adaptive seed-size variation in *Arabidopsis thaliana***

Tal Dahan-Meir, Almudena Mollá-Morales, Rozi Mkrtchyan, Nataša Simic, Viktoria Nizhynska, Zsuzsanna Mérai, Magnus Nordborg [10'+5']

Presenter affiliation: Gregor Mendel Institute, Vienna, Austria. 3

##### **Evolution of the simplest flower**

Shuqing Xu [10'+5']

Presenter affiliation: University of Mainz, Mainz, Germany. 4

**Japanese *Arabidopsis halleri* as a model to study evolutionary responses to climate change in the Quaternary**

Takashi Tsuchimatsu, Ryo A. Suda, Shosei Kubota, Vinod Kumar, Mathieu Genete, Adrián Contreras-Garrido, Ute Krämer, Shin-Ichi Morinaga, Xavier Vekemans, Vincent Castric [10'+5']

Presenter affiliation: University of Tokyo, Tokyo, Japan.

5

MONDAY, May 19—10:45 AM

**SESSION 1b**      SEX DETERMINATION AND SEX CHROMOSOME

**Chairperson:**      **Amandine Cornille**, Université Paris-Saclay / CNRS, Paris, France

**Unisexual flower development in cucurbits—The interplay of hormones and epigenetics**

Adnane Boualem, Christelle Troadec, Siqi Zhang, Feng-Quan Tang, Abdelhafid Bendahmane [20'+10']

Presenter affiliation: Université Paris-Saclay, CNRS, INRAE, Université Evry, Institute of Plant Sciences Paris-Saclay (IPS2), Gif-sur-Yvette, France.

6

**Recreating viable YhYh genotype uncovers a domestication event of Yh chromosome in papaya**

Ray Ming, Jingjing Yue, Juan Liu, Qiuxia Zeng [20'+10']

Presenter affiliation: Fujian Agriculture and Forestry University, Fuzhou, China.

7

**Identification and functional analysis of the sex-determining factor in a haploid system**

Takayuki Kohchi, Miyuki Iwasaki, Yukiko Yasui [10'+5']

Presenter affiliation: Kyoto University, Kyoto, Japan.

8

**Identification of a conserved essential regulator of egg cell maturation in bryophytes**

Keiji Nakajima, Yen-Ting Lu, Fumiaki Tejima, Yihui Cui, Emiko Yoro, Junko Kawai, Masaki Shimamura, Takayuki Kohchi, Tatsuaki Goh, Keiko Sakakibara, Tetsuya Hisanaga [10'+5']

Presenter affiliation: Nara Institute of Science and Technology, Ikoma, Nara, Japan.

9

**Euchromatin histone marking in flowering time and meiosis regulation**

Wen-Hui Shen [10'+5']

Presenter affiliation: IBMP-CNRS, Strasbourg, France.

10

MONDAY, May 19—2:00 PM

**POSTER SESSION I**

*2:00 pm – 2:10 pm: Group photo*

*2:10 pm – 2:40 pm: Flash talks for **odd-numbered** posters*

**Maternal regulation of nutrient availability plays a pivotal role during ovule and seed development in Arabidopsis**

Camilla Banfi, Nicola Babolin, Chiara Astori, Flavio Gabrieli, Chiara Mizzotti, Fabrizio Araniti, Ignacio Ezquer, Giulia Leo, Rosario Vega-Léon, Kerstin Kaufmann, Maurizio Di Marzo, Lucia Colombo

Presenter affiliation: University of Milan, Milan, Italy.

11

**Interspecific pollen tube reception in Arabidopsis**

Stefano Bencivenga, Lena Muller, Valeria Gagliardini, Ueli Grossniklaus

Presenter affiliation: University of Zurich, Zurich, Switzerland.

12

**Structural insights into the recognition of RALF peptides by FERONIA receptor kinase during Brassicaceae pollination**

Hemal Bhalla, Karthik Sudarsanam, Ashutosh Srivastava, Subramanian Sankaranarayanan

Presenter affiliation: Indian Institute of Technology, Gandhinagar, Gujarat, India.

13

**Genetic and epigenetic regulation of vernalization response via chromosome substitution in the genus *Brassica***

Akhi Paul Chowdhury, Shuta Yano, Kaoru Tonosaki, Ryo Fujimoto

Presenter affiliation: Kobe University, Kobe, Japan.

