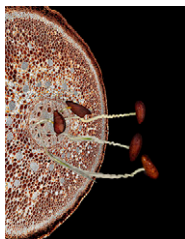


T H E
PLANT
C E L L

Volume 31 Number 8 August 2019

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

ON THE COVER



Date palm employs remote germination to protect its meristems from surrounding hostile desert environment. Xiao et al. (pp 1751–1766) show that, after a developmental pause, the embryo develops and generates a seedling that remains protected within the cotyledonary petiole. After germination, the root produce a complex vascular system and fiber cells within the cortical layers. These unique developmental strategies allow date palm seedlings to survive arid environment. The cover image shows protective organogenesis in date palm seedlings fictionally invading the complex vascular system of a root cross sections. Root section is a 3D confocal image stained with renaissance. (Artwork by Vinicius Lube)

IN BRIEF

- Unearthing Root Growth Dynamics through 3D Time-Lapse Imaging**^[OPEN] 1673
Jennifer Lockhart
- Designer PPR Proteins as Tools to Explore RNA Binding in Vivo**^[OPEN] 1674
Nancy R. Hofmann
- Small RNAs in the *Maillet Jaune*: Transcriptional Analysis of the Plant Cell Cycle**^[OPEN] 1676
Alex Harkess
- Setting Time for a Hot Date: Paused Embryo Development and Protective Organogenesis Allow Dates to Cope with the Desert Environment**^[OPEN] 1678
Tegan Armarego-Marriott
- Barreling Down the Chloroplast Highway: Protein Sorting of Outer-Membrane β -Barrel Proteins**^[OPEN] 1679
Patrice A. Salomé
- Mediator Skills: MED16 Controls Endoreduplication**^[OPEN] 1681
Patrice A. Salomé
- REVIEW**
- A Series of Fortunate Events: Introducing *Chlamydomonas* as a Reference Organism**^[OPEN] 1682
Patrice A. Salomé and Sabeeha S. Merchant

BREAKTHROUGH REPORTS

- Three-Dimensional Time-Lapse Analysis Reveals Multiscale Relationships in Maize Root Systems with Contrasting Architectures**^[OPEN] 1708
Ni Jiang, Eric Floro, Adam L. Bray, Benjamin Laws, Keith E. Duncan, and Christopher N. Topp
- Ribonucleoprotein Capture by in Vivo Expression of a Designer Pentatricopeptide Repeat Protein in Arabidopsis**^[OPEN] 1723
James J. McDermott, Kenneth P. Watkins, Rosalind Williams-Carrier, and Alice Barkan

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

LARGE-SCALE BIOLOGY ARTICLE

Cell Cycle–Dependent Regulation and Function of ARGONAUTE1 in Plants^[OPEN] 1734
Adrien Trolet, Patricia Baldrich, Marie-Claire Criqui, Marieke Dubois, Marion Clavel, Blake C. Meyers, and Pascal Genschik

RESEARCH ARTICLES

Emergent Protective Organogenesis in Date Palms: A Morpho-Devo-Dynamic Adaptive Strategy during Early Development^[CC-BY] 1751
Ting Ting Xiao, Alejandro Aragón Raygoza, Juan Caballero Pérez, Gwendolyn Kirschner, Yanming Deng, Brian Atkinson, Craig Sturrock, Vinicius Lube, Jian You Wang, Gilles Lubineau, Salim Al-Babili, Alfredo Cruz Ramírez, Malcolm Bennett, and Ikram Blilou

Danger-Associated Peptides Interact with PIN-Dependent Local Auxin Distribution to Inhibit Root Growth in Arabidopsis 1767
Yanping Jing, Xiaojiang Zheng, Danlei Zhang, Nuo Shen, Yuan Wang, Lei Yang, Aigen Fu, Jisen Shi, Fugeng Zhao, Wenzhi Lan, and Sheng Luan

The AP2/ERF Transcription Factor TINY Modulates Brassinosteroid-Regulated Plant Growth and Drought Responses in Arabidopsis^[OPEN] 1788
Zhouli Xie, Trevor Nolan, Hao Jiang, Buyun Tang, Mingcai Zhang, Zhaohu Li, and Yanhai Yin

TTL Proteins Scaffold Brassinosteroid Signaling Components at the Plasma Membrane to Optimize Signal Transduction in Arabidopsis 1807
Vítor Amorim-Silva, Álvaro García-Moreno, Araceli G. Castillo, Naoufal Lakhssassi, Alicia Esteban del Valle, Jessica Pérez-Sancho, Yansha Li, David Posé, Josefa Pérez-Rodríguez, Jinxing Lin, Victoriano Valpuesta, Omar Borsani, Cyril Zipfel, Alberto P. Macho, and Miguel A. Botella

The Second Site Modifier, *Sympathy for the ligule*, Encodes a Homolog of Arabidopsis ENHANCED DISEASE RESISTANCE4 and Rescues the *Liguleless narrow* Maize Mutant^[OPEN] 1829
Alyssa Anderson, Brian St. Aubin, María Jazmín Abraham-Juárez, Samuel Leiboff, Zhouxin Shen, Steve Briggs, Jacob O. Brunkard, and Sarah Hake

Chloroplast Outer Membrane β -Barrel Proteins Use Components of the General Import Apparatus 1845
Philip M. Day, Kentaro Inoue, and Steven M. Theg

Arabidopsis DGD1 SUPPRESSOR1 Is a Subunit of the Mitochondrial Contact Site and Cristae Organizing System and Affects Mitochondrial Biogenesis^[OPEN] 1856
Lu Li, Anastasiya Lavell, Xiangxiang Meng, Oliver Berkowitz, Jennifer Selinski, Allison van de Meene, Chris Carrie, Christoph Benning, James Whelan, Inge De Clercq, and Yan Wang

AtTRAPPC11/ROG2: A Role for TRAPPs in Maintenance of the Plant *Trans*-Golgi Network/Early Endosome Organization and Function^[OPEN] 1879
Michel Ruiz Rosquete, Natasha Worden, Guangxi Ren, Rosalie M. Sinclair, Sina Pflieger, Michelle Salemi, Brett S. Phinney, David Domozych, Thomas Wilkop, and Georgia Drakakaki

Transcriptional Repression of the APC/C Activator Genes *CCS52A1/A2* by the Mediator Complex Subunit MED16 Controls Endoreduplication and Cell Growth in Arabidopsis 1899
Zupei Liu, Gang Chen, Fan Gao, Ran Xu, Na Li, Yueying Zhang, and Yunhai Li

Christian Silva-Sanzana, Jonathan Celiz-Balboa, Elisa Garzo, Susan E. Marcus, Juan Pablo Parra-Rojas, Barbara Rojas, Patricio Olmedo, Miguel A. Rubilar, Ignacio Rios, Rodrigo A. Chorbajian, Alberto Fereres, Paul Knox, Susana Saez-Aguayo, and Francisca Blanco-Herrera

^[OPEN] Articles can be viewed without a subscription.

^[CC-BY] Article free via Creative Commons CC-BY 4.0 license.



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 September 27, 2020

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