

T H E  
**PLANT**  
C E L L

Volume 30 Number 9 September 2018

The electronic form of this issue, available at [www.plantcell.org](http://www.plantcell.org), is the journal of record.

**ON THE COVER**



Nectaries play a major economic and ecological role in mediating insect pollination, but the genetics underlying nectary development and its diversity remain poorly understood. Morel et al. (pages 2020–2037) analyzed nectary development in petunia and *Arabidopsis*, which have their nectaries associated with the ovary and stamens, respectively. They found that the floral C-lineage genes trigger nectary development in both species, despite their distant phylogeny, different nectary positioning, and different evolutionary trajectories of their C-lineage genes. However, petunia nectary development is position-independent within the flower, unlike in *Arabidopsis*. Furthermore, the authors identified *BEN* and *ROB* genes as major regulators of nectary size in petunia. The cover image shows ectopic nectaries at the basis of the sepals in *35S:pMADS3* flowers, actively secreting big droplets of nectar. Photo by Michiel Vandenbussche.

**IN BRIEF**

- Handling the Heat: Methylome Variation Underlying Heat Tolerance in Cotton**<sup>[OPEN]</sup> 1947  
Alex Harkess
- Nectary Specification in Petunia and *Arabidopsis***<sup>[OPEN]</sup> 1949  
Jennifer Mach
- Natural Artist: How a Protein Kinase Helps Sculpt the Pollen Grain Surface from the Inside Out**<sup>[OPEN]</sup> 1950  
Jennifer Lockhart
- A Lipid Droplet-Associated Degradation System in Plants**<sup>[OPEN]</sup> 1952  
Kathleen L. Farquharson

**RESEARCH ARTICLES**

- APURINIC/APYRIMIDINIC ENDONUCLEASE2 and ZINC FINGER DNA 3'-PHOSPHOESTERASE Play Overlapping Roles in the Maintenance of Epigenome and Genome Stability**<sup>[OPEN]</sup> 1954  
Jinchao Li, Wenjie Liang, Yan Li, and Weiqiang Qian
- Integrated Regulation of Apical Hook Development by Transcriptional Coupling of EIN3/EIL1 and PIFs in *Arabidopsis*** 1971  
Xing Zhang, Yusi Ji, Chang Xue, Honghao Ma, Yulin Xi, Peixin Huang, Huan Wang, Fengying An, Bosheng Li, Yichuan Wang, and Hongwei Guo
- Photoexcited CRYPTOCHROME1 Interacts with Dephosphorylated BES1 to Regulate Brassinosteroid Signaling and Photomorphogenesis in *Arabidopsis*** 1989  
Wenxiu Wang, Xuedan Lu, Ling Li, Hongli Lian, Zhilei Mao, Pengbo Xu, Tongtong Guo, Feng Xu, Shasha Du, Xiaoli Cao, Sheng Wang, Hongyun Shen, and Hong-Quan Yang
- B-BOX DOMAIN PROTEIN28 Negatively Regulates Photomorphogenesis by Repressing the Activity of Transcription Factor HY5 and Undergoes COP1-Mediated Degradation** 2006  
Fang Lin, Yan Jiang, Jian Li, Tingting Yan, Liumin Fan, Jiansheng Liang, Z. Jeffrey Chen, Dongqing Xu, and Xing Wang Deng