14

**Exploring the impact of night temperature variations on pollen viability in highland quinoa and its wild relative, *Chenopodium berlandieri***

Hafiz Umar U. Farooq, Jiemeng Xu, Mariam Hashim, Elodie Rey, Angel Morris, Jeff Maughan, Eric N. Jellen, David E. Jarvis, Vanessa Melino, Mark Tester

Presenter affiliation: King Abdullah University of Science and Technology, Kingdom of Saudi Arabia, Jeddah, Saudi Arabia.

15

**Flowering gene expressions in *Arabidopsis* allopolyploid plants in naturally fluctuating environments**

Ryohei Fujita, Reiko Akiyama, Toshiaki Tameshige, Kenta Tanaka, Jianqiang Sun, Masaomi Hatakeyama, Roman V. Briskine, Jiro Sugisaka, Jun Sese, Atsushi J. Nagano, Hiroshi Kudoh, Rie Shimizu-Inatsugi, Kentaro K. Shimizu

Presenter affiliation: University of Zurich, Zurich, Switzerland; Yokohama City University, Yokohama, Japan.

16

**Single fertilization in genus *Spiranthes*(Orchidaceae)**

Kaoru Fukumura, Akane Mizukami, Tetsuya Higashiyama

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

17

**Discovering a genetic basis of decrease in DNA methylation I (DDM1)-dependent transposons silencing in *Arabidopsis thaliana***

Elizaveta Grigoreva, Tatsuo Kanno, Pierre Bourguet, Thomas J. Ellis, Yoav Voichek, Magnus Nordborg, Frederic Berger

Presenter affiliation: Gregor Mendel Institute, Vienna, Austria; Vienna Graduate School of Population Genetics, Vienna, Austria.

18

**Functional analysis of *FT* and *CO* homologs located in QTLs that control bolting timing in spinach**

Mai Hatsukade, Risa Ishikawa, Kaoru Yamano, Hideki Hirakawa, Yasuyuki Onodera

Presenter affiliation: Research Faculty of Agriculture, Sapporo, Japan.

19

**Peptide signaling controls the polytubey block in *Arabidopsis***

Xinya He, Hongju Li, Weicai Yang

Presenter affiliation: Institute of Genetics and Developmental Biology, Beijing, China; University of Chinese Academy of Sciences, Beijing, China.

20

<b>Molecular mechanisms of seed coat-endosperm cell communication and carbon assimilate transport in early seed of <i>Arabidopsis thaliana</i></b> <u>Zhaofeng He</u> , Yinjiao Xu, Hongju Li, Weicai Yang Presenter affiliation: Institute of Genetics and Developmental Biology, Beijing, China.	21
<b>Functional analysis of MPP proteins localizing in the peri-germ cell membrane</b> Ari Yoshimura, Jin Sugimoto, Naoya Sugi, Daisuke Maruyama, <u>Tomoko Igawa</u> Presenter affiliation: Chiba University, Matsudo, Japan.	22
<b>Isolation and characterization of a novel pollen defective mutant, Tos0216, in rice</b> <u>Suzuka Ishida</u> , Akio Watanabe, Kenji Sakurai, Hiromori Akagi, Ken-ichi Nonomura, Kenji Ueda Presenter affiliation: Akita Prefectural University, Akita, Japan.	23
<b>Exploring factors contributing to differences in salicylic acid responsiveness among cultivars in <i>Brassica rapa</i></b> <u>Mei Iwamura</u> , Mst. Arjina Akter, Naomi Miyaji, Motoki Shimizu, Ryo Fujimoto Presenter affiliation: Kobe University, Kobe, Japan.	24
<b>Humidity shapes reproductive development in <i>Arabidopsis</i> by affecting epidermal identity and cell wall dynamics</b> <u>Woo-Taek Jeon</u> , Joohyun Kang, Jung-Min Lee, Kyungyoon Kim, Yuree Lee Presenter affiliation: Seoul National University, Seoul, South Korea.	25
<b>Comprehensive single-nucleus atlas of <i>Arabidopsis</i> seed development</b> Bilian Qian, Ruiying Chen, Jing Yang, Lan Wang, <u>Pengfei Jia</u> , Cai Wei, Zhaofeng He, Jingmin Kang, Rui Han, Yi Zhang, Xinya He, Zeyang Liu, Chaohao Ding, Yinjiao Xu, Yuan Bao, Xin Liu, Xun Xu, Weicai Yang Presenter affiliation: Institute of Genetics and Developmental Biology, Chinese Academy of Sciences, Beijing, China.	26
<b>Deciphering dynamic pollen tube tip growth via WGCNA and live imaging uncovers key signaling in <i>Torenia fournieri</i></b> <u>Xingyue Jin</u> , Tetsuya Higashiyama Presenter affiliation: The University of Tokyo, Tokyo, Japan.	27

