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**On the Cover:** The cover photo, taken by Dr. Brendan Choat, shows the detailed structure of the *Metasequoia glyptostroboides* pit membrane magnified 46,000 times using scanning electron microscopy. In conifers, water transport occurs through single-celled tracheids that are interconnected by wall perforations, known as intertracheid pits. The pit membrane contained within these structures is composed of a centrally thickened region known as the torus surrounded by a porous margo. Because pit membranes serve to transport water as well as prevent the spread of air by cavitation, natural selection has acted on the torus-margo pit membrane to optimize either drought resistance or pit hydraulic efficiency, depending on the water availability of species' habitats. In this issue, Pittermann et al. (pp. 1919–1931) explore the relationship between the structure and function of torus-margo pit membranes and the evolutionary trajectory of drought resistance in the Cupressaceae family of conifers.

## ON THE INSIDE

*Peter V. Minorsky* 1443

## UPDATES

<sup>[C]</sup>Monitoring the Outside: Cell Wall-Sensing Mechanisms. *Christoph Ringli* 1445

## BREAKTHROUGH TECHNOLOGIES

<sup>[W]</sup>Super-Resolution Imaging of Plasmodesmata Using Three-Dimensional Structured Illumination Microscopy. *Jessica Fitzgibbon, Karen Bell, Emma King, and Karl Oparka* 1453

<sup>[C]</sup><sup>[W]</sup><sup>[OA]</sup>Mass Spectrometry-Based Sequencing of Lignin Oligomers. *Kris Morreel, Oana Dima, Hoon Kim, Fachuang Lu, Claudiu Niculaes, Ruben Vanholme, Rebecca Dauwe, Geert Goeminne, Dirk Inzé, Eric Messens, John Ralph, and Wout Boerjan* 1464

## BIOINFORMATICS

<sup>[W]</sup><sup>[OA]</sup>Creation of a Genome-Wide Metabolic Pathway Database for *Populus trichocarpa* Using a New Approach for Reconstruction and Curation of Metabolic Pathways for Plants. *Peifen Zhang, Kate Dreher, A. Karthikeyan, Anjo Chi, Anuradha Pujar, Ron Caspi, Peter Karp, Vanessa Kirkup, Mario Latendresse, Cynthia Lee, Lukas A. Mueller, Robert Muller, and Seung Yon Rhee* 1479

<sup>[W]</sup>Deciphering the Arabidopsis Floral Transition Process by Integrating a Protein-Protein Interaction Network and Gene Expression Data. *Fei He, Yuan Zhou, and Ziding Zhang* 1492

<sup>[W]</sup>Enhancement of Plant Metabolite Fingerprinting by Machine Learning. *Ian M. Scott, Cornelia P. Vermeer, Maria Liakata, Delia I. Corol, Jane L. Ward, Wanchang Lin, Helen E. Johnson, Lynne Whitehead, Baldeep Kular, John M. Baker, Sean Walsh, Anuja Dave, Tony R. Larson, Ian A. Graham, Trevor L. Wang, Ross D. King, John Draper, and Michael H. Beale* 1506

## SCIENTIFIC CORRESPONDENCE

<sup>[C]</sup><sup>[W]</sup>DNA-Binding Protein Phosphatase AtDBP1 Mediates Susceptibility to Two Potyviruses in Arabidopsis. *María José Castelló, José Luis Carrasco, and Pablo Vera* 1521

## RESEARCH ARTICLES

### BIOCHEMICAL PROCESSES AND MACROMOLECULAR STRUCTURES

<sup>[W]</sup><sup>[OA]</sup>Functional Analysis of the Arabidopsis *PAL* Gene Family in Plant Growth, Development, and Response to Environmental Stress. *Junli Huang, Min Gu, Zhibing Lai, Baofang Fan, Kai Shi, Yan-Hong Zhou, Jing-Quan Yu, and Zhixiang Chen* 1526

