2024 International Symposium

On Plant Stem Cells and Regeneration

Date:November 22,2024,Friday

Time:8:00-18:00

Location: Room A102, the First Complex Building, College of Life Science and Technology, Huazhong Agricultural University

Host Organizers: Chinese Society for Cell Biology, Huazhong Agricultual University

Executive Organizers:

Plant Cell Biology Branch of the Chinese Society of Cell Biology

Stem Cell Committee of Hubei Society of Cell Biology

College of Life Science and Technology Huazhong Agricultural University

Hubei Hongshan Laboratory

National Key Laboratory for Germplasm Innovation & Utilization of Horticultural Crops

Symposium Chairs:

Yuling Jiao (焦雨铃) Peking University,

Chen (陈春丽) Huazhong Agricultual UniversityChunli

Organizing Committee:

Chunli Chen (陈春丽)	Huazhong Agricultual University
Tomomichi Fujita (藤田知道)	Hokkaido University
Xuelei Lai (赖雪雷)	Huazhong Agricultual University
Munenori Kitagawa (北川宗典)	Huazhong Agricultual University
Chao Yang (杨超)	Huazhong Agricultual University
Akira Iwase（岩瀬哲）RIKEN	Japan

Register free

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http://plantstemcell.org.cn/

2024 international symposium on plant stem cells and regeneration on Nov 22nd (Friday)

Time: 8:00-18:00 on November 22nd, 2024 (Friday)

Location: Room A102, the 1st Comprehensive Building, HZAU, Wuhan, China.

Program

8:00-8:30 Opening remark

Session 1 Host: Munenori Kitagawa (北川宗典)

8:30-9:00, Lin Xu (徐麟), National Key Laboratory of Plant Molecular Genetics, China

9:00-9:30, Penelope Lindsay, Cold Spring Harbor Laboratory, USA

9:30-10:00, Jungnam Cho (赵政男), Durham University, UK

10:00-10:30 Tea break

Session 2 Host: Li Yao (姚立)

10:30-11:00, Alfredo Cruz-Ramírez, Advanced Genomics Unit, National Biodiversity Genomics Laboratory (LANGEBIO-CINVESTAV), Mexico

11:00-11:30, Daisuke Takao (高尾大辅), Huazhong Agricultual University, China

11:30-14:30 Lunch and break

Session 3 Host: Na Zhang (张娜)

14:30-15:00, Satoshi Naramoto (楢本悟史), Hokkaido University, Japan

15:00-15:30, Yu Chen (陈渝), RIKEN, Japan

15:30-16:00,Pengwei Wang (王鹏蔚), Huazhong Agricultual University, China

16:00-16:30 Tea break

Session 4 Host: Xuelei Lai (赖雪雷)

16:30-17:00, Stephanie Hutin, European Synchrotron Radiation Facility, France

17:00-17:30, Arp Schnittger, University of Hamburg, Germany

17:30-18:00, Yuling Jiao (焦雨铃), Peking University, China

18:00 Close remark, Yuling Jiao (焦雨铃)

18:30 Dinner

Binary lineage decisions of founder cells endow flexible plant regeneration

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Upon wounding, plants can flexibly regenerate via either organogenesis to replenish the lost organs (e.g. root organogenesis in cuttings), or tissue repair for wound healing (e.g. tissue connection in grafting). By analyses of detached *Arabidopsis thaliana* leaves, we show that the bi-potential founder cell contributes to this regeneration flexibility. After leaf detachment, auxin upregulates both the root organogenesis-related *WOX11* and tissue repair-related *ANAC071*/*096*/*011* in the founder cell, priming the lineage with a binary choice. *ANAC*s and *WOX11* repress each other's expression. For cuttings, *WOX11* expression becomes dominant to stabilise the cell lineage for root organogenesis. For grafting, *ANAC*s expression becomes dominant in the founder cell to stablise the cell lineage for tissue repair. Overall, the WOX11:ANACs module represents a binary attractor model in plant.