<b>Distal <i>Cis</i>-Regulatory Elements Mediate Light Regulation and Circadian Gating of the Rice Flowering Repressor <i>Ghd7</i></b> <u>Takumi Kawauchi</u> , Yuko Ogo, Hironori Itoh, Manaki Mimura, Takeshi Izawa Presenter affiliation: University of Tokyo, Bunkyo-ku, Tokyo, Japan.	28
<b>Live-imaging of the <i>Marchantia</i> zygote to reveal the evolution of axis formation during embryogenesis</b> <u>Yusuke Kimata</u> , Akane Fujimori, Sohta Nakamura, Yosuke Okamura, Minako Ueda Presenter affiliation: Tohoku University, Sendai, Japan.	29
<b>Molecular basis of fertility restoration for cytoplasmic male sterility in sugar beet (<i>Beta vulgaris</i> L.)</b> <u>Kazuoyoshi Kitazaki</u> , Hiroaki Matsuhira, Kotoko Oda, Katsunori Matsui, Tomohiko Kubo Presenter affiliation: Hokkaido University, Sapporo, Japan.	30
<b>Gene regulatory network analysis of germline cell-like cells induction system in the liverwort <i>Marchantia polymorpha</i> using snRNA-seq</b> <u>Takeru Kumagai</u> , Tomoaki Kajiwar, Yoshihiro Yoshitake, Megumi Iwano, Shogo Kawamura, Yukiko Yasui, Shohei Yamaoka, Takayuki Kohchi Presenter affiliation: Kyoto University, Kyoto, Japan.	31
<b>SUPERMAN-mediated flower development in <i>Arabidopsis thaliana</i></b> <u>Febri Yuda Kurniawan</u> , Nobutoshi Yamaguchi, Toshiro Ito Presenter affiliation: Graduate School of Science and Technology, Nara Institute of Science and Technology, Ikoma, Japan.	32
<b>Pollen-pistil interaction over the longevity of stigmatic papillae</b> <u>Daisuke Kyogoku</u> Presenter affiliation: Nara Women's University, Nara, Japan.	33
<b>Function and mechanism of MLO family proteins in the evolutionary transition of plant reproduction</b> Cheng Zhang, Meng-Xing Cao, <u>Hong-Ju Li</u> Presenter affiliation: State Key Laboratory of Seed Innovation, Beijing, China.	34

**Molecular mechanisms underlying source-sink interaction during seed development in *Arabidopsis thaliana***

Zeyang Liu, Weicai Yang

Presenter affiliation: Institute of Genetics and Developmental Biology, Beijing, China; Southwest United Graduate School, Kunming, China. 35

**The role of calcium oscillations for polarization and elongation in *Arabidopsis* zygote**

Hikari Matsumoto, Zichen Kang, Tomonobu Nonoyama, Sakumi

Nakagawa, Koichi Toyokura, Satoru Tsugawa, Minako Ueda

Presenter affiliation: Tohoku University, Sendai, Japan. 36

**Epigenetic modification analysis using single-cell resolution 3D immunostaining for rice shoot apical meristem**

Yurika Morishita, Hiroyuki Tsuji

Presenter affiliation: Nagoya University, Nagoya City, Japan. 37

**Elucidating microtubule-mediated mechanisms of male germ unit positioning in *Arabidopsis* pollen tubes**

Kazuki Motomura, Marin Komojiri, Ayumi Matsumoto, Naoya Sugi,

Yuriko Kibayashi, Daichi Susaki, Atsushi Takeda, Tetsu Kinoshita,

Daisuke Maruyama

Presenter affiliation: Ritsumeikan University, Shiga, Japan. 38

**Quantification of species-preferential pollen tube attraction in Brassicaceae**

Takuya T. Nagae, Hidenori Takeuchi, Keisuke Matsuda, Shiori

Nagahara, Yoko Mizuta, Tetsuya Higashiyama

Presenter affiliation: The University of Tokyo, Tokyo, Japan. 39

**Mechanisms of cell elongation in *Arabidopsis thaliana* zygote approached by live-cell imaging and mechanical modeling**

Sakumi Nakagawa, Zichen Kang, Hikari Matsumoto, Tomonobu

Nonoyama, Satoru Tsugawa, Minako Ueda

Presenter affiliation: Tohoku University, Sendai, Japan. 40

**Phylogenetic insights into mitochondrial diversity and CMS gene distribution in *Beta vulgaris***

Keishi Kubota, Mion Oishi, Eigo Taniguchi, Akiho Akazawa, Kazuyoshi

Kitazaki, Hiroaki Matsuhira, Yosuke Kuroda, Tomohiko Kubo

Presenter affiliation: Hokkaido University, Sapporo, Japan. 41



**The analysis of pollen tube elongation using motion-tracking microscopy**

Fumika Okamoto, Nagisa Sugimoto, Tsuyoshi Aoyama, Yoshikatsu Sato

Presenter affiliation: Nagoya University, Nagoya, Japan.

