ON THE COVER

The fleshy expansion and ripening of fruits make them attractive to seed-dispersing organisms, including humans. Using RNA interference gene repression and ectopic overexpression, Vrebalov et al. (pages 3041–3062) show that TAGL1, the tomato ortholog of Arabidopsis SHATTERPROOF (SHP) MADS-box genes, is necessary for both ripening and fleshy expansion of tomato. SHP1 and SHP2 are necessary for silique shattering in Arabidopsis. This indicates broad functional conservation of these genes (a role in seed dispersal) among very different fruit types, but evolution of distinct molecular functions for these MADS-box orthologs in different species, namely fruit expansion and ripening in tomato and pod shatter in Arabidopsis (photo by Ryan McQuinn).

IN THIS ISSUE

Tissue-Specific siRNAs That Silence CHS Genes in Soybean 2983
Nancy A. Eckardt

IN BRIEFS

OWL1 Is a Phytochrome A Signaling Component Dedicated to the Very Low Fluence Response 2985
Nancy R. Hofmann
Loss of an Exosome Complex Component Potentiates R Gene–Independent Cell Death in Barley 2986
Jennifer Mach

RESEARCH ARTICLES

A Population Genomics Study of the Arabidopsis Core Cell Cycle Genes Shows the Signature of Natural Selection 2987
Roel Sterken, Raphaël Kiekens, Emmy Coppens, Ilse Vercauteren, Marc Zabeau, Dirk Inzé, Jonathan Flowers, and Marnik Vodkin

Evolution of Allometry in Antirrhinum 2999
Xianzhong Feng, Yvette Wilson, Jennifer Bowers, Richard Kennaway, Andrew Bangham, Andrew Hannah, Enrico Coen, and Andrew Hudson

MOSAIC FLORAL ORGANS1, an AGL6-Like MADS Box Gene, Regulates Floral Organ Identity and Meristem Fate in Rice 3008
Shinnosuke Ohmori, Mayumi Kimizu, Maiko Sugita, Akio Miyao, Hirohiko Hirochika, Eiji Uchida, Yasuo Nagato, and Hitoshi Yoshida

Exocytosis Precedes and Predicts the Increase in Growth in Oscillating Pollen Tubes 3026
Sylvester T. McKenna, Joseph G. Kunkel, Maurice Bosch, Caleb M. Rounds, Luis Vidali, Lawrence J. Winship, and Peter K. Hepler

Fleshy Fruit Expansion and Ripening Are Regulated by the Tomato SHATTERPROOF Gene TAGL1 3041
Julia Vrebalov, Irvin L. Pan, Antonio Javier Matas Arroyo, Ryan McQuinn, MiYoung Chung, Mervin Poole, Jocelyn Rose, Graham Seymour, Silvana Grandillo, James Giovannoni, and Vivian F. Irish

Endogenous, Tissue-Specific Short Interfering RNAs Silence the Chalcone Synthase Gene Family in Glycine max Seed Coats 3063
Jigyasa H. Tuteja, Gracia Zabala, Kranthi Varala, Matthew Hudson, and Lila O. Vodkin
Stage-Specific Regulation of *Solomonum lycopersicum* Leaf Maturation by Class 1 KNOTTED1-LIKE HOMEBOX Proteins

Elion Shani, YogevBurko, Lilach Ben-Yaakov,Yael Berger, Ziva Amsellem, Alexander Goldshmidt,Eran Sharon, and Naomi Ori

**LYRASE is a Key Regulator of Leaflet Initiation and Lamina Outgrowth in Tomato**

Rakefet David-Schwartz, Daniel Koenig, and Neelima R. Sinha

**YABBYs and the Transcriptional Corepressors LEUNIG and LEUNIG_HOMOLOG Maintain Leaf Polarity and Meristem Activity in Arabidopsis**

Melissa I. Stable, Janine Kuehlich, Lindsay Staron, Albrecht G. von Amim, and John F. Golz

**Phenotypic Plasticity of Adventitious Rooting in Arabidopsis Is Controlled by Complex Regulation of AUXIN RESPONSE FACTOR Transcripts and MicroRNA Abundance**

Laurent Gutierrez, John D. Bussell, Daniel I. Pâcurar, Josèli Schwambach, Monica Pâcurar, and Catherine Bellini

**NO VEIN Mediates Auxin-Dependent Specification and Patterning in the Arabidopsis Embryo, Shoot, and Root**

Ryuji Tsugeki, Franck Anicet Ditengou, Yoshinori Sumi, William Teale, KlausPalme, and Kiyotaka Okada

**Functional Analyses of LONELY GUY Cytokinin-Activating Enzymes Reveal the Importance of the Direct Activation Pathway in Arabidopsis**

Takeshi Kuroha, Hiroki Tokunaga, Mikiko Kojima, Nanee Ueda, Takashi Ishida, Shingo Nagano, Hiroo Fukuda, Keiko Sugimoto, and HitoshiSakakibara

**Protein Phosphatases 2C Mediate the Activation of the Snf1-Related Kinase OST1 by Abscisic Acid in Arabidopsis**

Florina Vlad, Silvia Rubio, Americo Rodrigues, Caroline Sirichandra, Christophe Belin, Nadia Robert, Jeffrey Leung, Pedro L. Rodriguez, ChristianeLaurière, and Sylvain Merlot