Continued on next page

- [C][W][O]A] Three Arabidopsis Fatty Acyl-Coenzyme A Reductases, FAR1, FAR4, and FAR5, Generate Primary Fatty Alcohols Associated with Suberin Deposition. *Frédéric Domergue, Sollapura J. Vishwanath, Jérôme Joubès, Jasmine Ono, Jennifer A. Lee, Matthieu Bourdon, Reem Alhattab, Christine Lowe, Stéphanie Pascal, René Lessire, and Owen Rowland* 1539
- CELL BIOLOGY AND SIGNAL TRANSDUCTION**
- [O]A] Phosphatidic Acid Inhibits Blue Light-Induced Stomatal Opening via Inhibition of Protein Phosphatase. *Atsushi Takemiya and Ken-ichiro Shimazaki* 1555
- [C][W][O]A] Biochemical and Immunocytological Characterizations of Arabidopsis Pollen Tube Cell Wall. *Flavien Dardelle, Arnaud Lehner, Yasmina Ramdani, Muriel Bardor, Patrice Lerouge, Azeddine Driouich, and Jean-Claude Mollet* 1563
- [C][W][O]A] Conversion of Endogenous Indole-3-Butyric Acid to Indole-3-Acetic Acid Drives Cell Expansion in Arabidopsis Seedlings. *Lucia C. Strader, Angela Hendrickson Culler, Jerry D. Cohen, and Bonnie Bartel* 1577
- DEVELOPMENT AND HORMONE ACTION**
- [W][O]A] Arabidopsis RING E3 Ligase XBAT32 Regulates Lateral Root Production through Its Role in Ethylene Biosynthesis. *Madhulika E. Prasad, Andrew Schofield, Wendy Lyzenga, Hongxia Liu, and Sophia L. Stone* 1587
- [W] The Compact Root Architecture1 Gene Regulates Lignification, Flavonoid Production, and Polar Auxin Transport in *Medicago truncatula*. *Carole Laffont, Sandrine Blanchet, Catherine Lapierre, Lysiane Brocard, Pascal Ratet, Martin Crespi, Ulrike Mathesius, and Florian Frugier* 1597
- [W] Involvement of Auxin and Brassinosteroid in the Regulation of Petiole Elongation under the Shade. *Toshiaki Kozuka, Junko Kobayashi, Gorou Horiguchi, Taku Demura, Hitoshi Sakakibara, Hirokazu Tsukaya, and Akira Nagatani* 1608
- [W][O]A] A SQUAMOSA MADS Box Gene Involved in the Regulation of Anthocyanin Accumulation in Bilberry Fruits. *Laura Jaakola, Mervin Poole, Matthew O. Jones, Terttu Kämäräinen-Karppinen, Janne J. Koskimäki, Anja Hohtola, Hely Häggman, Paul D. Fraser, Kenneth Manning, Graham J. King, Helen Thomson, and Graham B. Seymour* 1619
- [W][O]A] Regulation of Freezing Tolerance and Flowering in Temperate Cereals: The VRN-1 Connection. *Taniya Dhillon, Stephen P. Pearce, Eric J. Stockinger, Assaf Distelfeld, Chengxia Li, Andrea K. Knox, Ildikó Vashegyi, Attila Vágújfalvi, Gabor Galiba, and Jorge Dubcovsky* 1846
- ENVIRONMENTAL STRESS AND ADAPTATION TO STRESS**
- [W][O]A] Molecular Mechanisms of Selenium Tolerance and Hyperaccumulation in *Stanleya pinnata*. *John L. Freeman, Masanori Tamaoki, Cecil Stushnoff, Colin F. Quinn, Jennifer J. Cappa, Jean Devonshire, Sirine C. Fakra, Matthew A. Marcus, Steve P. McGrath, Doug Van Hoewyk, and Elizabeth A.H. Pilon-Smits* 1630
- [W][O]A] Identification and Regulation of Plasma Membrane Sulfate Transporters in *Chlamydomonas*. *Wirulda Pootakham, David Gonzalez-Ballester, and Arthur R. Grossman* 1653
- [C][O]A] Knockout of a Bacterial-Type ATP-Binding Cassette Transporter Gene, *AtSTAR1*, Results in Increased Aluminum Sensitivity in Arabidopsis. *Chao-Feng Huang, Naoki Yamaji, and Jian Feng Ma* 1669
- [C][W][O]A] Development of a Novel Aluminum Tolerance Phenotyping Platform Used for Comparisons of Cereal Aluminum Tolerance and Investigations into Rice Aluminum Tolerance Mechanisms. *Adam N. Famoso, Randy T. Clark, Jon E. Shaff, Eric Craft, Susan R. McCouch, and Leon V. Kochian* 1678
- [C][W][O]A] Peroxisomal Hydrogen Peroxide Is Coupled to Biotic Defense Responses by ISOCHORISMATE SYNTHASE1 in a Daylength-Related Manner. *Sejir Chaouch, Guillaume Queval, Sandy Vanderauwera, Anna Mhamdi, Michaël Vandorpe, Mathilde Langlois-Meurinne, Frank Van Breusegem, Patrick Saindrenan, and Graham Noctor* 1692
- [W] Boron Toxicity Tolerance in Barley through Reduced Expression of the Multifunctional Aquaporin HvNIP2;1. *Thorsten Schnurbusch, Julie Hayes, Maria Hrmova, Ute Baumann, Sunita A. Ramesh, Stephen D. Tyerman, Peter Langridge, and Tim Sutton* 1706
- [C][W][O]A] Tobacco Mosaic Virus Infection Results in an Increase in Recombination Frequency and Resistance to Viral, Bacterial, and Fungal Pathogens in the Progeny of Infected Tobacco Plants. *Palak Kathiria, Corinne Sidler, Andrey Golubov, Melanie Kalischuk, Lawrence M. Kawchuk, and Igor Kovalchuk* 1859

