On the Cover: Detection of the diurnal environment requires a circadian system that is correctly integrated with the light-dark cycle. EARLY FLOWERING4 (ELF4) is required to fulfill this normal circadian function. McWatters et al. (pp. 391–401) have shown that ELF4 has two functions within the clock. ELF4 was found to be a circadian element required both for clock resetting at the evening phase of the day (the light-to-dark phase of entrainment), and it was also found to be required for persistence of clock oscillations. For the latter, ELF4 was found to be a dose-dependent activator of the morning clock genes CCA1 and LHY. ELF4 is thus a core component of the circadian oscillator. The cover cartoon illustrates a plant having trouble sleeping. This caricature is indicative of elf4 mutant defects in detecting dusk. The cartoon was drawn by Prof. Dr. Edward Himelblau at California Polytechnic State University.
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MAM3 Catalyzes the Formation of All Aliphatic Glucosinolate Chain Lengths in Arabidopsis. Susanne Textor, Jan-Willem de Kraker, Bettina Hause, Jonathan Gershenzon, and James G. Tokuhisa

Characterization of Lipid Rafts from Medicago truncatula Root Plasma Membranes: A Proteomic Study Reveals the Presence of a Raft-Associated Redox System. Benoît Lefebvre, Fabienne Furt, Marie-Andrée Hartmann, Louise V. Michaelson, Jean-Pierre Carde, Françoise Sargueil-Boiron, Michel Rossignol, Johnathan A. Napier, Julie Cullimore, Jean-Jacques Bessoule, and Sébastien Mongrand

A Genomic Approach to Suberin Biosynthesis and Cork Differentiation. Marçal Soler, Olga Serra, Marisa Molinas, Gemma Huguet, Silvia Fluch, and Mercè Figueras

Flavonoid Biosynthesis in Barley Primary Leaves Requires the Presence of the Vacuole and Controls the Activity of Vacuolar Flavonoid Transport. Krasimira Marinova, Katja Kleinschmidt, Gottfried Weissenböck, and Markus Klein

Synergistic Substrate Inhibition of ent-Copalyl Diphosphate Synthase: A Potential Feed-Forward Inhibition Mechanism Limiting Gibberellin Metabolism. Sladjana Prisic and Reuben J. Peters

Cloning and Characterization of Unusual Fatty Acid Desaturases from Anemone leveillei: Identification of an Acyl-Coenzyme A C20 Δ5-Desaturase Responsible for the Synthesis of Sciadonic Acid. Olga Sayanova, Richard Haslam, Monica Venegas Caleron, and Johnathan A. Napier

Light and Metabolic Signals Control the Selective Degradation of Sucrose Synthase in Maize Leaves during Deetiolation. Quan-Sheng Qiu, Shane C. Hardin, Jacob Mace, Thomas P. Brunnell, and Steven C. Huber

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E2F Regulates FASCIATA1, a Chromatin Assembly Gene Whose Loss Switches on the Endocycle and Activates Gene Expression by Changing the Epigenetic Status. Elena Ramirez-Parrillo and Crisanto Gutierrez

GIGANTEA Regulates Phytochrome A-Mediated Photomorphogenesis Independently of Its Role in the Circadian Clock. Karina Andrea Oliverio, María Crepy, Ellen L. Martin-Tryon, Raechel Milich, Stacey L. Harmer, Jo Putterill, Marcelo J. Yanovsky, and Jorge J. Casal

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Combined Transcriptome and Proteome Analysis Identifies Pathways and Markers Associated with the Establishment of Rapeseed Microspore-Derived Embryo Development. Ronny Joosen, Jan Cordewener, Ence Darno Jaya Supena, Oscar Vorst, Michiel Lammers, Chris Malepaard, Tieme Zeilmaker, Brian Miki, Txinan America, Jan Casters, and Kim Boutilier


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Resistance to Botrytis cinerea Induced in Arabidopsis by Elicitors Is Independent of Salicylic Acid, Ethylene, or Jasmonate Signaling But Requires PHYTOALEXIN DEFICIENT3. Simone Ferrari, Roberta Galletti, Carine Denoux, Giulia De Lorenzo, Frederick M. Ausubel, and Julia Dewdney

Magnaporthe grisea Infection Triggers RNA Variation and Antisense Transcript Expression in Rice. Malali Gowda, R.-C. Venu, Huameng Li, Chatchawan Jantasuriyarat, Songbiao Chen, Maria Bellizzi, Vishal Pampanwar, HyeRan Kim, Ralph A. Dean, Eric Stahlberg, Rod Wing, Cari Soderlund, and Guo-Liang Wang

SYSTEMS BIOLOGY, MOLECULAR BIOLOGY, AND GENE REGULATION

A WUSCHEL-LIKE HOMEOBOX Gene Represses a YABBY Gene Expression Required for Rice Leaf Development. Mingqiu Dai, Yongfeng Hu, Yu Zhao, Huifang Liu, and Dao-Xiu Zhou


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