IN BRIEF

Never Let a Good Crisis Go to Waste: The Kinesin ARK1 Promotes Microtubule Catastrophe during Root Hair Development
Jennifer Lockhart

Modeling Sugar Metabolism in Tomato Fruit
Jennifer Mach

LARGE-SCALE BIOLOGY ARTICLE

Model-Assisted Analysis of Sugar Metabolism throughout Tomato Fruit Development Reveals Enzyme and Carrier Properties in Relation to Vacuole Expansion
Bertrand P. Beauvoit, Sophie Colombié, Antoine Monier, Marie-Hélène Andrieu, Benoît Biais, Camille Bénard, Catherine Chéniclet, Martine Dieuaide-Noubhani, Christine Nazaret, Jean-Pierre Mazat, and Yves Gibon

RESEARCH ARTICLES

Comparative Transcriptome Atlases Reveal Altered Gene Expression Modules between Two Cleomaceae C₃ and C₄ Plant Species

eQTL Mapping of Transposon Silencing Reveals a Position-Dependent Stable Escape from Epigenetic Silencing and Transposition of AtMu1 in the Arabidopsis Lineage
Tina Kabelitz, Christian Kappel, Kirstin Henneberger, Eileen Benke, Christiane Nöh, and Isabel Bäurle

Analysis of Natural and Induced Variation in Tomato Glandular Trichome Flavonoids Identifies a Gene Not Present in the Reference Genome
Jeongwoon Kim, Yuki Matsuba, Jing Ning, Anthony L. Schilmiller, Dagan Hammar, A. Daniel Jones, Eran Pichersky, and Robert L. Last

Production of Bioactive Diterpenoids in the Euphorbiaceae Depends on Evolutionarily Conserved Gene Clusters
Andrew J. King, Geoffrey D. Brown, Alison D. Gilday, Tony R. Larson, and Ian A. Graham

ON THE COVER

Eng and Wasteneys (pages 3372–3386) study microtubule dynamics and show that Arabidopsis thaliana ARK1 plays a key role in root hair tip growth by promoting microtubule catastrophe events. This destabilizing activity appears to maintain adequate free tubulin concentrations in order to permit rapid microtubule growth, which in turn is correlated with uniform tip growth. The cover image shows a confocal micrograph of Arabidopsis cotyledon pavement and guard cells expressing 35Spro:mCherry-MAP4MBD (green) and ARK1pro:ARK1-GFP (purple). ARK1-GFP is asymmetrically distributed on the growing plus ends of microtubules where it promotes the disassembly of microtubules.
Pollen-Specific Activation of *Arabidopsis* Retrogenes Is Associated with Global Transcriptional Reprogramming

Ahmed Abdelsamad and Ales Pecinka

Identification of a Sphingolipid α-Glucuronosyltransferase That Is Essential for Pollen Function in *Arabidopsis*

Emilie A. Rennie, Berit Ebert, Godfrey P. Miles, Rebecca E. Cahoon, Katy M. Christiansen, Solomon Stonebloom, Hoda Khatab, David Twell, Christopher J. Petzold, Paul D. Adams, Paul Dupree, Joshua L. Heazlewood, Edgar B. Cahoon, and Henrik Vibe Scheller

The *Arabidopsis* 14-3-3 Protein RARE COLD INDUCIBLE 1A Links Low-Temperature Response and Ethylene Biosynthesis to Regulate Freezing Tolerance and Cold Acclimation

Rafael Catalá, Rosa López-Cobollo, M. Mar Castellano, Trinidad Angosto, José M. Alonso, Joseph R. Ecker, and Julio Salinas

A Mitogen-Activated Protein Kinase Cascade Module, MKK3-MPK6 and MYC2, Is Involved in Blue Light-Mediated Seedling Development in *Arabidopsis*

Vishmita Sethi, Badmi Raghuram, Alok Krishna Sinha, and Sudip Chattopadhyay

Manipulation of Mitogen-Activated Protein Kinase Kinase Signaling in the *Arabidopsis* Stomatal Lineage Reveals Motifs That Contribute to Protein Localization and Signaling Specificity

Gregory R. Lampard, Diego L. Wengier, and Dominique C. Bergmann

The Microtubule Plus-End Tracking Protein ARMADILLO-REPEAT KINESIN1 Promotes Microtubule Catastrophe in *Arabidopsis*

Ryan Christopher Eng and Geoffrey O. Wasteneys

The *Os-AKT1* Channel Is Critical for K⁺ Uptake in Rice Roots and Is Modulated by the Rice CBL1-CIPK23 Complex

Juan Li, Yu Long, Guo-Ning Qi, Juan Li, Zi-Jian Xu, Wei-Hua Wu, and Yi Wang

The ABC Transporter ABCG1 Is Required for Suberin Formation in Potato Tuber Periderm

Ramona Landgraf, Ulrike Smolka, Simone Altmann, Lennart Eschen-Lippold, Melanie Senning, Sophia Sonnewald, Benjamin Weigel, Nadezhda Frolova, Nadine Strehmel, Gerd Hause, Dierk Scheel, Christoph Böttcher, and Sabine Rosahl

Dynamics of Vacuoles and H⁺-Pyrophosphatase Visualized by Monomeric Green Fluorescent Protein in *Arabidopsis*: Artifactual Bulbs and Native Intravacuolar Spherical Structures

Shoji Segami, Sachi Miyake, Ai Miyake, Mariko Asaoka, and Masayoshi Maeshima

Functional Characterization of the Small Regulatory Subunit PetP from the Cytochrome b₆/f Complex in *Thermosynechococcus elongatus*
Loss of Ceramide Kinase in Arabidopsis Impairs Defenses and Promotes Ceramide Accumulation and Mitochondrial H2O2 Bursts

Fang-Cheng Bi, Zhe Liu, Jian-Xin Wu, Hua Liang, Xue-Li Xi, Ce Fang, Tie-Jun Sun, Jian Yin, Guang-Yi Dai, Chan Rong, Jean T. Greenberg, Wei-Wei Su, and Nan Yao

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