Coordination of plant stem cell receptors in the control of maize ear development

Penelope L. Lindsay,116 Abbott Drive Halesite, NY 11743, lindsay@cshl.edu

Plants have the remarkable ability to maintain stem cells throughout their life, housed in meristems, which helps them grow flexibly in response to the environment. Meristem size is controlled by several signaling pathways, including the CLAVATA (CLV) signaling pathway, which consists of a suite of CLV receptors, their CLE peptide ligands, and the transcription factor WUSCHEL (WUS). While this signaling pathway has been much studied over the years, much remains unknown, particularly what connects receptor-mediated perception of CLE peptides to the regulation of WUS. Additionally, how different CLV receptors work together to control meristem maintenance remains obscure. To address these unknowns, I have used proximity labeling with the biotin ligase TurboID to map CLV receptor interactions. From this approach, I have identified receptor interactions, as well as putative downstream targets of the CLV signaling pathway. Through understanding how meristems are regulated, we can target key signaling components to alter maize ear size and shape, which can impact yield-related traits.

Biography：Penelope L. Lindsay, a postdoctoral fellow at Cold Spring Harbor Laboratory, New York. Ph.D. in Plant Biology from Cornell University, Ithaca, NY, in 2019. Focusing on the characterization of transcriptional and developmental regulators of arbuscular mycorrhizal symbiosis in the legume Medicago truncatula. Lindsay has been engaged in research on plant signaling mechanisms underlying maize inflorescence development and the genetic control of inflorescence meristem architecture. She is the recipient of the NSF National Plant Genome Initiative Postdoctoral Fellowship from 2021 to 2024 and has been nominated for the Cold Spring Harbor Laboratory WiSE mentorship award in 2022. Her work has been published in Molecular Plant, Nature Communications, and other prestigious journals.

Roles of RNA methylation in the control of transposon mobilization

Jungnam Cho， Department of Biosciences, Durham University, United Kingdom

Transposons are mobile and ubiquitous DNA molecules that can cause vast genomic alterations. In plants, it is well documented that transposon mobilization is strongly repressed by DNA methylation; however, its regulation at the posttranscriptional level remains relatively uninvestigated. In my talk, I will show data suggesting that transposon RNA is marked by m6A RNA methylation and can be localized in the cytoplasmic compartments known as stress granules (SGs). Intriguingly, SG-localized AtALKBH9B selectively demethylates a heat-activated retroelement, Onsen, and thereby releases it from spatial confinement, allowing for its mobilization. In addition, m6A RNA methylation contributes to transpositional suppression by inhibiting virus-like particle assembly and extrachromosomal DNA production. In summary, this study unveils a previously unknown role for m6A in the suppression of transposon mobility and provides insight into how transposons counteract the m6A-mediated repression mechanism by hitchhiking the RNA demethylase of the host.

Biography:Dr. Jungnam Cho,an Associate Professor in the Department of Biosciences at Durham University, United Kingdom. The Group Leader at the CAS-JIC Centre of Excellence for Plant and Microbial Science from September 2018 to July 2023, and a Postdoctoral Research Associate at both the University of Cambridge and Seoul National University. PhD in Biological Sciences from Seoul National University

His research has been published in several prominent scientific journals, with a focus on genetic and epigenetic reprogramming, molecular mimicry of transposable elements, and the role of RNA methylation in gene expression and thermotolerance in plants. Dr. Cho has publications in journals such as New Phytologist, Plant and Cell Physiology, Science Advances, Nature Communications, and Plant Physiology.

Bi-stable Circuits Modulating Stem Cell Niches and Regeneration in Plants and Animals

Luis Alfredo Cruz-Ramírez

The maintenance of stem cell niches and their role in regeneration is a critical aspect of developmental biology. Our research aims to elucidate the significance of molecular circuits that function influencing the maintenance of stem cell niches and regenerative processes in both plants and animals. Utilizing advanced genomics and developmental biology techniques, we investigate these circuits in specific plant and animal models.

We have characterized a highly conserved circuit in plants composed of CYCD-RBR-SHR-SCR factors, demonstrating its crucial role in Asymmetric cell divisions and stem cell niches maintenance in diverse clades of *Viridiplantae*. In the axolotl (*Ambystoma mexicanum*), we have studied the circuit formed by the Lin28 protein and Let7 microRNAs, which modulates limb regeneration. Our findings reveal that these bi-stable molecular circuits play pivotal roles in regulating stem cell dynamics, impacting tissue regeneration and overall organismal health.

By integrating genomic data with developmental observations, we provide new insights into the mechanisms that govern stem cell niches behavior and stability. Our research not only enhances our understanding of stem cell biology but also holds potential implications for regenerative medicine and plant propagation for agricultural practices.

