

T H E
PLANT
C E L L

Volume 30 Number 5 May 2018

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

ON THE COVER



Pear is a self-incompatible fruit tree, and cultivated pears require pollination by insects or manually by humans in production. S-RNase is the pistil self-incompatibility determinant that degrades pollen RNA during the self-incompatibility response in pear. Besides degrading RNA, are there other targets for S-RNase in the pollen tube? How does the pollen tube protect against the cytotoxicity of S-RNase? Chen et al. (pages 1023–1039) report that the actin cytoskeleton is a target of S-RNase in pear and uncover a mechanism that protects the pollen tube from S-RNase cytotoxicity involving phosphatidic acid, until sustained S-RNase activity reaches the point of no return, resulting in pollen tube death. The cover image shows that the pear flowers are being pollinated by a bee.

IN BRIEF

- A Tale of Three Studies: Uncovering the Crucial Roles of m⁶A Readers**^[OPEN] 947
Jennifer Lockhart
- The Lipase Link: Abscisic Acid Induces PLASTID LIPASES, Which Produce Jasmonic Acid Precursors**^[OPEN] 948
Jennifer Mach
- Live and Let Die: Phosphatidic Acid Modulates the Self-Incompatibility Response**^[OPEN] 950
Robert C. Augustine
- Life of PPI: Soluble PPases and H⁺-PPase Act Cooperatively to Keep Pyrophosphate Levels in Check**^[OPEN] 951
Kathleen L. Farquharson

BREAKTHROUGH REPORT

- An m⁶A-YTH Module Controls Developmental Timing and Morphogenesis in Arabidopsis**^[OPEN] 952
Laura Arribas-Hernández, Simon Bressendorff, Mathias Henning Hansen, Christian Poulsen, Susanne Erdmann, and Peter Brodersen

RESEARCH ARTICLES

- The m⁶A Reader ECT2 Controls Trichome Morphology by Affecting mRNA Stability in Arabidopsis**^[OPEN] 968
Lian-Huan Wei, Peizhe Song, Ye Wang, Zhike Lu, Qian Tang, Qiong Yu, Yu Xiao, Xiao Zhang, Hong-Chao Duan, and Guifang Jia
- The YTH Domain Protein ECT2 Is an m⁶A Reader Required for Normal Trichome Branching in Arabidopsis**^[OPEN] 986
Jérémy Scutenaire, Jean-Marc Deragon, Viviane Jean, Moussa Benhamed, Cécile Raynaud, Jean-Jacques Favory, Rémy Merret, and Cécile Bousquet-Antonelli
- Two Abscisic Acid-Responsive Plastid Lipase Genes Involved in Jasmonic Acid Biosynthesis in Arabidopsis thaliana** 1006
Kun Wang, Qiang Guo, John E. Froehlich, Hope Lynn Hersh, Agnieszka Zienkiewicz, Gregg A. Howe, and Christoph Benning

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

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



© 2018 American Society of Plant Biologists. All rights reserved.

Phosphatidic Acid Counteracts S-RNase Signaling in Pollen by Stabilizing the Actin Cytoskeleton 1023

Jianqing Chen, Peng Wang, Barend H.J. de Graaf, Hao Zhang, Huijun Jiao, Chao Tang, Shaoling Zhang, and Juyou Wu

Vacuolar H⁺-Pyrophosphatase and Cytosolic Soluble Pyrophosphatases Cooperatively Regulate Pyrophosphate Levels in *Arabidopsis thaliana* 1040

Shoji Segami, Takaaki Tomoyama, Shingo Sakamoto, Shizuka Gunji, Mayu Fukuda, Satoru Kinoshita, Nobutaka Mitsuda, Ali Ferjani, and Masayoshi Maeshima

The Ubiquitin E3 Ligase PRU1 Regulates WRKY6 Degradation to Modulate Phosphate Homeostasis in Response to Low-Pi Stress in *Arabidopsis* 1062

Qing Ye, Hui Wang, Tong Su, Wei-Hua Wu, and Yi-Fang Chen

SUMOylome Profiling Reveals a Diverse Array of Nuclear Targets Modified by the SUMO Ligase SIZ1 during Heat Stress 1077

Thérèse C. Rytz, Marcus J. Miller, Fionn McLoughlin, Robert C. Augustine, Richard S. Marshall, Yu-ting Juan, Yee-yung Charng, Mark Scalf, Lloyd M. Smith, and Richard D. Vierstra

The Receptor-Like Cytoplasmic Kinase STRK1 Phosphorylates and Activates CatC, Thereby Regulating H₂O₂ Homeostasis and Improving Salt Tolerance in Rice 1100

Yan-Biao Zhou, Cong Liu, Dong-Ying Tang, Lu Yan, Dan Wang, Yuan-Zhu Yang, Jin-Shan Gui, Xiao-Ying Zhao, Lai-Geng Li, Xiao-Dan Tang, Feng Yu, Jiang-Lin Li, Lan-Lan Liu, Yong-Hua Zhu, Jian-Zhong Lin, and Xuan-Ming Liu

Inferring Roles in Defense from Metabolic Allocation of Rice Diterpenoids^[OPEN] 1119

Xuan Lu, Juan Zhang, Benjamin Brown, Riqing Li, Julio Rodriguez-Romero, Aileen Berasategui, Bo Liu, Meimei Xu, Dangping Luo, Zhiqiang Pan, Scott R. Baerson, Jonathan Gershenzon, Zhaohu Li, Ane Sesma, Bing Yang, and Reuben J. Peters

Danger-Associated Peptides Close Stomata by OST1-Independent Activation of Anion Channels in Guard Cells 1132

Xiaojiang Zheng, Seock Kang, Yanping Jing, Zhijie Ren, Legong Li, Jian-Min Zhou, Gerald Berkowitz, Jisen Shi, Aigen Fu, Wenzhi Lan, Fugeng Zhao, and Sheng Luan

Aluminum-Activated Malate Transporters Can Facilitate GABA Transport^[OPEN] 1147

Sunita A. Ramesh, Muhammad Kamran, Wendy Sullivan, Larissa Chirkova, Mamoru Okamoto, Fien Degryse, Michael McLaughlin, Matthew Gilliam, and Stephen D. Tyerman

^[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 The Sheridan Group, Waterbury, VT. For matters regarding library 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 advertising to Alison Bashian, Advertising & Sponsorship Sales; telephone 703/964-1240 x280; fax 703/964-1246; e-mail abashian@conferencemanagers.com. 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 December 15, 2018

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