ON THE COVER

Glycyrrhizin, extracted from the roots of licorice plants, is a powerful sweetening agent with a wide range of pharmacological properties. In addition to applications as a natural sweetener, it is included in certain traditional medicines because it enhances liver function and exhibits antiviral activity. However, large-scale production of glycyrrhizin is a considerable challenge. Seki et al. (pages 4112–4123) identified a cytochrome P450 monooxygenase, CYP72A154, that is important in the biosynthesis of glycyrrhizin. The authors show that genetically modified yeast can produce glycyrrhetinic acid (a glycyrrhizin intermediate and the active form of glycyrrhizin) through combinatorial expression of CYP72A154 and two previously acquired pathway enzymes, providing proof of concept for engineering the production of high-value triterpenoid products in yeast. The cover image of dried licorice root was taken by Kiminori Toyooka.

IN BRIEF

A Role for Plant AURORA Kinases in Formative Cell Division
Nancy R. Hofmann 3867

Unpuréeing the Tomato: Layers of Information Revealed by Microdissection and High-Throughput Transcriptome Sequencing
Jennifer Mach 3868

YUC and TAA1/TAR Proteins Function in the Same Pathway for Auxin Biosynthesis
Nancy R. Hofmann 3869

Retrograde Signaling: A New Candidate Signaling Molecule
Nancy A. Eckardt 3870

COMMENTARY

Cautionary Notes on the Use of C-Terminal BAK1 Fusion Proteins for Functional Studies
Vardis Ntoukakis, Benjamin Schwessinger, Cécile Segonzac, and Cyril Zipfel 3871

REVIEW

C4 Cycles: Past, Present, and Future Research on C4 Photosynthesis
Jane A. Langdale 3879

LARGE-SCALE BIOLOGY ARTICLES

Tissue- and Cell-Type Specific Transcriptome Profiling of Expanding Tomato Fruit Provides Insights into Metabolic and Regulatory Specialization and Cuticle Formation

Plastid Proteome Assembly without Toc159: Photosynthetic Protein Import and Accumulation of N-Acetylated Plastid Precursor Proteins
RESEARCH ARTICLES

Regulation of Compound Leaf Development in *Medicago truncatula* by *Fused Compound Leaf1*, a Class M KNOX Gene

Jianling Peng, Jianbin Yu, Hongliang Wang, Yingqing Guo, Guangming Li, Guihua Bai, and Rujin Chen

A Small-Molecule Screen Identifies L-Kynurenine as a Competitive Inhibitor of TAA1/TAR Activity in Ethylene-Directed Auxin Biosynthesis and Root Growth in *Arabidopsis*

Wenrong He, Javier Brumos, Hongjiang Li, Yusi Ji, Meng Ke, Xinqi Gong, Qinglong Zeng, Wenyang Li, Xinyan Zhang, Fengying An, Xing Wen, Perigpeng Li, Jinfang Chu, Xiaohong Sun, Cunyu Yan, Nieng Yan, De-Yu Xie, Natasha Raikhel, Zhenbiao Yang, Anna N. Stepanova, Jose M. Alonso, and Hongwei Guo

The *Arabidopsis* YUCC1 Flavin Monooxygenase Functions in the Indole-3-Pyruvic Acid Branch of Auxin Biosynthesis

Anna N. Stepanova, Jeonga Yun, Linda M. Robles, Ondrej Novak, Wenrong He, Hongwei Guo, Karin Ljung, and Jose M. Alonso

Functional Profiling Identifies Genes Involved in Organ-Specific Branches of the PIF3 Regulatory Network in *Arabidopsis*

Maria Sentandreu, Guioumar Martin, Nahuel Gonzalez-Schain, Pablo Leivar, Judit Soy, James M. Tepperman, Peter H. Quail, and Elena Monte

Evidence for a SAL1-PAP Chloroplast Retrograde Pathway That Functions in Drought and High Light Signaling in *Arabidopsis*

Gonzalo M. Estavillo, Peter A. Crisp, Wannarat Pornsiriwong, Markus Wirtz, Derek Collinge, Chris Carne, Estelle Giraud, James Whelan, Pascale David, Hélène Javot, Charles Brearley, Rüdiger Helli, Elena Marin, and Barry J. Pogson

*Arabidopsis* α Aurora Kinases Function in Formative Cell Division Plane Orientation

Daniél Van Damme, Bert De Rybel, Gustavo Gudisblat, Dmitri Demidov, Wim Grunewald, Ive De Smet, Andreas Houben, Tom Beeckman, and Eugenia Russinova

AYX8 Encodes an α-Fucosidase, Underscoring the Importance of Apoplastic Metabolism on the Fine Structure of *Arabidopsis* Cell Wall Polysaccharides

Markus Günl, Lutz Neumetzler, Florian Kraemer, Amancio de Souza, Alex Schlultink, Maria Pena, William S. York, and Markus Pauly

O-Acetylation of *Arabidopsis* Hemicellulose Xyloglucan Requires AXY4 or AXY4L, Proteins with a TBL and DUF231 Domain

Sascha Gille, Amancio de Souza, Guangyan Xiong, Monique Benz, Kun Cheng, Alex Schlultink, Ida-Barbara Reca, and Markus Pauly

Euchromatic Subdomains in Rice Centromeres Are Associated with Genes and Transcription

Yufeng Wu, Shinji Kikuchi, Huihuang Yan, Wenli Zhang, Heidi Rosenbaum, A. Leonardo Iniguez, and Jiming Jiang

Transcriptional Regulation of *Arabidopsis* LEAFY COTYLEDON2 Involves RLE, a cis-Element That Regulates Trimethylation of Histone H3 at Lysine-27

Nathalie Berger, Bertrand Dubreucq, François Roudier, Christian Dubos, and Loïc Lepiniec

Transcriptomic Analysis Reveals Calcium Regulation of Specific Promoter Motifs in *Arabidopsis*

Helen J. Whalley, Alexander W. Sargeant, John F.C. Steele, Tim Lacoere, Rebecca Lamb, Nigel J. Saunders, Heather Knight, and Marc R. Knight

The Phosphoglucan Phosphatase Like Sex Four2 Dephosphorylates Starch at the C3-Position in *Arabidopsis*

Diana Santelia, Oliver Kötting, David Seung, Mario Schubert, Matthias Thalmann, Sylvain Bischof, David A. Meekins, Andy Lutz, Nicola Patron, Matthew S. Gentry, Frédéric H.-T. Allain, and Samuel C. Zeeman
Triterpene Functional Genomics in Licorice for Identification of CYP72A154 Involved in the Biosynthesis of Glycyrrhizin

Hikaru Seki, Satoru Sawai, Kiyoshi Ohyama, Masaharu Mizutani, Toshijuku Ohnishi, Hiroshi Sudo, Ery Odette Fukushima, Tomoyoshi Akashi, Toshio Aoki, Kazuki Saito, and Toshiya Muranaka

The Arabidopsis Glucosyltransferase UGT76B1 Conjugates Isoleucic Acid and Modulates Plant Defense and Senescence

Veronica von Saint Paul, Wei Zhang, Basem Kanawati, Birgit Geist, Theresa Faus-Kelßler, Philippe Schmitt-Kopplin, and Anton R. Schaffner

Programmed Cell Death Occurs Asymmetrically during Abscission in Tomato

Tal Bar-Dror, Marina Dermastia, Aleš Kladnik, Magda Tušek Žnidarič, Maruša Pompe Novak, Shimon Meir, Shaul Burd, Šonia Philosoph-Hadas, Naomi Ori, Lilian Sonego, Martin B. Dickman, and Amnon Lers

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