ON THE COVER

LIPASE1 is induced by GA in the seed epidermis during germination and plays a role in fueling seedling growth until photosynthetic capacity is acquired. Rombolá-Caldentey et al. (pages 2905–2919) show that two HD-ZIP transcription factors, ATML1 and PDF2, play a role in the regulation of epidermal GA signaling. LIP1 is activated by GA due to the release of these HD-ZIP TFs from their inhibitory interaction with DELLA proteins, an effect that is dependent on the L1-box sequence in the LIP1 promoter. The cover image shows results of in situ mRNA hybridization revealing that PDF2 mRNAs are specifically localized in the epidermis of the embryo axis (dark purple color) during this developmental stage, a location compatible with the proposed regulatory role.

IN BRIEF

Finding Dt2, the Dominant Gene That Specifies the Semideterminate Growth Habit in Soybean
Jennifer Lockhart

Unexpected Structure of Plant Promoters
Nancy A. Eckardt

Observe Them in Their Native Habitat: Atomic Force Microscopy of Photosynthetic Complexes in Thylakoid Membranes
Nancy R. Hofmann

Boron Transport in Maize
Jennifer Mach

LARGE-SCALE BIOLOGY ARTICLES

Inference of Transcriptional Networks in Arabidopsis through Conserved Noncoding Sequence Analysis
Jan Van de Velde, Ken S. Heyndrickx, and Klaas Vandepoele

Paired-End Analysis of Transcription Start Sites in Arabidopsis Reveals Plant-Specific Promoter Signatures
Taj Morton, Jalean Petricka, David L. Corcoran, Song Li, Cara M. Winter, Alexa Carda, Philip N. Benfey, Uwe Ohler, and Molly Megraw

RESEARCH ARTICLES

Evolution of the BBAA Component of Bread Wheat during Its History at the Allohexaploid Level
Huakun Zhang, Bo Zhu, Bao Qi, Xiaowan Gou, Yuzhu Dong, Chunming Xu, Bangjiao Zhang, Wei Huang, Chang Liu, Xutong Wang, Chunwu Yang, Hao Zhou, Khalil Kashkowski, Moshe Feldman, Jonathan F. Wendel, and Bao Liu

Polyploid Evolution of the Brassicaceae during the Cenozoic Era

Integrated Syntenic and Phylogenomic Analyses Reveal an Ancient Genome Duplication in Monocots
Yuannian Jiao, Jingping Li, Haibao Tang, and Andrew H. Paterson
DNA Topoisomerase I Affects Polycomb Group Protein-Mediated Epigenetic Regulation and Plant Development by Altering Nucleosome Distribution in Arabidopsis

Xiang Liu, Lei Gao, Thanh Theresa Dinh, Ting Shi, Dongming Li, Ruozhong Wang, Lin Guo, Langtao Xiao, and Xuemei Chen

Genetical and Comparative Genomics of Brassica under Altered Ca Supply Identifies Arabidopsis Ca-Transporter Orthologs

Neil S. Graham, John P. Hammond, Artem Lysenko, Sean Mayes, Seosamh O Lochlainn, Bego Blasco, Helen C. Bowen, Chris J. Rawlings, Juan J. Rios, Susan Welham, Pierre W. C. Carion, Lionel X. Dupuy, Graham J. King, Philip J. White, and Martin R. Broadley

Dt2 Is a Gain-of-Function MADS-Domain Factor Gene That Specifies Semideterminacy in Soybean

Jieqing Ping, Yunfeng Liu, Lianjun Sun, Meixia Zhao, Yinghui Li, Maoyun Shi, Ye Sui, Feng Lin, Xiaodong Liu, Zongxiang Tang, Hanh Nguyen, Zhixi Tian, Lijuan Qiu, Randall L. Nelson, Thomas E. Clemente, James E. Specht, and Jianxin Ma

LNK1 and LNK2 Are Transcriptional Coactivators in the Arabidopsis Circadian Oscillator

