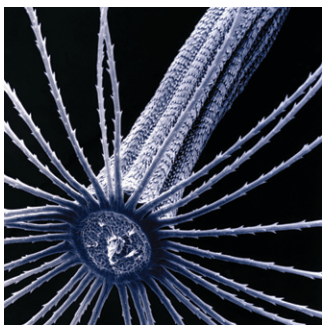


T H E  
**PLANT**  
C E L L

Volume 20 Number 9 September 2008

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

**ON THE COVER**



Double fertilization is required during sexual reproduction in plants to activate embryo and endosperm formation in the developing seed, except in apomictic species, which form viable seeds asexually without fertilization. In *Arabidopsis*, a repressive Polycomb-group protein complex blocks seed initiation in the absence of fertilization. Rodrigues et al. (pages 2372–2386) show that one member of the complex has an altered yet essential function in apomictic as well as in fertilization-induced seed initiation in the daisy-like *Hieracium*. The cover shows a scanning electron micrograph of the *Hieracium* fruit (achene), which is adapted for wind dispersal. The embryo is found inside the elongated part of the achene. The sample and original image were prepared by Anna Koltunow; the final image was sharpened and color enhanced by Susan Johnson.

**IN BRIEF**

- Conservation and Redundancy of Serine Acetyltransferases** 2281  
Nancy R. Hofmann
- Basal Defense in *Arabidopsis*: WRKYs Interact with Histone Deacetylase HDA19** 2282  
Jennifer Mach
- A Bioinformatics Approach to Investigating Leaf Development** 2283  
Nancy A. Eckardt
- Coordination of Chloroplast Envelope Division** 2284  
Gregory Bertoni
- Cyclotides: Cyclical Miniproteins with a Cystine Knot Configuration** 2285  
Jennifer Mach

**PERSPECTIVE**

- RNase-Based Self-Incompatibility: Puzzled by *Pollen S*** 2286  
Ed Newbigin, Timothy Paape, and Joshua R. Kohn

**RESEARCH ARTICLES**

- A Protracted and Dynamic Maturation Schedule Underlies *Arabidopsis* Leaf Development** 2293  
Idan Efroni, Eyal Blum, Alexander Goldshmidt, and Yuval Eshed
- Biochemical Characterization of *Arabidopsis* Complexes Containing CONSTITUTIVELY PHOTOMORPHOGENIC1 and SUPPRESSOR OF PHYA Proteins in Light Control of Plant Development** 2307  
Danmeng Zhu, Alexander Maier, Jae-Hoon Lee, Sascha Laubinger, Yusuke Saijo, Haiyang Wang, Li-Jia Qu, Ute Hoecker, and Xing Wang Deng
- LZF1/SALT TOLERANCE HOMOLOG3, an *Arabidopsis* B-Box Protein Involved in Light-Dependent Development and Gene Expression, Undergoes COP1-Mediated Ubiquitination** 2324  
Sourav Datta, Henrik Johansson, Chamari Hettiarachchi, María Luisa Irigoyen, Mintu Desai, Vicente Rubio, and Magnus Holm

## EDITORIAL BOARD

### Editor in Chief

Cathie Martin

### Coeditors

Sarah M. Assmann  
Jody Banks  
Alice Barkan  
Kathy Barton  
David Baum  
Sebastian Bednarek  
James Birchler  
Ulla Bonas  
Christopher Bowler  
Nigel Crawford  
Xing Wang Deng  
Allan Downie  
Mark Estelle  
Alisdair Fernie  
Pascal Genschik  
Jean T. Greenberg  
Thomas Guilfoyle  
Ann Hirsch  
David Jackson  
Patricia Leon  
Clive Lloyd  
William Lucas  
Marjori Matzke  
Blake Meyers  
Joseph Noel  
Michael Palmgren  
Markus Pauly  
Scott C. Peck  
Barry Pogson  
David Smyth  
Chris J. Staiger  
Keiko Sugimoto  
Nicholas J. Talbot