42

**3D structures of *Arabidopsis* and *Physcomitrella* CR4 reveal the molecular architecture of CRINKLY4 receptor kinases**

Satohiro Okuda, Alberto Caregnato, Ludwig A. Hothorn, Michael Hothorn

Presenter affiliation: The University of Tokyo, Tokyo, Japan; University of Geneva, Geneva, Switzerland.

43

**Enhanced Stereo-seq for high-resolution spatiotemporal transcriptome mapping in *Arabidopsis* seed development**

Bilian Qian, Zhaofeng He, Lichuan Chen, Zeyang Liu, Chuan Chen, Jing Yang, Feng Wen, Ruiying Chen, Hai-Xi Sun, Ziqing Deng, Xin Liu, Xun Xu, Pengfei Jia, Weicai Yang

Presenter affiliation: BGI Research, Beijing, China; State Key Laboratory of Genome and Multi-omics Technologies, Shenzhen, China.

44

**Identification of genomic loci associated with early developmental heterosis in Chinese cabbage (*Brassica rapa* subsp. *pekinensis*)**

Kishore Kumar Sarker, Hasan Mehraj, Ryo Fujimoto

Presenter affiliation: Kobe University, Kobe, Japan.

45

**Juvenile-to-adult phase transition in a common wheat cultivar Norin 61**

Kanata Senoo, Shunsuke Yoshioka, Koichi Yamamori, Shuhei Nasuda, Takanori Yoshikawa

Presenter affiliation: Kyoto University, Kyoto, Japan.

46

**Analysis of the molecular function of DMP9, a double fertilization regulator**

Yura Seo, Mayu Fukuda, Ayane Yokota, Tomoko Igawa

Presenter affiliation: Chiba University, Matsudo, Japan.

47

**A GRAS transcription factor regulates reproductive transition and gibberellin responsiveness in *Marchantia polymorpha***

Eita Shimokawa, Shogo Kawamura, Rui Sun, Maiko Okabe, Yoshihiro Yoshitake, Yukiko Yasui, Shohei Yamaoka, Kiyoshi Mashiguchi, Shinjiro Yamaguchi, Takayuki Kohchi

Presenter affiliation: Graduate School of Biostudies, Kyoto, Japan.

48

**Research on the function of QUE and QIAO in maintaining pollen tube integrity**

Rui Song

Presenter affiliation: Chinese Academy of Sciences, Beijing, China. 49

**Genetic insights into sporadic evolution of self-compatibility in Japanese *Arabidopsis halleri***

Ryo A. Suda, Mathieu Genete, Adrián Contreras-Garrido, Shosei Kubota, Shin-Ichi Morinaga, Xavier Vekemans, Vincent Castric, Takashi Tsuchimatsu

Presenter affiliation: University of Tokyo, Tokyo, Japan. 50

**How are patch-like extracellular structures between the egg cell and the central cell formed?**

Daichi Susaki, Takao Oi, Hinako Oshirabe, Hidenori Takeuchi, Shiori Nagahara, Naoya Sugi, Yumi Goto, Mayuko Sato, Kiminori Toyooka, Tetsu Kinoshita, Daisuke Maruyama

Presenter affiliation: Shizuoka University, Shizuoka, Japan; Yokohama City University, Yokohama, Japan. 51

**Live imaging of developing zygotes in the fern *Ceratopteris richardii***

Hidemasa Suzuki, Sjoerd Woudenberg, Naoki Minamino, Yoshikatsu Sato, Takumi Higaki, Dolf Weijers, Minako Ueda

Presenter affiliation: Tohoku University, Sendai, Japan. 52

**Identification of a novel gene controlling pollen grain number in *Arabidopsis thaliana***

Taro Takahashi, Takashi Tsuchimatsu, Hiroyuki Kakui, Naoto-Benjamin Hamaya, Michaela Oborská-Oplová, Vikram G. Panse, Kentaro K. Shimizu