**Crosstalk between Cold Response and Flowering in Arabidopsis Is Mediated through the Flowering-Time Gene SOC1 and Its Upstream Negative Regulator FLC**

EunjooSeo, Horim Lee, Jin Jeon, Hanna Park, Jungmook Kim, Yoo-SunNoh, and IlhaLee

**DIE NEUTRALIS and LATE BLOOMER 1 Contribute to Regulation of the Pea Circadian Clock**

Lim Chee Liew, Valérie Hecht, Rebecca E. Laurie, Claire L. Knowles, Jacqueline K. Vander Schoor, Richard C. Macknight, and James L. Weller

**OWL1: An Arabidopsis J-Domain Protein Involved in Perception of Very Low Light Fluences**

Julia Kneissl, Volker Wachtler, Nam-Hai Chua, and Cordelia Bolle

**Domain Swapping to Assess the Mechanistic Basis of Arabidopsis Phototropin 1 Receptor Kinase Activation and Endocytosis by Blue Light**

Eirini Kaiserli, Stuart Sullivan, Matthew A. Jones, Kevin A. Feeney, and John M. Christie

**The Photosystem II Light-Harvesting Protein Lhcb3 Affects the Macrostructure of Photosystem II and the Rate of State Transitions in Arabidopsis**

Jakob T. Damkjær, Sami Kereı ¨che, Matthew P. Johnson, Laszlo Kovacs, Anett Z. Kiss, Egbert J. Boekema, Alexander V. Ruban, Peter Horton, and Stefan Jansson

**ARABIDOPSIS TRITHORAX-RELATED1s Required for Methylation of Lysine 4 of Histone H3 and for Transcriptional Activation of FLOWERING LOCUS C**

Yosuke Tamada, Jae-Young Yun, Seung chul Woo, and Richard M. Amasino

**Arabidopsis Decapping 5 Is Required for mRNA Decapping, P-Body Formation, and Translational Repression during Postembryonic Development**

Jun Xu and Nam-Hai Chua

**Transcript-Based Cloning of RRP46, a Regulator of rRNA Processing and R Gene–Independent Cell Death in Barley–Powdery Mildew Interactions**

Liu Xi, Matthew J. Moscou, Yan Meng, Weihe Xu, Rico A. Caldo, Miranda Shaver, Dan Nettleton, and Roger P. Wise
Cotranslational Proteolysis Dominates Glutathione Homeostasis to Support Proper Growth and Development
Frédéric Frottin, Christelle Espagne, José A. Traverso, Caroline Mauve, Benoît Valot, Caroline Lelarge-Trouverie, Michel Zivy, Graham Noctor, Thierry Meinbel, and Carmela Giglione

CYP76M7 Is an ent-Cassadiene C11α-Hydroxylase Defining a Second Multifunctional Diterpenoid Biosynthetic Gene Cluster in Rice
Sivakumar Swaminathan, Dana Morrone, Qiang Wang, D. Bruce Fulton, and Reuben J. Peters

The Ferroportin Metal Efflux Proteins Function in Iron and Cobalt Homeostasis in Arabidopsis
Joe Morrissey, Ivan R. Baxter, Joohyun Lee, Liangtao Li, Brett Lahner, Natasha Grotz, Jerry Kaplan, David E. Salt, and Mary Lou Guerinot

A Zinc Finger Transcription Factor ART1 Regulates Multiple Genes Implicated in Aluminum Tolerance in Rice
Naoki Yamaji, Chao Feng Huang, Sakiko Nagao, Masahiro Yano, Yutaka Sato, Yoshiaki Nagamura, and Jian Feng Ma

Overexpression of Several Arabidopsis Histone Genes Increases Agrobacterium-Mediated Transformation and Transgene Expression in Plants
Gabriela N. Tenea, Joerg Spantzel, Lan-Ying Lee, Yamnin Zhu, Kui Lin, Susan J. Johnson, and Stanton B. Gelvin

Rin4 Causes Hybrid Necrosis and Race-Specific Resistance in an Interspecific Lettuce Hybrid

Sfp-Type 4'-Phosphopantetheinyl Transferase Is Indispensable for Fungal Pathogenicity
Ralf Horbach, Alexander Graf, Fabian Weihrmann, Luis Antelo, Sebastian Mathe, Johannes C. Liermann, Till Opatz, Eckhard Thines, Jesús Agurire, and Holger B. Deising

The O-Mannosyltransferase PMT4 Is Essential for Normal Appressorium Formation and Penetration in Ustilago maydis
Alfonso Fernández-Alvarez, Alberto Elias-Villalobos, and José I. Ibeas

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.

Open Access articles can be viewed online without a subscription.
This information is current as of June 20, 2017

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>eTOCs</td>
<td>Sign up for eTOCs at: <a href="http://www.plantcell.org/cgi/alerts/ctmain">http://www.plantcell.org/cgi/alerts/ctmain</a></td>
</tr>
<tr>
<td>CiteTrack Alerts</td>
<td>Sign up for CiteTrack Alerts at: <a href="http://www.plantcell.org/cgi/alerts/ctmain">http://www.plantcell.org/cgi/alerts/ctmain</a></td>
</tr>
<tr>
<td>Subscription Information</td>
<td>Subscription Information for <em>The Plant Cell</em> and <em>Plant Physiology</em> is available at: <a href="http://www.aspb.org/publications/subscriptions.cfm">http://www.aspb.org/publications/subscriptions.cfm</a></td>
</tr>
</tbody>
</table>