Biography:Luis Alfredo Cruz-Ramirez, a Principal Investigator at the Advanced Genomics Unit-LANGEBIO of CINVESTAV in Irapuato, Mexico. Ph.D. in Biochemistry and Molecular Biology from the National School of Biological Sciences, National Polytechnic Institute, Mexico, in 2004. Specializing in the role of lipid metabolism in cell integrity and root system development in Arabidopsis thaliana. Cruz-Ramirez has been engaged in research on plant and animal stem cells, regeneration, and plant responses to biotic and abiotic stress. He is the recipient of the European Molecular Biology Organization (EMBO) Long-Term Fellowship for Postdoctoral Research from 2007 to 2009 and holds level II in the Mexican National

Research System. His work has been published in The Plant Cell, PNAS, Cell, and other esteemed journals.

Image-based phenotypic feature profiling identifies changes in cell state

Daisuke Takao，Hubei Hongshan Laboratory，College of Animal Sciences and Technology and College of Veterinary Medicine, Huazhong Agricultural University

As omics techniques become established as standard approaches, to complement them and fill knowledge gaps, there has been an increasing demand for techniques that can analyze information about the morphology and dynamics of large numbers of cells. An important challenge remains how to analyze phenotypes that are difficult to detect and quantify, such as subtle morphological changes in organelles and the cytoskeleton, despite being likely to be directly linked to cell functions. In this study, we established a pipeline that can extract and comprehensively analyze phenotypic features of individual cells from cell populations in standard microscopic images. We demonstrated that our pipeline can detect changes in intracellular structure due to functional disruption in cultured animal cells. In addition, we successfully determined the differentiation state of differentiating muscle cells by analyzing only changes in intracellular structures, without using differentiation markers. This technique has the potential to be applied to quantify stem cell status and analyze cell fate determination processes, and is versatile enough to be applied regardless of model type, whether animal or plant.

Biography：Daisuke Takao, a Professor at Huazhong Agricultural University, Hubei, China. Ph.D. in Cell Biology and Biophysics from The University of Tokyo, Japan, in 2009. Specializing in the diffusion properties of materials inside sea-urchin sperm cells and the development of single-cell electroporation techniques. Takao has been engaged in research on biological processes contributing to pig husbandry and breeding, including muscle cell differentiation and intestinal epithelial cell integrity. He is the recipient of the Hubei Innovative Talent Project and Wuhan Leading Industrial Talents Project in 2023, and the Young Scientist Award from the Japan Society for Cell Biology in 2020. His work has been published in Molecular Biology of the Cell, EMBO Journal, and other esteemed scientific journals.

Emergence of polar auxin transport regulatory machinery before divergence of land plants

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Lab homepage: https://keitai1.sci.hokudai.ac.jp/en.html/

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In seed plants, the polar auxin transport (PAT) plays important roles in various aspects of growth and development. The directionality of PAT is determined by the auxin efflux carrier PIN-FORMED (PIN) proteins that are localized at specific regions of plasma membranes. Homologs of most of the PIN polarity regulators in seed plants are present in bryophytes. Previous study suggested that *Marchantia polymorpha* (Mp)*PIN1* regulates multiple aspects of plant development, including tropism and dorsoventral pattern formation. However, the functions of PIN regulator homologs in *M. polymorpha* are unknown and thus it remains unclear how the PAT system evolved. Here, we propose that PIN-mediated auxin transport system has already emerged before divergence of land plants. We found that the knockout mutants of most of the PIN regulator homologs, including the membrane trafficking regulator ARF-GAP VAN3, as well as AGC-kinase D6PK, phenocopied Mp*pin1* mutants in terms of dorsoventral patterning formation. We also found that mutations in *NPH3/RPT2-like* (*NRL*) homologs, involved in blue light signal transduction, exhibited similar phenotypes. Moreover, we found that the expression of the Marchantia homolog of PIN regulators rescued the arabidopsis mutants. Altogether, these findings suggest that auxin transport system is largely conserved among land plants and therefore is likely operated in the last common ancestor of land plants. We speculate that the ancestral function of the PIN-mediated auxin transport system is to translate the vectorial information provided by blue light and gravity into cell and tissue polarity, acting as a basis for PAT-mediated morphogenesis in land plants.

Biography:Satoshi Naramoto did his Ph.D at the University of Tokyo. The topic of his Ph.D. thesis was the mechanisms of leaf vasculature development. After completing

PhD, he studied the mechanisms of polar auxin transport at RIKEN and VIB/Ghent University. In 2015, he became an Assistant Professor in Tohoku University, and started his work on evolutionary developmental biology in plants. In 2023, he became an Associate Professor in Hokkaido University. He aims to elucidate the molecular mechanisms and evolution of polar auxin transport in plants.