**Editor in Chief**  
Sabeeha Merchant

**Senior Features Editor**  
Nancy A. Eckardt

**Features Editor**  
Mary Williams

**Science Editors**  
Greg Bertoni  
Kathleen L. Farquharson  
Nancy R. Hofmann  
Jennifer Lockhart  
Jennifer M. Mach

**Managing Editor**  
Jennifer A. Regala

**Production Manager**  
Susan L. Entwistle

**Manuscript Manager**  
Annette Kessler

**Publications Director**  
Nancy A. Winchester

**Publisher**  
American Society of  
Plant Biologists  
Executive Director,  
Crispin Taylor

**Editorial Office**  
15501 Monona Drive  
Rockville, Maryland 20855-2768  
Telephone: 301/296-0908

**Online at [www.plantcell.org](http://www.plantcell.org)**

- The Floral C-Lineage Genes Trigger Nectary Development in *Petunia* and *Arabidopsis***<sup>[OPEN]</sup> 2020  
Patrice Morel, Klaas Heijmans, Kai Ament, Mathilde Chopy, Christophe Trehin, Pierre Chambrier, Suzanne Rodrigues Bento, Andrea Bimbo, and Michiel Vandenbussche
- Arabidopsis Protein Kinase D6PKL3 Is Involved in the Formation of Distinct Plasma Membrane Aperture Domains on the Pollen Surface**<sup>[OPEN]</sup> 2038  
Byung Ha Lee, Zachary T. Weber, Melina Zourelidou, Brigitte T. Hofmeister, Robert J. Schmitz, Claus Schwechheimer, and Anna A. Dobritsa
- Glucose Uptake via STP Transporters Inhibits *In Vitro* Pollen Tube Growth in a HEXOKINASE1-Dependent Manner in *Arabidopsis thaliana*** 2057  
Theresa Rottmann, Carolin Fritz, Norbert Sauer, and Ruth Stadler
- Plastidial Phosphoglucose Isomerase Is an Important Determinant of Seed Yield through Its Involvement in Gibberellin-Mediated Reproductive Development and Storage Reserve Biosynthesis in *Arabidopsis*** 2082  
Abdellatif Bahaji, Goizeder Almagro, Ignacio Ezquer, Samuel Gámez-Arcas, Ángela María Sánchez-López, Francisco José Muñoz, Ramón José Barrio, M. Carmen Sampedro, Nuria De Diego, Lukáš Spíchal, Karel Doležal, Danuše Tarkowská, Elisabetta Caporali, Marta Adelina Mendes, Edurne Baroja-Fernández, and Javier Pozueta-Romero
- SUMO Suppresses the Activity of the Jasmonic Acid Receptor CORONATINE INSENSITIVE1**<sup>[CC-BY]</sup> 2099  
Anjil Kumar Srivastava, Beatriz Orosa, Prashant Singh, Ian Cummins, Charlotte Walsh, Cunjin Zhang, Murray Grant, Michael R. Roberts, Ganesh Srinivasan Anand, Elaine Fitches, and Ari Sadanandom
- PUX10 Is a CDC48A Adaptor Protein That Regulates the Extraction of Ubiquitinated Oleosins from Seed Lipid Droplets in *Arabidopsis*** 2116  
Carine Deruyffelaere, Zita Purkrtova, Isabelle Bouchez, Boris Collet, Jean-Luc Cacas, Thierry Chardot, Jean-Luc Gallois, and Sabine D'Andrea
- PUX10 Is a Lipid Droplet-Localized Scaffold Protein That Interacts with CELL DIVISION CYCLE48 and Is Involved in the Degradation of Lipid Droplet Proteins** 2137  
Franziska K. Kretzschmar, Laura A. Mengel, Anna O. Müller, Kerstin Schmitt, Katharina F. Biersch, Oliver Valerius, Gerhard H. Braus, and Till Ischebeck
- Evaluating the Functional Pore Size of Chloroplast TOC and TIC Protein Translocons: Import of Folded Proteins** 2161  
Iniyan Ganesan, Lan-Xin Shi, Mathias Labs, and Steven M. Theg
- Predominant Golgi Residency of the Plant K/HDEL Receptor Is Essential for Its Function in Mediating ER Retention**<sup>[CC-BY]</sup> 2174  
Fernanda A.L. Silva-Alvim, Jing An, Jonas C. Alvim, Ombretta Foresti, Alexandra Grippa, Alexandra Pelgrom, Thomas L. Adams, Chris Hawes, and Jürgen Denecke
- NAC Transcription Factors ANAC087 and ANAC046 Control Distinct Aspects of Programmed Cell Death in the *Arabidopsis* Columella and Lateral Root Cap**<sup>[OPEN]</sup> 2197  
Marlies Huysmans, Rafael Andrade Buono, Noemi Skorzinski, Marta Cubria Radio, Freya De Winter, Boris Parizot, Jan Mertens, Mansour Karimi, Matyas Fendrych, and Moritz K. Nowack

Siming Xu, Chao-Jan Liao, Namrata Jaiswal, Sanghun Lee, Dae-Jin Yun, Sang Yeol Lee, Michael Garvey, Ian Kaplan, and Tesfaye Mengiste

[CC-BY] Article free via Creative Commons CC-BY 4.0 license.  
[OPEN] Articles can be viewed without a subscription.



---

**The Plant Cell** (eISSN 1532-298X) is published monthly (one volume per year) by the American Society of Plant Biologists, 15501 Monona Drive, Rockville, MD 20855-2768, and is produced by Dartmouth Journal Services, Waterbury, VT. The institutional subscription price is based on type of institution; contact [institution@aspb.org](mailto:institution@aspb.org). Members of the American Society of Plant Biologists may subscribe to *The Plant Cell* for \$240. Nonmember individuals may subscribe for \$500. Students may subscribe for \$165. For matters regarding subscriptions, contact Suzanne Cholwek, ASPB, 15501 Monona Drive, Rockville, MD 20855-2768; telephone 301/296-0926; fax 301/251-6740; e-mail [scholwek@aspb.org](mailto:scholwek@aspb.org). Send all inquiries regarding display advertising to FASEB AdNet, 9650 Rockville Pike, Bethesda, MD 20814-3998; telephone 301/634-7791; fax 301/634-7153; e-mail [adnet@faseb.org](mailto:adnet@faseb.org). The online version of *The Plant Cell* is available at [www.plantcell.org](http://www.plantcell.org).

**Permission to Reprint:** Permission to make digital or hard copies of part or all of a work published in *The Plant Cell* is granted without fee for personal or classroom use provided that copies are not made or distributed for profit or commercial advantage and that copies bear the full citation and the following notice on the first page: "Copyright American Society of Plant Biologists." For all other kinds of copying, request permission in writing from Nancy A. Winchester, Publications Director, ASPB headquarters.

This information is current as of October 17, 2018

<b>Permissions</b>	<a href="https://www.copyright.com/ccc/openurl.do?sid=pd_hw1532298X&amp;iissn=1532298X&amp;WT.mc_id=pd_hw1532298X">https://www.copyright.com/ccc/openurl.do?sid=pd_hw1532298X&amp;iissn=1532298X&amp;WT.mc_id=pd_hw1532298X</a>
<b>eTOCs</b>	Sign up for eTOCs at: <a href="http://www.plantcell.org/cgi/alerts/ctmain">http://www.plantcell.org/cgi/alerts/ctmain</a>
<b>CiteTrack Alerts</b>	Sign up for CiteTrack Alerts at: <a href="http://www.plantcell.org/cgi/alerts/ctmain">http://www.plantcell.org/cgi/alerts/ctmain</a>
<b>Subscription Information</b>	Subscription Information for <i>The Plant Cell</i> and <i>Plant Physiology</i> is available at: <a href="http://www.aspb.org/publications/subscriptions.cfm">http://www.aspb.org/publications/subscriptions.cfm</a>