Presenter affiliation: University of Zurich, Zurich, Switzerland; Yokohama City University, Yokohama, Japan. 53

**Transcriptional dynamics of maternal and paternal alleles during karyogamy in rice zygotes**

Erika Toda, Shizuka Koshimizu, Atsuko Kinoshita, Tetsuya

Higashiyama, Takeshi Izawa, Kentaro Yano, Takashi Okamoto

Presenter affiliation: University of Tokyo, Bunkyo, Tokyo, Japan; Tokyo Metropolitan University, Hachioji, Tokyo, Japan. 54

<b>Tissue-specific transcriptome analysis gives insight into the processes of male-female interaction in the fertilization of <i>Cycas revoluta</i></b> <u>Yukiho Toyama</u> , Satoshiro Okuda, Takamasa Suzuki, Tetsuya Higashiyama Presenter affiliation: The University of Tokyo, Tokyo, Japan.	55
<b>Comparative analysis of genome size, chromosome number, and genome structure between homothallic and heterothallic strains of <i>Closterium</i> (Desmidiaceae, Zygnematophyceae, Streptophyta)</b> <u>Yuki Tsuchikane</u> , Yawako W. Kawaguchi, Misaki Watanabe, Koichi Uehara, Tomoaki Nishiyama, Hiroyuki Sekimoto, Takashi Tsuchimatsu Presenter affiliation: University of Tokyo, Tokyo, Japan.	56
<b>A factor promoting male gamete transmission in rice</b> <u>Katsutoshi Tsuda</u> Presenter affiliation: National Institute of Genetics, Mishima, Japan.	57
<b>Florigen relay in the rice shoot apical meristem</b> Moeko Sato, <u>Hiroyuki Tsuji</u> Presenter affiliation: Yokohama City University, Yokohama, Japan; Nagoya University, Nagoya, Japan.	58
<b>Functional study of SCE1 in gametes interaction of angiosperms</b> <u>Lan Wang</u> , Hongju Li, Weicai Yang Presenter affiliation: Institute of Genetics and Developmental Biology, Beijing, China; University of Chinese Academy of Sciences, Beijing, China.	59
<b>Live imaging-based investigation of <i>WOX</i> regulatory mechanisms during early embryogenesis of <i>Marchantia polymorpha</i></b> <u>Yue Wang</u> , Yusuke Kimata, Akane Fujimori, Hidemasa Suzuki, Yosuke Okamura, Minako Ueda Presenter affiliation: Tohoku University, Sendai, Japan.	60
<b>Epigenetic regulation of flowering in <i>Arabidopsis</i></b> <u>Keqiang Wu</u> Presenter affiliation: National Taiwan University, Taipei, Taiwan, China.	61
<b>Post-pollination reproductive barriers and speciation mechanisms in <i>Torenia crustacea</i></b> <u>Haruto Yahiro</u> , Satoshiro Okuda, Kenta Shirasawa, Tetsuya Higashiyama Presenter affiliation: The University of Tokyo, Tokyo, Japan.	62

**Reassessing rice domestication through gene-level evolutionary dynamics**

Kentaro Yamada, Takeshi Izawa

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

63

**Sex chromosome evolution in the transition of sexual reproductive systems in liverwort**

Yukiko Yasui, Giacomo Potente, Eita Shimokawa, Yuka Umea, Tomoha Tanaka, Shogo Kawamura, Katsuyuki T. Yamato, Katsushi Yamaguchi, Shuji Shigenobu, Masaki Shimamura, Péter Szövényi, Takayuki Kohchi

Presenter affiliation: Kyoto University, Kyoto, Japan.

64

**Exploring genomic regions related to biomass heterosis in *Arabidopsis thaliana***

Hiroto Yonechi, Kazumasa Fujiwara, Ryo Fujimoto

Presenter affiliation: Kobe University, Kobe, Japan.

65

**Sperm cells with the altered GCS1/HAP2 C-terminal amino acid sequences exhibit preferential fertilization with the egg cell**

Ari Yoshimura, Tomoko Igawa

Presenter affiliation: Chiba University, Matsudo, Japan.

66

**A photoperiod-dependent growth phase transition mechanisms during the evolution of land plants**

Yoshihiro Yoshitake, Ryuichi Nishihama, Shohei Yamaoka, Takayuki Kohchi

Presenter affiliation: Kyoto University, Kyoto, Japan.

67

**Decoding the molecular regulation of *ECSs* in fertilization and embryogenesis of *Arabidopsis***

Zifu Zhao, Ce Shi, Meng-xiang Sun

Presenter affiliation: Wuhan University, Wuhan, China.