Mechanisms for determining the new meristem fate during plant regeneration

Yu Chen[1, 2], Yetkin Çaka Ince[2], Ayako Kawamura[2], David S. Favero[2], Takamasa Suzuki[3], Keiko Sugimoto[1, 2]

[1]The University of Tokyo, Tokyo, Japan

[2]RIKEN Center for Sustainable Resource Science, Yokohama, Japan

[3]Chubu University, Kasugai, Japan

Plants have remarkable developmental plasticity to regenerate themselves after injury. They can establish new tissues and/or organs by reprogramming the cell fate of differentiated cells. While previous studies have revealed the molecular mechanisms during organ regeneration, how the environmental conditions influence this process is still largely unknown (Chen et al., 2023). Our results revealed the importance of light signals on shoot regeneration and the critical role of the transcription factor HY5 (ELONGATED HYPOCOTYL 5) in controlling the fate of newly established meristems during plant regeneration (Chen et al., 2024). These findings greatly strengthen our understanding of stem cell regulation during plant development and provide a straightforward approach to improve the efficiency of plant regeneration, thus contributing to applications in agriculture and horticulture.

Biography: Yu Chen, a postdoctoral researcher at RIKEN, Japan. I graduated from Chongqing University in 2017 and received my Ph.D degree from Graduate School of Science, The University of Tokyo, Japan in 2023. I then work as a postdoctoral researcher at RIKEN, Japan, focusing on the mechanisms of wound signal transduction and meristem fate regulation during plant regeneration. Currently, I am leading the Grant-in-Aid for Research Activity Start-up Program supported by Japan Society for the Promotion of Science (JSPS), and has participated in the Grant-in-Aid for Transformative Research Areas supported by Ministry of Education, Culture, Sports, Science and Technology of Japan (MEXT), the International Program & Strategic Innovative Program supported by Ministry of Science and Technology of China (MOST), and the Adopting Sustainable Partnerships for Innovative Research

Ecosystem (ASPIRE) Program supported by Japan Science and Technology Agency (JST). The research results have been published in Development, Current Opinion in Plant Biology and Plant Physiology.

植物再生过程中决定新分生组织命运的机制研究

陈渝 [1, 2], Yetkin Çaka Ince[2], 河村彩子 [2], David S. Favero[2], 铃木孝征 [3], 杉本庆子 [1, 2]

[1] 东京大学，东京，日本

[2] 理化学研究所环境资源科学研究中心，横滨，日本

[3] 中部大学，春日井，日本

植物具有显著的发育可塑性，能够在受伤后自我再生。通过重新编程分化细胞的命运，它们可以再生新的组织和/或器官。尽管已有研究揭示了器官再生过程中的分子机制，但环境条件如何影响这一过程在很大程度上仍然是未知的（Chen et al., 2023）。我们的研究结果揭示了光信号对芽再生的重要性，以及转录因子 HY5（ELONGATED HYPOCOTYL 5） 在植物再生过程中控制新分生组织命运的关键作用（Chen et al., 2024）。这些发现极大地加深了我们对植物发育过程中干细胞调控的理解，并提供了一种提高植物再生效率的简便方法，从而对农业和园艺的应用具有重要贡献。

个人简介：陈渝，日本理化学研究所，特别研究员。2017 年本科毕业于重庆大学，2023 年于日本东京大学理学研究院获得博士学位，而后在日本理化学研究所从事博士后研究，主要从事植物再生过程中伤口信号转导及分生组织命运调控的机制研究。目前主持了日本学术振兴会的研究活动启动支援项目（Grant-in-Aid for Research Activity Start-up），先后参与了日本文部科学省的学术变革领域研究（Grant-in-Aid for Transformative Research Areas），中国科学技术部的政府间国际科技创新合作专项，日本科学技术振兴机构的先端国际共同研究推进事业（Adopting Sustainable Partnerships for Innovative Research Ecosystem）等科研项目，研究成果发表于 Development，Current Opinion in Plant Biology 和 Plant Physiology 等期刊。

