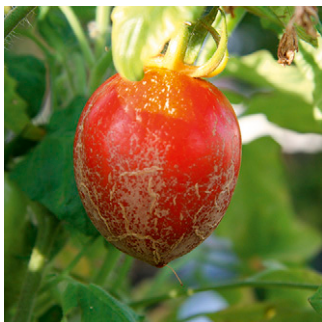


T H E
PLANT
C E L L

Volume 28 Number 9 September 2016

The electronic form of this issue, available at www.plantcell.org, is the journal of record.

ON THE COVER



The surface of tomato fruit (*Solanum lycopersicum*) is covered by a waxy cuticle layer. Comprising a cutin polymer with embedded waxes, this hydrophobic layer primarily protects the fruit against dehydration. Lashbrooke et al. (pages 2097–2116) created transgenic tomato plants silenced for expression of a gene crucial for proper cutin polymer formation, *SIDCR*. The cover is an image of the fruit of an *SIDCR*-silenced line. The reduction of cutin polymer in these lines produces a wound reaction and the observable production of suberin polymer. This polymer is typically found in the bark, roots, and seed coat. Photo by Justin Lashbrooke.

IN BRIEF

- A Breakthrough in Monocot Transformation Methods** [OPEN](#) 1989
Nancy R. Hofmann
- Swept Away: Protein Mobility in the Phloem** [OPEN](#) 1990
Jennifer Mach
- Carbon Metabolism in Chlamydomonas: Inositol Polyphosphates and TOR Signaling Take Center Stage** [OPEN](#) 1992
Kathleen L. Farquharson
- Decoding the Molecular Network that Drives Hypocotyl Elongation** [OPEN](#) 1994
Kathleen L. Farquharson
- A Functional Link between Mitochondria and the Cell Wall in Stress Responses** [OPEN](#) 1996
Nancy R. Hofmann
- Sibling Rivalry: How Two Proteins from a Common Ancestor Play Opposing Roles in Fatty Acid Biosynthesis** [OPEN](#) 1997
Jennifer Lockhart

BREAKTHROUGH REPORTS

- Morphogenic Regulators *Baby boom* and *Wuschel* Improve Monocot Transformation** [OPEN](#) 1998
Keith Lowe, Emily Wu, Ning Wang, George Hoerster, Craig Hastings, Myeong-Je Cho, Chris Scelonge, Brian Lenderts, Mark Chamberlin, Josh Cushatt, Lijuan Wang, Larisa Ryan, Tanveer Khan, Julia Chow-Yiu, Wei Hua, Maryanne Yu, Jenny Banh, Zhongmeng Bao, Kent Brink, Elizabeth Igo, Bhojaraja Rudrappa, PM Shamseer, Wes Bruce, Lisa Newman, Bo Shen, Peizhong Zheng, Dennis Bidney, Carl Falco, Jim Register, Zuo-Yu Zhao, Deping Xu, Todd Jones, and William Gordon-Kamm
- Lost in Transit: Long-Distance Trafficking and Phloem Unloading of Protein Signals in Arabidopsis Homografts** [OPEN](#) 2016
Danae Simone Genevieve Paultre, Marie-Paule Gustin, Attila Molnar, and Karl J. Oparka