Qiguang Xie, Peng Wang, Xian Liu, Li Yuan, Lingbao Wang, Chenguang Zhang, Yue Li, Hongya Xing, Liya Zhi, Zhihui Yue, Chunsheng Zhao, C. Robertson McClung, and Xiaodong Xu

HUA ENHANCER1 Is Involved in Posttranscriptional Regulation of Positive and Negative Regulators in Arabidopsis Photomorphogenesis

Huang-Lung Tsai, Yi-Hang Li, Wen-Ping Hsieh, Meng-Chun Lin, Ji Hoan Ahn, and Shu-Hsing Wu

Transcriptome Analysis Reveals the Same 17 S-Box F-Box Genes in Two Haplotypes of the Self-Incompatibility Locus of Petunia inflata

Justin S. Williams, Joshua P. Der, Claude W. dePamphilis, and Teh-hui Kao

TAA1-Regulated Local Auxin Biosynthesis in the Root-Apex Transition Zone Mediates the Aluminum-Induced Inhibition of Root Growth in Arabidopsis

Zhong-Bao Yang, Xiaooyu Geng, Chunmei He, Feng Zhang, Rong Wang, Walter J. Horst, and Zhaojun Ding

Arabidopsis DELLA and Two HD-ZIP Transcription Factors Regulate GA Signaling in the Epidermis through the L1 Box cis-Element

Belén Rombolá-Caldentey, Paloma Rueda-Romero, Raquel Iglesias-Fernández, Pilar Carbonero, and Luis Orove-Sánchez

DELLAs Function as Coactivators of GAI-ASSOCIATED FACTOR1 in Regulation of Gibberellin Homeostasis and Signaling in Arabidopsis

Jutarou Fukazawa, Hiroshi Teramura, Satoru Murakoshi, Yuji Kamiya, Jieqing Liu, Lei Gao, Thanh Theresa Dinh, Ting Shi, Dongming Li, Ruozhong Wang, Lin Guo, Langtao Xiao, and Xuemei Chen

The Cysteine Protease CEP1, a Key Executor Involved in Tapetal Programmed Cell Death, Regulates Pollen Development in Arabidopsis

Dandan Zhang, Di Liu, Xiaomeng Lv, Ying Wang, Zhili Xun, Zhihong Liu, Fenglan Li, and Hai Lu

The Boron Efflux Transporter ROTTEN EAR Is Required for Maize Inflorescence Development and Fertility

Mithu Chatterjee, Zara Tabi, Mary Galli, Simon Malcomber, Amy Buck, Michael Muszynski, and Andrea Gallavotti

Transport of Boron by the tassel-less1 Aquaporin Is Critical for Vegetative and Reproductive Development in Maize


The Structure of the Catalytic Domain of a Plant Cellulose Synthase and Its Assembly into Dimers

Anna T. Olek, Catherine Rayon, Lee Makowski, Hyung Rae Kim, Peter Ciesielski, John Badger, Lake N. Paul, Subhangi Ghosh, Daisuke Kihara, Michael Crowley, Michael E. Himmel, Jeffrey T. Bolin, and Nicholas C. Carpita
Arabidopsis and Maize RidA Proteins Preempt Reactive Enamine/Imine Damage to Branched-Chain Amino Acid Biosynthesis in Plastids

Thomas D. Niehaus, Thuy N.D. Nguyen, Satinder K. Gidda, Mona ElBadawi-Sidhu, Jennifer A. Lambrecht, Donald R. McCarty, Diana M. Downs, Arthur J.L. Cooper, Oliver Fiehn, Robert T. Mullen, and Andrew D. Hanson

Cytosolic Phosphorylating Glyceraldehyde-3-Phosphate Dehydrogenases Affect Arabidopsis Cellular Metabolism and Promote Seed Oil Accumulation

Liang Guo, Fangfang Ma, Fang Wei, Brian Fanella, Doug K. Allen, and Xuemin Wang

Combined Increases in Mitochondrial Cooperation and Oxygen Photoreduction Compensate for Deficiency in Cyclic Electron Flow in Chlamydomonas reinhardtii

