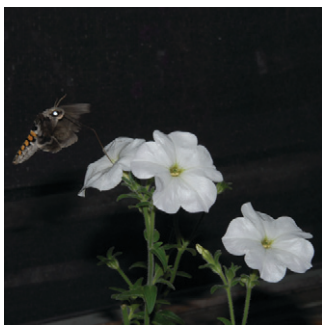


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ON THE COVER



Selection by pollinators is an important factor in floral evolution and plant speciation. Hoballah et al. (pages 779–790) investigated genetic changes associated with the evolution of divergent pollination syndromes in two species of *Petunia*. The authors analyzed *ANTHOCYANIN2*, which encodes a *myb*-type transcription factor that is a major determinant of flower color variation in *Petunia*. Loss-of-function alleles of *AN2*, resulting in white or pale flower color, arose at least five times independently among wild *P. axillaris* accessions, whereas *P. integrifolia* contains a functional *AN2* gene that is associated with the production of magenta flowers. Functional assays for pollinator preference showed that hawk moths have a strong preference for *P. axillaris* flowers, whereas bumblebees prefer the highly colored *P. integrifolia* flowers. Transformation of *P. axillaris* with a functional *P. integrifolia*-type *AN2* cDNA restored *AN2* function and resulted in a switch of pollinator preference to match that of *P. integrifolia*. Thus, adaptation of plant species to a new pollinator can involve a limited number of genes of large effect. The cover image shows an adult hawk moth (*Manduca sexta*) feeding on *P. axillaris*.

IN THIS ISSUE

Light Regulation of Plant Development: HY5 Genomic Binding Sites 727
Nancy A. Eckardt

IN BRIEF

Novel Oxylipin Signaling Cascades 730
Focus on Meiotic Crossover Interference
Nancy A. Eckardt

RESEARCH ARTICLES

Analysis of Transcription Factor HY5 Genomic Binding Sites Revealed Its Hierarchical Role in Light Regulation of Development [W](#) 731

Jungeun Lee, Kun He, Viktor Stolc, Horim Lee, Pablo Figueroa, Ying Gao, Waraporn Tongprasit, Hongyu Zhao, Ilha Lee, and Xing Wang Deng

Elaboration of B Gene Function to Include the Identity of Novel Floral Organs in the Lower Eudicot *Aquilegia* [W](#) 750

Elena M. Kramer, Lynn Holappa, Billie Gould, M. Alejandra Jaramillo, Dimitriy Setnikov, and Philip M. Santiago

TERMINAL FLOWER1 Is a Mobile Signal Controlling *Arabidopsis* Architecture [W](#) 767
Lucio Conti and Desmond Bradley

Single Gene-Mediated Shift in Pollinator Attraction in *Petunia* [W](#) 779

Maria Elena Hoballah, Thomas Gubitz, Jeroen Stuurman, Larissa Broger, Mario Barone, Therese Mandel, Alexandre Dell’Olivo, Maeva Arnold, and Cris Kuhlemeier

Seed Germination of GA-Insensitive *sleepy1* Mutants Does Not Require RGL2 Protein Disappearance in *Arabidopsis* [W](#) 791

Tohru Ariizumi and Camille M. Steber

The Mitogen-Activated Protein Kinase Cascade MKK3–MPK6 Is an Important Part of the Jasmonate Signal Transduction Pathway in *Arabidopsis* [W](#) [OA](#) 805

Fuminori Takahashi, Riichiro Yoshida, Kazuya Ichimura, Tsuyoshi Mizoguchi, Shigemi Seo, Masahiro Yonezawa, Kyonoshin Maruyama, Kazuko Yamaguchi-Shinozaki, and Kazuo Shinozaki

The Antagonist Function of *Arabidopsis* WRKY53 and ESR/ESP in Leaf Senescence Is Modulated by the Jasmonic and Salicylic Acid Equilibrium 819

Ying Miao and Ulrike Zentgraf

Oxylipins Produced by the 9-Lipoxygenase Pathway in *Arabidopsis* Regulate Lateral Root Development and Defense Responses through a Specific Signaling Cascade [W](#) 831

Tamara Vellosillo, Marta Martinez, Miguel Angel Lpez, Jorge Vicente, Tomas Cascn, Liam Dolan, Mats Hamberg, and Carmen Castresana