EDITORIAL BOARD

Editor in Chief

Sabeeha Merchant

Senior Editors

Sebastian Bednarek

James Birchler

Ralph Bock

George Coupland

Pascal Genschik

Jean Greenberg

Joseph Kieber

Daniel J. Kliebenstein

Barry Pogson

Reviewing Editors

Michael Axtell

Magdalena Bezanilla

Siobhan Brady

Robin Buell

XiaoFeng Cao

Kent Chapman

Clint Chapple

Sean Cutler

Dean Della Penna

Xinnian Dong

Herman R. Hofte

Inwhan Hwang

Regine Kahmann

Ute Kraemer

Barbara Kunkel

J. Clark Lagarias

Zach Lippman

Tesfaye Mengiste

Blake Meyers

Harvey Millar

Ortrun Mittelsten Scheid

Giles E. Oldroyd

Naomi Ori

Markus Pauly

Eugenia (Jenny) Russinova

Dale Sanders

Karin Schumacher

Keiko Sugimoto

Tai-ping Sun

Marja Timmermans

Michael Udvardi

Andreas Weber

Guest Editors

Alice Barkan

Andrea Barta

Judy Callis

Ram Dixit

Elizabeth Haswell

Liwen Jiang

Jinsheng Lai

Jim Leebens-Mack

Yonghua Li-Beisson

Damon Lisch

Hongtao Liu

Peter Nagy

Erik Nielsen

Michael Palmgren

Hitoshi Sakakibura

David Smyth

Klaas van Wijk

Jeanmarie Verchot

Dan Voytas

Sam Zeeman

Xiaoyu Zhang

Consulting Editors

Volker Brendel

Erin Connolly

Synergism between Inositol Polyphosphates and TOR Kinase Signaling in Nutrient Sensing, Growth Control, and Lipid Metabolism in *Chlamydomonas* [OPEN](#)

Inmaculada Couso, Bradley S. Evans, Jia Li, Yu Liu, Fangfang Ma, Spencer Diamond, Doug K. Allen, and James G. Umen

RESEARCH ARTICLES

DNA DAMAGE BINDING PROTEIN2 Shapes the DNA Methylation Landscape

Catherine Schalk, Stéphanie Drevensek, Amira Kramdi, Mohamed Kassam, Ikhlak Ahmed, Valérie Cognat, Stéphanie Graindorge, Marc Bergdoll, Nicolas Baumberger, Dimitri Heintz, Chris Bowler, Pascal Genschik, Fredy Barneche, Vincent Colot, and Jean Molinier

Altered Transcription and Neofunctionalization of Duplicated Genes Rescue the Harmful Effects of a Chimeric Gene in *Brassica napus*

Shengqian Xia, Zhixin Wang, Haiyan Zhang, Kaining Hu, Zhiqiang Zhang, Maomao Qin, Xiaoling Dun, Bin Yi, Jing Wen, Chaozhi Ma, Jinxiong Shen, Tingdong Fu, and Jinxing Tu

Ectopic *KNOX* Expression Affects Plant Development by Altering Tissue Cell Polarity and Identity [OPEN](#)

Annis Richardson, Alexandra B. Rebocho, and Enrico Coen

MYB107 and MYB9 Homologs Regulate Suberin Deposition in Angiosperms

Justin Lashbrooke, Hagai Cohen, Dorit Levy-Samocho, Oren Tzfadia, Irina Panizel, Viktoria Zeisler, Hassan Massalha, Adi Stern, Livio Trainotti, Lukas Schreiber, Fabrizio Costa, and Asaph Aharoni

Activation of *YUCCA5* by the Transcription Factor TCP4 Integrates Developmental and Environmental Signals to Promote Hypocotyl Elongation in Arabidopsis

Krishna Reddy Challa, Pooja Aggarwal, and Utpal Nath

Arabidopsis JINGUBANG Is a Negative Regulator of Pollen Germination That Prevents Pollination in Moist Environments [OPEN](#)

Yan Ju, Liang Guo, Qiang Cai, Fei Ma, Qiao-Yun Zhu, Quan Zhang, and Sodmergen

Arabidopsis *STAY-GREEN*, Mendel's Green Cotyledon Gene, Encodes Magnesium-Dechelataase

Yousuke Shimoda, Hisashi Ito, and Ayumi Tanaka

MODD Mediates Deactivation and Degradation of OsbZIP46 to Negatively Regulate ABA Signaling and Drought Resistance in Rice

Ning Tang, Siqi Ma, Wei Zong, Ning Yang, Yan Lv, Chun Yan, Zilong Guo, Jie Li, Xu Li, Yong Xiang, Huazhi Song, Jinghua Xiao, Xianghua Li, and Lizhong Xiong

Ubiquitin Ligases RGLG1 and RGLG5 Regulate Abscisic Acid Signaling by Controlling the Turnover of Phosphatase PP2CA

Qian Wu, Xu Zhang, Marta Peirats-Llobet, Borja Belda-Palazon, Xiaofeng Wang, Shao Cui, Xiangchun Yu, Pedro L. Rodriguez, and Chengcai An