- [W][OA] Involvement of Silicon Influx Transporter OsNIP2;1 in Selenite Uptake in Rice. *Xue Qiang Zhao, Namiki Mitani, Naoki Yamaji, Ren Fang Shen, and Jian Feng Ma* 1871
- [C][W][OA] Plant L10 Ribosomal Proteins Have Different Roles during Development and Translation under Ultraviolet-B Stress. *María Lorena Falcone Ferreyra, Alejandro Pezza, Jordane Biarc, Alma L. Burlingame, and Paula Casati* 1878
- [C][W] Nitric Oxide Functions as a Signal and Acts Upstream of AtCaM3 in Thermotolerance in Arabidopsis Seedlings. *Yi Xuan, Shuo Zhou, Lei Wang, Yudou Cheng, and Liqun Zhao* 1895

## GENETICS, GENOMICS, AND MOLECULAR EVOLUTION

- [W][OA] A Customized Gene Expression Microarray Reveals That the Brittle Stem Phenotype *fs2* of Barley Is Attributable to a Retroelement in the *HvCesA4* Cellulose Synthase Gene. *Rachel A. Burton, Gang Ma, Ute Baumann, Andrew J. Haroey, Neil J. Shirley, Jillian Taylor, Filomena Pettolino, Antony Bacic, Mary Beatty, Carl R. Simmons, Kanwarpal S. Dhugga, J. Antoni Rafalski, Scott V. Tingey, and Geoffrey B. Fincher* 1716
- [W][OA] Evolution and Function of the Plant Cell Wall Synthesis-Related Glycosyltransferase Family 8. *Yanbin Yin, Huiling Chen, Michael G. Hahn, Debra Mohnen, and Ying Xu* 1729
- [W][OA] *DTH8* Suppresses Flowering in Rice, Influencing Plant Height and Yield Potential Simultaneously. *Xiangjin Wei, Junfeng Xu, Hongnian Guo, Ling Jiang, Saihua Chen, Chuanyuan Yu, Zhenling Zhou, Peisong Hu, Huqu Zhai, and Jianmin Wan* 1747