68

**Molecular understanding of the matrotrophic sporophyte development in *Physcomitrium patens***

Emiko Yoro, Reika Isoda, Kensuke Kawade, Masayoshi Nakamura, Keiko Sakakibara

Presenter affiliation: Rikkyo University, Tokyo, Japan; Osaka University, Osaka, Japan.

108

**SESSION 2**      **EVOLUTION AND ECOLOGY II**

**Chairperson:**    **Xiaoqi Feng**, Institute of Science and Technology Austria,  
Klosterneuburg, Austria

**Circadian gating and entrainment in a natural population of *Arabidopsis***

Pirita Paajanen, Luiza L. de Barros Dantas, Tomoaki Muranaka, Paige E. Panter, Genki Yumoto, Mie N. Honjo, Hiroshi Kudoh, Antony N. Dodd [20'+10']

Presenter affiliation: John Innes Centre, Norwich, United Kingdom. 69

**Weather-dependent tropism satisfies pollinator attraction and floral protection in a perennial *Arabidopsis* flower**

Hiroshi Kudoh, Akari Shibata, Hanako Shimizu, Mie N. Honjo [20'+10']

Presenter affiliation: Center for Ecological Research, Otsu, Japan. 70

**The high-resolution characterization of florigen-producing cells—Total coordination of reproductive transition**

Hiroshi Takagi, Takato Imaizumi [10'+5']

Presenter affiliation: University of Washington, Seattle, Washington; Nagoya University, Nagoya, Japan. 71

**Regulation of stigma senescence in *Arabidopsis* by the JAW-TCP transcription factors**

Abhishek Gupta, Anurag N. Sharma, Utpal Nath [10'+5']

Presenter affiliation: Indian Institute of Science, Bengaluru, India. 72

**Impact of allopolyploidization on homoeologous gene expression in wheat—Insights from cold response**

Moeko Okada, Jianqiang Sun, Toshiaki Tameshige, Masaomi Hatakeyama, Rie Shimizu-Inatsugi, Shigeo Takumi, Jun Sese, Kentaro K. Shimizu [10'+5']

Presenter affiliation: Niigata University, Niigata, Japan; University of Zurich, Zurich, Switzerland; Yokohama City University, Yokohama, Japan. 73

**Beyond water stress—Humidity as a key regulator of epidermal fate and reproductive development**

Woo-Taek Jeon, Joohyun Kang, Jung-Min Lee, Kyungyoon Kim, Hoon Jung, Yuree Lee [20'+10']

Presenter affiliation: Seoul National University, Seoul, South Korea. 74

**SESSION 3** DOMESTICATION AND BREEDING

**Chairperson:** **Weicai Yang**, Chinese Academy of Sciences, Beijing, China

**Impacts of domestication and climate change on the apple tree—  
A population genomic perspective**

Amandine Cornille [20'+10']

Presenter affiliation: New York University Abu Dhabi, Abu Dhabi,  
United Arab Emirates.

75

**A developmental viewpoint of plant inflorescence evolution at  
single-cell resolution**

Xiaosa Xu [20'+10']

Presenter affiliation: University of California, Davis, Davis, California.

76

**How genome doubling mitigates environmental stresses on  
autotetraploid plants—A case study in *Hordeum* species**

Genlou Sun [10'+5']

Presenter affiliation: Saint Mary's University, Halifax, Canada.

77

**Communications across generations—Understanding the  
maternal-filial interface in cereal grain**

Chaoqun Shen, Ling Xu, Ute Baumann, Matthew R. Tucker, Xiujuan  
Yang [10'+5']

Presenter affiliation: Waite Research Institute, Urrbrae, Australia.

78

**The zygotic transition harnessed for synthetic apomixis**

Debra J. Skinner, Venkatesan Sundaresan [10'+5']

Presenter affiliation: University of California, Davis, Davis, California.

79

**Break**

**A deep dive into rice domestication with QTN information in large  
genome data**

Takeshi Izawa [20'+10']

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

80

**Novel function of the plant cuticle layer—Formation of an interspecific reproductive barrier in the Brassicaceae**

Yoshinobu Kato, Yuka Kimura, Hidemasa Teraoka, Tetsuya Hama, Yoshimi Oshima, Maki Niidome, Seiji Takayama, Sota Fujii [10'+5']  
Presenter affiliation: The University of Tokyo, Tokyo, Japan; Japan Science and Technology Agency, Saitama, Japan.

