

On the Cover: Scanning Electron Micrograph of the tip of a young maize tassel, showing several axillary meristems developing from an apical inflorescence meristem. Liu et al. show that the transcriptional corepressor REL2 is involved in the initiation and maintenance of these meristems. Image credit: Andrea Gallavotti.

Note: The article affiliated with this image will be appearing in the January 2019 issue of Plant Physiology, Volume 179 Issue 1.

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^[OPEN]NRT1.1-Related NH₄⁺ Toxicity Is Associated with a Disturbed Balance between NH₄⁺ Uptake and Assimilation. Shaofen Jian, Qiong Liao, Haixing Song, Qiang Liu, Joe Eugene Lepo, Chunyun Guan, Jianhua Zhang, Abdelbagi M. Ismail, and Zhenhua Zhang

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RESEARCH ARTICLES

BIOCHEMISTRY AND METABOLISM

- A Musashi Splice Variant and Its Interaction Partners Influence Temperature Acclimation in *Chlamydomonas*. Wenshuang Li, David Carrasco Flores, Juliane Füssel, Jan Euteneuer, Hannes Dathe, Yong Zou, Wolfram Weisheit, Volker Wagner, Jan Petersen, and Maria Mittag
Three RNA metabolism proteins are part of an interaction network that integrates temperature information and confers acclimation to changes in ambient temperature in the green alga Chlamydomonas. 1489
- [OPEN] Identification of Genes Encoding Enzymes Catalyzing the Early Steps of Carrot Polyacetylene Biosynthesis. Lucas Busta, Won Cheol Yim, Evan William LaBrant, Peng Wang, Lindsey Grimes, Kiah Malyszka, John C. Cushman, Patricia Santos, Dylan K. Kosma, and Edgar B. Cahoon
Members of a large family of fatty acid desaturase enzymes in carrot control the production of dehydrocrepenynic acid, an intermediate in the falcarin-type polyacetylene biosynthesis pathway. 1507
- [OPEN] The Spermine Synthase OsSPMS1 Regulates Seed Germination, Grain Size, and Yield. Yajun Tao, Jun Wang, Jun Miao, Jie Chen, Shujun Wu, Jinyan Zhu, Dongping Zhang, Houwen Gu, Huan Cui, Shuangyue Shi, Mingyue Xu, Youli Yao, Zhiyun Gong, Zefeng Yang, Minghong Gu, Yong Zhou, and Guohua Liang
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- CLASP Facilitates Transitions between Cortical Microtubule Array Patterns. David Thoms, Laura Vineyard, Andrew Elliott, and Sidney L. Shaw
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- ### ECOPHYSIOLOGY AND SUSTAINABILITY
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The translocon at the outer envelope membrane of chloroplast Toc132 plays an important role in alleviating arsenic toxicity in chloroplasts. 1568
- [OPEN] The Causes of Leaf Hydraulic Vulnerability and Its Influence on Gas Exchange in *Arabidopsis thaliana*. Christine Scoffoni, Caetano Albuquerque, Hervé Cochard, Thomas N. Buckley, Leila R. Fletcher, Marissa A. Caringella, Megan Bartlett, Craig R. Brodersen, Steven Jansen, Andrew J. McElrone, and Lauren Sack
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Diurnal Variation in Nonstructural Carbohydrate Storage in Trees: Remobilization and Vertical Mixing.
Aude Tixier, Jessica Orozco, Adele Amico Roxas, J. Mason Earles, and Maciej A. Zwieniecki

NSC storage is highly dynamic at the diurnal timescale, exhibiting vertical mixing and a potential role for the xylem as a secondary pathway for sugar redistribution.

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GENES, DEVELOPMENT AND EVOLUTION

[OPEN]RNA Polymerase II Read-Through Promotes Expression of Neighboring Genes in SAL1-PAP-XRN Retrograde Signaling. *Peter A. Crisp, Aaron B. Smith, Diep R. Ganguly, Kevin D. Murray, Steven R. Eichten, Anthony A. Millar, and Barry J. Pogson*

Consequences of transcription out of bounds: a retrograde signal can trigger RNA Polymerase II read-through, upregulating the expression of downstream genes.

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[OPEN]Enhancer-Promoter Interaction of *SELF PRUNING 5G* Shapes Photoperiod Adaptation.
Shuaiyin Zhang, Zhicheng Jiao, Lei Liu, Ketao Wang, Deyi Zhong, Shengben Li, Tingting Zhao, Xiangyang Xu, and Xia Cui

Loss of an enhancer element in the 3' untranslated region of SP5G conferred day-length insensitivity to domesticated tomato cultivars and helped the species spread worldwide.

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[OPEN]Efficient Replication of the Plastid Genome Requires an Organellar Thymidine Kinase.
Monique Le Ret, Susan Belcher, Stéphanie Graindorge, Clémentine Wallet, Sandrine Koechler, Mathieu Erhardt, Rosalind Williams-Carrier, Alice Barkan, and José M. Gualberto

Depletion of organellar thymidine kinase affects plastid genome replication and repair, leading to the accumulation of truncated genomes and the apparent mobilization of new replication origins.

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MEMBRANES, TRANSPORT AND BIOENERGETICS

K⁺ Efflux Antiporters 4, 5, and 6 Mediate pH and K⁺ Homeostasis in Endomembrane Compartments.
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[OPEN]SNAREs SYP121 and SYP122 Mediate the Secretion of Distinct Cargo Subsets. *Sakharam Waghmare, Edita Lileikyte, Rucha Karnik, Jennifer K. Goodman, Michael R. Blatt, and Alexandra M.E. Jones*

Two closely related SNAREs mediate secretion of specific cargo proteins in Arabidopsis thaliana.

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[OPEN]Going with the Flow: Multiscale Insights into the Composite Nature of Water Transport in Roots.
Valentin Couvreur, Marc Faget, Guillaume Lobet, Mathieu Javaux, François Chaumont, and Xavier Draye

A bio-physical model of the "root hydraulic anatomy" allows testing hypotheses related to radial water transport down to the cell level and proves complementary to current experimental approaches.

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SIGNALING AND RESPONSE

[OPEN]A Temperature-Sensitive Misfolded *bri1-301* Receptor Requires Its Kinase Activity to Promote Growth.
Xiaowei Zhang, Linyao Zhou, Yukuo Qin, Yongwu Chen, Xiaolei Liu, Muyang Wang, Juan Mao, Jianjun Zhang, Zuhua He, Linchuan Liu, and Jianming Li

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[OPEN] Network Analysis Reveals a Role for Salicylic Acid Pathway Components in Shade Avoidance.
*Kazunari Nozue, Upendra Kumar Devisetty, Saradadevi Lekkala, Patricia Mueller-Moulé, Aurélie Bak,
Clare L. Casteel, and Julin N. Maloof*

Shade avoidance involves complex regulation of multiple hormone network modules, and salicylic acid pathway genes are required for petiole shade avoidance.

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[OPEN] Articles can be viewed without a subscription.