### Managing Editor

John Long

### News and Reviews Editor

Nancy A. Eckardt

### Science Editors

Greg Bertoni  
Kathleen L. Farquharson  
Nancy R. Hofmann  
Jennifer M. Mach

### 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  
Fax: 301/279-2996  
http://www.aspb.org

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

- Chloroplast Signaling and *LESION SIMULATING DISEASE1* Regulate Crosstalk between Light Acclimation and Immunity in *Arabidopsis*** [W](#) 2339  
Per Mühlenbock, Magdalena Szechyńska-Hebda, Marian Płaszczycza, Marcela Baudo, Philip M. Mullineaux, Jane E. Parker, Barbara Karpińska, and Stanisław Karpiński
- Arabidopsis* WRKY38 and WRKY62 Transcription Factors Interact with Histone Deacetylase 19 in Basal Defense** [W](#) 2357  
Kang-Chang Kim, Zhibing Lai, Baofang Fan, and Zhixiang Chen
- Sexual and Apomictic Seed Formation in *Hieracium* Requires the Plant Polycomb-Group Gene *FERTILIZATION INDEPENDENT ENDOSPERM*** [W](#) 2372  
Julio C.M. Rodrigues, Matthew R. Tucker, Susan D. Johnson, Maria Hrmova, and Anna M.G. Koltunow
- MATERNALLY EXPRESSED PAB C-TERMINAL*, a Novel Imprinted Gene in *Arabidopsis*, Encodes the Conserved C-Terminal Domain of Polyadenylate Binding Proteins** [W](#) 2387  
Sushma Tiwari, Reiner Schulz, Yoko Ikeda, Lindsay Dytham, Jaime Bravo, Lucille Mathers, Melissa Spielman, Plinio Guzmán, Rebecca J. Oakey, Tetsu Kinoshita, and Rod J. Scott
- A Gender-Specific Retinoblastoma-Related Protein in *Volvox carteri* Implies a Role for the Retinoblastoma Protein Family in Sexual Development** [W](#) [OA](#) 2399  
Arash Kianianmomeni, Ghazaleh Nematollahi, and Armin Hallmann
- Genetic Analysis Reveals That C<sub>19</sub>-GA 2-Oxidation Is a Major Gibberellin Inactivation Pathway in *Arabidopsis*** [W](#) 2420  
Ivo Rieu, Sven Eriksson, Stephen J. Powers, Fan Gong, Jayne Griffiths, Lindsey Woolley, Reyes Benlloch, Ove Nilsson, Stephen G. Thomas, Peter Hedden, and Andrew L. Phillips
- Release of the Repressive Activity of Rice DELLA Protein SLR1 by Gibberellin Does Not Require SLR1 Degradation in the *gid2* Mutant** [W](#) 2437  
Miyako Ueguchi-Tanaka, Ko Hirano, Yasuko Hasegawa, Hidemi Kitano, and Makoto Matsuoka
- Proteolysis-Independent Downregulation of DELLA Repression in *Arabidopsis* by the Gibberellin Receptor GIBBERELLIN INSENSITIVE DWARF1** [W](#) 2447  
Tohru Aizumi, Kohji Murase, Tai-ping Sun, and Camille M. Steber
- Arabidopsis* ARC6 Coordinates the Division Machineries of the Inner and Outer Chloroplast Membranes through Interaction with PDV2 in the Intermembrane Space** [W](#) 2460  
Jonathan M. Glynn, John E. Froehlich, and Katherine W. Osteryoung
- Distribution and Evolution of Circular Miniproteins in Flowering Plants** [W](#) 2471  
Christian W. Gruber, Alysha G. Elliott, David C. Ireland, Piero G. Delprete, Steven Desein, Ulf Göransson, Manuela Trabi, Conan K. Wang, Andrew B. Kinghorn, Elmar Robbrecht, and David J. Craik
- Comparative Genomics and Reverse Genetics Analysis Reveal Indispensable Functions of the Serine Acetyltransferase Gene Family in *Arabidopsis*** [W](#) [OA](#) 2484  
Mutsumi Watanabe, Keiichi Mochida, Tomohiko Kato, Satoshi Tabata, Naoko Yoshimoto, Masaaki Noji, and Kazuki Saito
- Transport and Sorting of the *Solanum tuberosum* Sucrose Transporter SUT1 Is Affected by Posttranslational Modification** [W](#) 2497  
Undine Krügel, Liesbeth M. Veenhoff, Jennifer Langbein, Elena Wiederhold, Johannes Liesche, Thomas Friedrich, Bernhard Grimm, Enrico Martinoia, Bert Poolman, and Christina Kühn

**Mutation of the *Arabidopsis NRT1.5* Nitrate Transporter Causes Defective Root-to-Shoot Nitrate Transport** [W](#) [OA](#)

2514

Shan-Hua Lin, Hui-Fen Kuo, Geneviève Canivenc, Choun-Sea Lin, Marc Lepetit, Po-Kai Hsu, Pascal Tillard, Huey-Ling Lin, Ya-Yun Wang, Chyn-Bey Tsai, Alain Gojon, and Yi-Fang Tsay

**NAI2 Is an Endoplasmic Reticulum Body Component That Enables ER Body Formation in *Arabidopsis thaliana*** [W](#) [OA](#)

2529

Kenji Yamada, Atsushi J. Nagano, Momoko Nishina, Ikuko Hara-Nishimura, and Mikio Nishimura

[W](#) Online version contains Web-only data.

[OA](#) Open Access articles can be viewed online without a subscription.



© 2008 American Society of Plant Biologists. All rights reserved. Printed on acid-free paper effective with Volume 1, Number 1, January 1989.

Printed in the United States of America.

---

**The Plant Cell** (ISSN 1040-4651, online ISSN 1531-298X) 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 price for the print and online versions is based on type of institution; contact [institution@aspb.org](mailto:institution@aspb.org). A subscription includes both *The Plant Cell* and *Plant Physiology*; single copies may be purchased for \$75 each, plus \$7 shipping (U.S.) or \$9 (outside U.S.). Members of the American Society of Plant Biologists may subscribe to *The Plant Cell* for \$185. Nonmember individuals may subscribe for \$375. 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). Notify ASPB in writing within 3 months (domestic) or 6 months (foreign) of issue date, and defective copies or copies lost in the mail will be replaced. 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). Periodicals postage paid at Rockville, MD 20850, and at additional mailing offices.

**Postmaster:** Send address changes to *The Plant Cell*, American Society of Plant Biologists, 15501 Monona Drive, Rockville, MD 20855-2768. 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 September 29, 2020

<b>Permissions</b>	<a href="https://www.copyright.com/ccc/openurl.do?sid=pd_hw1532298X&amp;issn=1532298X&amp;WT.mc_id=pd_hw1532298X">https://www.copyright.com/ccc/openurl.do?sid=pd_hw1532298X&amp;issn=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>