The Arabidopsis hnRNP-Q Protein LIF2 and the PRC1 Subunit LHP1 Function in Concert to Regulate the Transcription of Stress-Responsive Genes

Anne M. Molitor, David Latrasse, Matthias Zytznicki, Philippe Andrey, Nicole Houba-Hérin, Mélanie Hachet, Christophe Battail, Stefania Del Prete, Adriana Alberti, Hadi Quesneville, and Valérie Gaudin

Dynamic Interactions of Arabidopsis TEN1: Stabilizing Telomeres in Response to Heat Stress

Jung Ro Lee, Xiaoyuan Xie, Kailu Yang, Junjie Zhang, Sang Yeol Lee, and Dorothy E. Shippen

Alisdair Fernie
Oliver Jensen
Nathan Nelson
Scott Peck
Pam Soltis
Frances-Andre Wollman

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
Patti Lockhart

Issue Manager
Felicia Dadak

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



© 2016 American Society of Plant Biologists. All rights reserved.

- The Arabidopsis SUMO E3 Ligase AtMMS21 Dissociates the E2Fa/DPa Complex in Cell Cycle Regulation** 2225
Yiyang Liu, Jianbin Lai, Mengyuan Yu, Feige Wang, Juanjuan Zhang, Jieming Jiang, Huan Hu, Qian Wu, Guohui Lu, Panglian Xu, and Chengwei Yang
- Thylakoid Membrane Architecture in *Synechocystis* Depends on CurT, a Homolog of the Granal CURVATURE THYLAKOID1 Proteins** 2238
Steffen Heinz, Anna Rast, Lin Shao, Andrian Gutu, Irene L. Gügel, Eiri Heyno, Mathias Labs, Birgit Rengstl, Stefania Viola, Marc M. Nowaczyk, Dario Leister, and Jörg Nickelsen
- Grana-Localized Proteins, RIQ1 and RIQ2, Affect the Organization of Light-Harvesting Complex II and Grana Stacking in Arabidopsis** [OPEN](#) 2261
Ryo Yokoyama, Hiroshi Yamamoto, Maki Kondo, Satomi Takeda, Kentaro Ifuku, Yoichiro Fukao, Yasuhiro Kamei, Mikio Nishimura, and Toshiharu Shikanai
- Mitochondrial Defects Confer Tolerance against Cellulose Deficiency** 2276
Zhubing Hu, Rudy Vanderhaeghen, Toon Cools, Yan Wang, Inge De Clercq, Olivier Leroux, Long Nguyen, Katharina Belt, A. Harvey Millar, Dominique Audenaert, Pierre Hilson, Ian Small, Grégory Mouille, Samantha Vernhettes, Frank Van Breusegem, James Whelan, Herman Höfte, and Lieven De Veylder
- FYVE1/FREE1 Interacts with the PYL4 ABA Receptor and Mediates Its Delivery to the Vacuolar Degradation Pathway** 2291
Borja Belda-Palazon, Lesia Rodriguez, Maria A. Fernandez, Mari-Cruz Castillo, Erin M. Anderson, Caiji Gao, Miguel Gonzalez-Guzman, Marta Peirats-Llobet, Qiong Zhao, Nancy De Winne, Kris Gevaert, Geert De Jaeger, Liwen Jiang, José León, Robert T. Mullen, and Pedro L. Rodriguez
- A Family of Negative Regulators Targets the Committed Step of de Novo Fatty Acid Biosynthesis** [OPEN](#) 2312
Matthew J. Salie, Ning Zhang, Veronika Lancikova, Dong Xu, and Jay J. Thelen
- An Autophagy-Related Kinase Is Essential for the Symbiotic Relationship between *Phaseolus vulgaris* and Both Rhizobia and Arbuscular Mycorrhizal Fungi** [OPEN](#) 2326
Georgina Estrada-Navarrete, Neftaly Cruz-Mireles, Ramiro Lascano, Xóchitl Alvarado-Affantranger, Alejandra Hernández-Barrera, Aarón Barraza, Juan E. Olivares, Manoj-Kumar Arthikala, Luis Cárdenas, Carmen Quinto, and Federico Sanchez

[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. 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. 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. The online version of *The Plant Cell* is available at 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 June 24, 2019

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