## PLANTS INTERACTING WITH OTHER ORGANISMS

- [W][OA] Misexpression of miR482, miR1512, and miR1515 Increases Soybean Nodulation. *Hui Li, Ying Deng, Tianlong Wu, Senthil Subramanian, and Oliver Yu* 1759
- [C][W][OA] Activation of Plant Immune Responses by a Gain-of-Function Mutation in an Atypical Receptor-Like Kinase. *Dongling Bi, Yu Ti Cheng, Xin Li, and Yuelin Zhang* 1771
- [W][OA] Disruption of Signaling in a Fungal-Grass Symbiosis Leads to Pathogenesis. *Carla J. Eaton, Murray P. Cox, Barbara Ambrose, Matthias Becker, Uljana Hesse, Christopher L. Schardl, and Barry Scott* 1780
- [W] Herbivore-Induced SABATH Methyltransferases of Maize That Methylate Anthranilic Acid Using S-Adenosyl-L-Methionine. *Tobias G. Köllner, Claudia Lenk, Nan Zhao, Irmgard Seidl-Adams, Jonathan Gershenzon, Feng Chen, and Jörg Degenhardt* 1795
- [W][OA] Soybean Metabolites Regulated in Root Hairs in Response to the Symbiotic Bacterium *Bradyrhizobium japonicum*. *Laurent Brechenmacher, Zhentian Lei, Marc Libault, Seth Findley, Masayuki Sugawara, Michael J. Sadowsky, Lloyd W. Sumner, and Gary Stacey* 1808
- [W][OA] Variation in Antiherbivore Defense Responses in Synthetic *Nicotiana* Allopolyploids Correlates with Changes in Uniparental Patterns of Gene Expression. *Samir Anssour and Ian T. Baldwin* 1907

## WHOLE PLANT AND ECOPHYSIOLOGY

- [W][OA] Circadian Clock Components Regulate Entry and Affect Exit of Seasonal Dormancy as Well as Winter Hardiness in *Populus* Trees. *Cristian Ibáñez, Iwanka Kozarewa, Mikael Johansson, Erling Ögren, Antje Rohde, and Maria E. Eriksson* 1823
- [W][OA] The Relationships between Xylem Safety and Hydraulic Efficiency in the Cupressaceae: The Evolution of Pit Membrane Form and Function. *Jarmila Pittermann, Brendan Choat, Steven Jansen, Stephanie A. Stuart, Lucy Lynn, and Todd E. Dawson* 1919
- Calcium Is a Major Determinant of Xylem Vulnerability to Cavitation. *Stephane Herbette and Herve Cochard* 1932

## SYSTEMS BIOLOGY, MOLECULAR BIOLOGY, AND GENE REGULATION

- [C][W] Functional Analysis of Amino-Terminal Domains of the Photoreceptor Phytochrome B. *Andrea Palágyi, Kata Terecskei, Éva Ádám, Éva Kevei, Stefan Kircher, Zsuzsanna Mérái, Eberhard Schäfer, Ferenc Nagy, and László Kozma-Bognár* 1834

## CORRECTIONS

Genetic Control of Carbon Partitioning in Grasses: Roles of *Sucrose Transporters* and *Tie-dyed* Loci in Phloem Loading. *D.M. Braun and T.L. Slewinski*

1940

The Sterol Methyltransferases SMT1, SMT2, and SMT3 Influence Arabidopsis Development through Nonbrassinosteroid Products. *F. Carland, S. Fujioka, and T. Nelson*

<sup>[C]</sup> Some figures in this article are displayed in color online but in black and white in the print edition.

<sup>[W]</sup> Indicates Web-only data.

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