Selective autophagy of plastids and its functions in plant development

Pengwei Wang

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Autophagy is a conserved degradation pathway that regulates the clearance of paternal substrate at the early embryogenesis stage of animals. However, its mode of action is likely different in plants, which can regenerate through apomixis without fertilisation. Somatic embryogenesis (SE) is a unique plant process widely used for plant propagation and germplasm utilisation. Here, we studied citrus as an example and found a higher autophagic activity after SE initiation. Interestingly, amyloplasts were frequently found inside autophagosomes, whereas the inhibition of autophagy blocks amyloplasts/starch degradation and hinders somatic embryo formation. Furthermore, the consumption of storage lipids was faster in autophagy mutants, suggesting lipid metabolism is activated when starch utilisation is blocked. Exogenous application of autophagy-inducing chemicals significantly promoted the formation of autophagosomes and increased SE efficiency, indicating a positive correlation between autophagy, energy metabolism, and somatic embryo formation in citrus. Taken together, our study unveils a pathway for the degradation of plant-specific organelles and provides an effective approach for plant propagation.

Biography : Pengwei Wang received his BSc in Medical Biochemistry in 2006 and PhD in Plant Cell Biology in 2010. He did his PhD and postdoctoral research in Prof. Chris Hawes' lab at Oxford Brookes University, UK and Prof. Patrick Hussey's lab at Durham University, UK. He has published more than 40 papers as first

author/corresponding author in Current Biology, Nature Communications, Plant Cell, Trends in Plant Science, New Phytologist and other international journals, and authored a monograph in English. He has served as an expert for key, top, and youth projects of the Natural Science Foundation of China (NSFC), and as a correspondent reviewer for the British Biotechnology and Bioscience Research Council (BBSRC) and other scientific research projects. Currently, he is a member of China Overseas Chinese Federation of Experts, China Botanical Society - Plant Cell Biology Committee, China Society of Cell Biology - Organelle Biology Branch, Hubei Society of Cell Biology Board of Directors, Science China Life Sciences editorial board member, New Phytologist editor.

Unveiling the Role of ELF3 Phase Separation in Plant Temperature Sensing and Responses

S. Hutin[1], P.Wigge[2], Y. Stahl[3], L. Costa[4], M. Tully[5], C. Zubieta[1]

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[3]Institute of Molecular Biosciences, Goethe University, Frankfurt, Germany
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[2]European Synchrotron Radiation Facility, Structural Biology Group, Grenoble, France.

Plants adjust their growth, development, and life cycle in response to subtle changes in temperature, yet the molecular mechanisms behind this sensitivity and rapid physiological response remain poorly understood. One emerging mechanism thought to play a critical role is liquid-liquid phase separation (LLPS), which enables the dynamic and reversible compartmentalization of biological macromolecules as a function of the cellular environment. *In vitro*, LLPS of proteins is sensitive to pH, ionic strength and, perhaps most notably, temperature

In this study, we investigated the LLPS behavior of the key developmental regulator EARLY FLOWERING 3 (ELF3). ELF3 contains a prion-like domain (PrLD) that drives phase separation both in vivo and in vitro. Using a combination of in vivo, biochemical, biophysical, and structural techniques, we demonstrate that ELF3 PrLD forms a monodisperse higher-order oligomer in the dilute phase and undergoes temperature-sensitive condensation. A polyQ region within the PrLD fine-tunes the early stages of LLPS without being essential for phase separation, but with important effects on plant response to higher ambient temperature. Additionally, we show that ELF3 condensates can mature into a semi-ordered hydrogel, as confirmed through fluorescence, atomic force microscopy, small-angle X-ray and neutron scattering, electron microscopy, and X-ray diffraction.

These results provide new insights into the structural and biophysical properties of ELF3 PrLD condensates, offering a framework for understanding how biomolecular condensates contribute to temperature sensing in plants.

Biography:Stephanie Hutin, head of Research at the Centre National de la Recherche Scientifique (CNRS) in the Laboratoire Physiologie Cellulaire & Végétale (LPCV), Interdisciplinary Research Institute of Grenoble (IRIG), Grenoble, France. Ph.D. in Cellular Biology from the European Molecular Biology Laboratory (EMBL)/University Grenoble Alpes (UGA), Grenoble, France, in 2011. Specializing in the biochemistry and function of the endogenous mouse piRNA methyltransferase mHEN1 and structural studies of the MIWI PAZ domain. Hutin has been engaged in research on liquid-liquid phase separation (LLPS) of the Arabidopsis thaliana prion-like domain-containing protein EARLY FLOWERING 3 (ELF3) and the development of methods to study this phenomenon. Her work has been published in Proceedings of the National Academy of Sciences, Molecular Plant, and other esteemed journals.