81

**Establishing a molecular framework for MADS-box function in ovule development**

Ling Xu, Dominic Lyford, Lucia Colombo, Xiujuan Yang, Matthew R. Tucker [10'+5']  
Presenter affiliation: University of Adelaide, Urrbrae, Australia.

82

TUESDAY, May 20

***Lunch Excursion***

TUESDAY, May 20—3:00 PM

**POSTER SESSION II**

(See **POSTER SESSION I** for List of Posters)

*3:00 pm – 3:30 pm: Flash talks for **even-numbered** posters*

TUESDAY, May 20—6:45 PM

**SESSION 4      GERMLINE DEVELOPMENT**

**Chairperson:**    **Minako Ueda**, Tohoku University, Sendai, Japan

**Epigenetic reprogramming in plant germlines**

Xiaoqi Feng [20'+10']

Presenter affiliation: Institute of Science and Technology Austria, Klosterneuburg, Austria.

83

**Regulation and dynamics of the nuclear RISC in rice reproduction**

Zein E. Bader, Hinako Tamotsu, Reina Komiya [10'+5']

Presenter affiliation: RIKEN, Yokohama, Japan.

84

**Female-germline cell specification—Plant hormones and positional information**

Yuan Qin [10'+5']

Presenter affiliation: Fujian Agriculture and Forestry University, Fuzhou, China.

85

**Cytoplasmic RNA granule-mediated control of meiosis entry coupled with dynamic reprogramming of meiocyte-wall composition in rice**

Ken-Ichi Nonomura [10'+5']

Presenter affiliation: National Institute of Genetics, Mishima, Shizuoka, Japan; The Graduate School for Advanced Studies, Mishima, Shizuoka, Japan.

86

***In vitro* live cell imaging reveals the dynamics and importance of the cytoskeleton during the asymmetric division of pollen mitosis I in *Nicotiana benthamiana***

Yoko Mizuta, Masako Igarashi, Tomomi Shinagawa, Ikuma Kaneshiro, Daisuke Kurihara [10'+5']

Presenter affiliation: Nagoya University, Nagoya, Japan.

87

**Non-secreted plant defensins regulate pollen development**

Jiao Xue, Liyu Chen [10'+5']

Presenter affiliation: Fujian Agriculture and Forestry University, Fuzhou, China.

88

**Cell-specific sensor complexes coordinate cell wall patterning and architecture to drive cell expansion**

Hyung Kyung H. Lee, Steven K. Moussu, Caroline C. Broyart, Kalina K. Haas, Herman H. Hofte, Julia J. Santiago [20'+10']

Presenter affiliation: University of Lausanne, Lausanne, Switzerland.

89

WEDNESDAY, May 21—8:30 AM

**SESSION 5      POLLEN-PISTIL INTERACTIONS**

**Chairperson:**      **Julia Santiago**, University of Lausanne, Lausanne, Switzerland

**Stigma receptors control intraspecies and interspecies barriers in Brassicaceae**

Qiaohong Duan, Lin Yang, Liu Yang, Xiaoyu Wu, Xiaoshuang Cui [20'+10']

Presenter affiliation: Shandong Agricultural University, Tai'an, China.

90



**A two-step self-pollination mechanism maximizes fertility in the Brassicaceae**

Pu Liu, Xin Quan, Zihan Song, Sheng Zhong, Li-Jia Qu [20'+10']  
Presenter affiliation: New Cornerstone Science Laboratory, College of Life Sciences, Peking University, Beijing, China.

91

**Signaling at the tip—Angiosperm-innovated PRK-ROPGEF modules regulate pollen tube behavior**

Nozomi Naiki, Fumika Okamoto, Kazuo Ebine, Hiromasa Shikata, Takuya T. Nagae, Yoko Mizuta, Tetsuya Higashiyama, Hidenori Takeuchi [10'+5']

Presenter affiliation: Nagoya University, Nagoya, Aichi, Japan.

92

**Exo84c is required for self-incompatible response by mediating the autophagic degradation of exocyst subunits in Brassicaceae**

Tong Zhang, Kun Wang, Shengwei Dou, Erlin Gao, Patrick Hussey, Zongcheng Lin, Pengwei Wang, Qiaohong Duan [10'+5']

Presenter affiliation: Shandong Agricultural University, Tai'an, China; Huazhong Agricultural University, Wuhan, China.