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
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Rice UDP-Glucose Pyrophosphorylase1 Is Essential for Pollen Callose Deposition and Its Cosuppression Results in a New Type of Thermosensitive Genic Male Sterility W OA	847
Rongzhi Chen, Xiao Zhao, Zhe Shao, Zhe Wei, Yuanyuan Wang, Lili Zhu, Jie Zhao, Mengxiang Sun, Ruifeng He, and Guangcun He	
The Mismatch Repair Protein MLH1 Marks a Subset of Strongly Interfering Crossovers in Tomato W OA	862
Franck G.P. Lhuissier, Hildo H. Offenbergh, Peter E. Wittich, Norbert O.E. Vischer, and Christa Heyting	
<i>Arabidopsis</i> MICROTUBULE-ASSOCIATED PROTEIN18 Functions in Directional Cell Growth by Destabilizing Cortical Microtubules	877
Xia Wang, Lei Zhu, Baoquan Liu, Che Wang, Lifeng Jin, Qian Zhao, and Ming Yuan	
Impairment of Cellulose Synthases Required for <i>Arabidopsis</i> Secondary Cell Wall Formation Enhances Disease Resistance W	890
Camilo Hernández-Blanco, Dong Xin Feng, Jian Hu, Andrea Sánchez-Vallet, Laurent Deslandes, Francisco Llorente, Marta Berrocal-Lobo, Harald Keller, Xavier Barlet, Clara Sánchez-Rodríguez, Lisa K. Anderson, Shauna Somerville, Yves Marco, and Antonio Molina	
A Core Subunit of the RNA-Processing/Degrading Exosome Specifically Influences Cuticular Wax Biosynthesis in <i>Arabidopsis</i> W	904
Tanya S. Hooker, Patricia Lam, Huanquan Zheng, and Ljerka Kunst	
The N-Terminal Double-Stranded RNA Binding Domains of <i>Arabidopsis</i> HYPONASTIC LEAVES1 Are Sufficient for Pre-MicroRNA Processing W	914
Feijie Wu, Lin Yu, Wenguang Cao, Yanfei Mao, Zhongyuan Liu, and Yuke He	
Genome-Wide Analysis of the RNA-DEPENDENT RNA POLYMERASE6/ DICER-LIKE4 Pathway in <i>Arabidopsis</i> Reveals Dependency on miRNA- and tasiRNA-Directed Targeting W OA	926
Miya D. Howell, Noah Fahlgren, Elisabeth J. Chapman, Jason S. Cumbie, Christopher M. Sullivan, Scott A. Givan, Kristin D. Kasschau, and James C. Carrington	
Improperly Terminated, Unpolyadenylated mRNA of Sense Transgenes Is Targeted by RDR6-Mediated RNA Silencing in <i>Arabidopsis</i> W	943
Zhenghua Luo and Zhixiang Chen	
<i>Arabidopsis</i> Phage-Type RNA Polymerases: Accurate in Vitro Transcription of Organellar Genes W	959
Kristina Kühn, Alexandra-Viola Bohne, Karsten Liere, Andreas Weihe, and Thomas Börner	
T-Loop Phosphorylation of <i>Arabidopsis</i> CDKA;1 Is Required for Its Function and Can Be Partially Substituted by an Aspartate Residue W OA	972
Nico Dissmeyer, Moritz K. Nowack, Stefan Pusck, Hilde Stals, Dirk Inzé, Paul E. Grini, and Arp Schnittger	
PIC1, an Ancient Permease in <i>Arabidopsis</i> Chloroplasts, Mediates Iron Transport W	986
Daniela Duy, Gerhard Wanner, Anderson R. Meda, Nicolaus von Wirén, Jürgen Soll, and Katrin Philippar	
Chlorophyllase Is a Rate-Limiting Enzyme in Chlorophyll Catabolism and Is Posttranslationally Regulated	1007
Smadar Harpaz-Saad, Tamar Azoulay, Tzahi Arazi, Eran Ben-Yaakov, Anahit Mett, Yoel M. Shibolet, Stefan Hörtensteiner, David Gidoni, Amit Gal-On, Eliezer E. Goldschmidt, and Yoram Eyal	
Integration of Chloroplast Nucleic Acid Metabolism into the Phosphate Deprivation Response in <i>Chlamydomonas reinhardtii</i> OA	1023
Shlomit Yehudai-Resheff, Sara L. Zimmer, Yutaka Komine, and David B. Stern	
The Thylakoid Lumen Protease Deg1 Is Involved in the Repair of Photosystem II from Photoinhibition in <i>Arabidopsis</i> W	1039
Einat Kapri-Pardes, Leah Naveh, and Zach Adam	
The <i>Arabidopsis</i> aba4-1 Mutant Reveals a Specific Function for Neoxanthin in Protection against Photooxidative Stress W	1048
Luca Dall'Osto, Stefano Cazzaniga, Helen North, Annie Marion-Poll, and Roberto Bassi	
Calcium-Dependent Protein Kinases Regulate the Production of Reactive Oxygen Species by Potato NADPH Oxidase W OA	1065
Michie Kobayashi, Ikuko Ohura, Kazuhito Kawakita, Naohiko Yokota, Masayuki Fujiwara, Ko Shimamoto, Noriyuki Doke, and Hirofumi Yoshioka	

- Death Don't Have No Mercy and Neither Does Calcium: *Arabidopsis* CYCLIC NUCLEOTIDE GATED CHANNEL2 and Innate Immunity**  1081
Rashid Ali, Wei Ma, Fouad Lemtiri-Chlieh, Dimitrios Tsaltas, Qiang Leng, Susanne von Bodman, and Gerald A. Berkowitz
- Herbivory Rapidly Activates MAPK Signaling in Attacked and Unattacked Leaf Regions but Not between Leaves of *Nicotiana attenuata***  1096
Jianqiang Wu, Christian Hettenhausen, Stefan Meldau, and Ian T. Baldwin
- A Mutant of the *Arabidopsis* Phosphate Transporter PHT1;1 Displays Enhanced Arsenic Accumulation** 1123
Pablo Catarecha, M^a Dolores Segura, José Manuel Franco-Zorrilla, Berenice García-Ponce, Mónica Lanza, Roberto Solano, Javier Paz-Ares, and Antonio Leyva

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