A cytological framework of germline establishment in maize

Arp Schnittger，University of Hamburg，Germany

One of the major developmental phase transitions in eukaryotes is meiosis. Due to its far-reaching consequences, i.e., reduction of the chromosome set by half coupled to recombination and the new assembly of chromosome sets, the decision when and which cells undergo meiosis is tightly controlled. In contrast to animals that specific a cell lineage (germline) leading to the formation of meiocytes early during embryogenesis, flowering plants reprogram somatic cells in reproductive organs late in development to produce an archesporial cell from which a meiocyte is derived and with that initiate a germline that leads to the production of gametes. Notably, the reprogramming progress appears to involve a stem-cell-like state. Thus, first a stem cell state needs to be established and later turned off to allow the differentiation of meiocyte. Very little is known about germline initiation in plants, especially in crops, and none of the regulators of meiotic entry known from animals and yeast are conserved in plants. A few genes have been identified in maize, rice, and mostly Arabidopsis that play a role in the specification of archesporial cells and meiocytes. However, the corresponding studies also show that the mechanisms of germline initiation are likely diversified in flowering plants. Here, I present data on the cellular specification events that ultimately lead to the formation of female meiocytes in the crop species maize. The focus will be on the establishment of a cytological framework of germline entry by applying a recently established live cell imaging approach.

Biography:Arp Schnittger， professor of University of Hamburg,Faculty of Mathematics, Informatics and Natural Sciences,Institute of Plant Science and Microbiology. His Research primarily involves unraveling the mechanisms of meiosis and developing new breeding applications. His research has been published in numerous prestigious journals including: Nature Communications, PNAS Nexus, Plant Direct, Bio-protocol, etc.

Cell division regulates plant stem cell fate

细胞分裂调控植物干细胞命运

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Adult mammal stem cells commonly retain their stem cell identity under proliferative quiescence. Here, we report that stem cell fate maintenance in Arabidopsis bud precursor cells relies on active cell-cycle progression. Inhibition of cell division silences the expression of the shoot meristem marker SHOOT MERISTEMLESS (STM) and promotes cell differentiation. We found that two classes of transcription factors recruit polycomb repressive complex 2 (PRC2) to silence STM. In contrast, cell proliferation decreases H3K27me3 levels to counteract silencing. We describe an epigenetic Sisyphus model that enables the achievement of bistable cell fates. Modeling and experimental data also revealed that prolonged quiescence leads to irreversible differentiation. We propose that sequence-dependent PRC2 recruitment in plants enables precise silencing of cell fate genes, and that cell proliferation maintains pluripotency.

哺乳动物成体干细胞通常依靠增殖静止保持干细胞特性。本研究中，我们发现拟南芥芽原基细胞中的干细胞命运维持依赖于活跃的细胞周期进程。抑制细胞分裂会沉默分生组织标记基因 SHOOT MERISTEMLESS（STM）的表达，并促进细胞分化。我们发现两类转录因子招募多梳抑制复合体 2（PRC2）来沉默 STM。相反，细胞增殖会降低 H3K27me3 水平，以抵消沉默效应。我们提出了表观遗传介导的动态模型，该模型能够实现双稳态细胞命运。模拟和实验数据还表明，长期的静止会导致不可逆的分化。植物中 PRC2 的序列依赖性招募能够精确沉默细胞命运基因，而细胞增殖则维持了多能性。

Biography:Prof. Jiao Yuling is a professor at the School of Life Sciences, Peking University. He is a young and middle-aged science and technology innovation leader, a “Ten Thousand People Program” science and technology innovation leader, and

a recipient of the China Youth Science and Technology Award. Dr. Jiao graduated from Yale University, majoring in molecular, cellular and developmental biology, and then worked as a postdoctoral researcher in the Department of Biology, California Institute of Technology. He is currently the president of the Plant Organogenesis Branch of the Chinese Society of Cell Biology, the deputy director of the Youth Working Committee of the Chinese Society of Cell Biology, and a council member of the Chinese Society of Cell Biology. His research interests include plant developmental biology and synthetic genomics.

个人简介：焦雨铃，北京大学生命科学学院教授。中青年科技创新领军人才、“万人计划”科技创新领军人才、中国青年科技奖获得者。博士毕业于耶鲁大学分子、细胞与发育生物学专业，后于加州理工学院生物学部从事博士后研究。现担任中国细胞生物学学会植物器官发生分会会长、中国细胞生物学学会青年工作委员会副主任、中国细胞生物学学会理事等。研究方向为植物发育生物学和合成基因组学。