Kieu-Van Dang, Julie Plet, Dimitri Tollette, Martina Jokel, Stéphan Cuineté, Patrick Carrier, Pascarine Auré, Pierre Richaud, Xenie Johnson, Jean Afric, Yagut Allahverdiyeva, and Gilles Peltier

Nanodomains of Cytochrome b$_6$f and Photosystem II Complexes in Spinach Grana Thylakoid Membranes

Matthew P. Johnson, Cvetelín Vasiliev, John D. Olsen, and C. Neil Hunter

Insights into the Localization and Function of the Membrane Trafficking Regulator GDNM ARF-GEF at the Golgi Apparatus in Arabidopsis

Satoshi Naramoto, Marisa S. Otegui, Natsumaro Kutsuna, Riet de Rycke, Tomoko Dainobu, Michael Karampelias, Masaru Fujimoto, Elena Feraru, Daisuke Miki, Hiroo Fukuda, Akihiko Nakano, and Jiří Friml

Direct Phosphorylation and Activation of a Mitogen-Activated Protein Kinase by a Calcium-Dependent Protein Kinase in Rice

Kabin Xie, Jianping Chen, Qin Wang, and Yinong Yang

Uric Acid Accumulation in an Arabidopsis Urate Oxidase Mutant Impairs Seedling Establishment by Blocking Peroxisome Maintenance

Oliver K. Hauck, Jana Scharnberg, Nieves Medina Escobar, Gerhard Wanner, Patrick Giavalisco, and Claus-Peter Witte

Phylobiochemical Characterization of Class-Ib Aspartate/Prephenate Aminotransferases Reveals Evolution of the Plant Arogenate Phenylalanine Pathway

Camilla Dornfeld, Alexandra J. Weisberg, Ritesh K C, Natalia Dudareva, John G. Jelesko, and Hiroshi A. Maeda

Arabidopsis MSL10 Has a Regulated Cell Death Signaling Activity That Is Separable from Its Mechanosensitive Ion Channel Activity

Kira M. Veley, Grigory Maksaev, Elizabeth M. Frick, Emma January, Sarah C. Kloeper, and Elizabeth S. Haswell

Arabidopsis SNAREs SYP61 and SYP121 Coordinate the Trafficking of Plasma Membrane Aquaporin PIP2;7 to Modulate the Cell Membrane Water Permeability

Charles Hachez, Timothée Laloux, Hagen Reinhardt, Damien Cavez, Hervé Degand, Christopher Grefen, Riet De Rycke, Dirk Inzé, Michael R. Blatt, Eugenia Russinova, and François Chaumont

The Ubiquitous Distribution of Late Embryogenesis Abundant Proteins across Cell Compartments in Arabidopsis Offers Tailored Protection against Abiotic Stress

Adrien Candat, Gaël Paszkiewicz, Martine Neveu, Romain Gautier, David C. Logan, Marie-Hélène Avelange-Macherel, and David Macherel

Closely Related NAC Transcription Factors of Tomato Differentially Regulate Stomatal Closure and Reopening during Pathogen Attack
Interaction of the *Arabidopsis* GTPase RabA4c with Its Effector PMR4 Results in Complete Penetration Resistance to Powdery Mildew

Dorothea Ellinger, Annemarie Göckner, Jasmin Koch, Marcel Naumann, Vanessa Stürtz, Kevin Schütt, Chithra Manisseri, Shauna C. Somerville, and Christian A. Voigt

The *Arabidopsis* M哈利chn-Like Leucine-Rich Repeat Receptor-Like Kinase IOS1 Associates with the Pattern Recognition Receptors FLS2 and EFR and Is Critical for Priming of Pattern-Triggered Immunity

Ching-Wei Chen, Dario Panzeri, Yu-Hung Yeh, Yasuhiro Kadota, Pin-Yao Huang, Chia-Nan Tao, Milena Roux, Shiao-Chiao Chien, Tzu-Chuan Chin, Po-Wei Chu, Cyril Zipfel, and Laurent Zimmerli

Some figures in this article are displayed in color online but in black and white in the print edition.

Online version contains Web-only data.

Articles can be viewed online without a subscription.