93

**Exploring the underlying mechanism of the reproductive barrier in plants with wet stigma**

Guang-Yuh Jauh [10'+5']

Presenter affiliation: Academia Sinica, Taipei, Taiwan, China; National Chung-Hsing University, Taichung, Taiwan, China.

94

**Break**

**Live-imaging identifies distinct steps in pollen tube reception**

Nicholas Desnoyer, Stefano Bencivenga, Marta Belloli, Ueli Grossniklaus [20'+10']

Presenter affiliation: University of Zurich, Zurich, Switzerland; Zurich-Basel Plant Science Center, Zurich, Switzerland.

95

**Processing extracellular information—MLO signaling in plant reproduction**

Sharon A. Kessler, Sowmiya Devi Venkatesan, Sienna T. Ogawa [20'+10']

Presenter affiliation: Purdue University, West Lafayette, Indiana.

96

**Gamete interaction and fusion in the green lineage**

Stefanie Sprunck, Sophie Tiedemann, Raphael Malka, Phillip Cyprys [20'+10']

Presenter affiliation: University of Regensburg, Regensburg, Germany.

97

**The GEX1 ortholog of *Marchantia polymorpha* is required for the formation of the male pronucleus in the fertilized egg cell**

Shuh-ichi Nishikawa, Kayano Toume, Sakura Eizuka, Yuki Tomita, Takashi Araki, Shohei Yamaoka, Naoki Minamino, Takashi Ueda [10'+5']

Presenter affiliation: Niigata University, Niigata, Japan.

98

WEDNESDAY, May 21—2:00 PM

**SESSION 6      GAMETOPHYTIC / SEED / SPOROPHYTIC DEVELOPMENT**

**Chairperson:**      **Sota Fujii**, University of Tokyo, Bunkyo, Japan

**Signaling and barriers in pollen-pistil interaction**

Tetsuya Higashiyama [20'+10']

Presenter affiliation: University of Tokyo, Tokyo, Japan.

99

**Molecular mechanisms underlying source-sink interaction during seed development in *Arabidopsis thaliana***

Zeyang Liu, Weicai Yang [20'+10']

Presenter affiliation: Institute of Genetics and Developmental Biology, Chinese Academy of Sciences Beijing, China.

100

**Maternal and paternal regulation of cell division around the moment of fertilization**

Sara Simonini [10'+5']

Presenter affiliation: University of Zurich, Zurich, Switzerland.

101

**Search for the target genes of the BONOBO-LRL/DROP heterodimer involved in germ cell differentiation in the gametophytes of land plants**

Shohei Yamaoka, Nako Watanabe, Yuki Tomita, Takuya Miyakawa, Keisuke Inoue, Yoshihiro Yoshitake, Kazuo Ebine, Takeshi Nakano, Takayuki Kohchi, Takashi Araki [10'+5']

Presenter affiliation: Kyoto University, Kyoto, Japan.

102

**Break**

**Actin tug of war—Controlling endosperm nuclear movement to determine final seed size in *Arabidopsis***

Tomokazu Kawashima [20'+10']

Presenter affiliation: University of Kentucky, Lexington, Kentucky.

103

**Live-cell imaging and mechanical simulation of plant axis formation during early embryogenesis**

Sakumi Nakagawa, Hikari Matsumoto, Zichen Kang, Tomonobu Nonoyama, Satoru Tsugawa, Yuga Hanaki, Keigo Tada, Naoya Kamamoto, Katsuyoshi Matsushita, Koichi Fujimoto, Akane Fujimori, Yusuke Kimata, Hidemasa Suzuki, Takumi Higaki, Minako Ueda [20'+10']

Presenter affiliation: Tohoku University, Sendai, Japan.

104

**My-type MADS-box transcription factors regulate endosperm proliferation in Arabidopsis and tomato**

Kai Wang, Yichun Qiu, Hampus Leoo, Claudia Köhler [10'+5']

Presenter affiliation: Max Planck Institute of Molecular Plant Physiology, Potsdam, Germany.

105

**Bridging DNA methylation and chromatin assembly upon fertilization**

Tetsuya Hisanaga, Frederic Berger, Keiji Nakajima [10'+5']

Presenter affiliation: Nara Institute of Science and Technology, Ikoma, Japan; Austrian Academy of Sciences, Vienna BioCenter, Vienna, Austria.

106

**Evolution of plant embryogenesis—Lessons from ferns**

Dolf Weijers [20'+10']

Presenter affiliation: Wageningen University, Wageningen, Netherlands.

107

WEDNESDAY, May 21—6:30 PM

**COCKTAILS and BANQUET**

THURSDAY, May 22

***Departure***