On the Cover: Potato virus X (PVX) is a strong trigger of RNA silencing, producing high levels of small-interfering RNAs (siRNAs). These siRNAs can be derived from the replicating virus itself or via the copying action of an RNA-dependent RNA polymerase, RDR6. In this issue, Vaistij and Jones (pp. 1399–1407) report that PVX-driven virus-induced gene silencing is compromised in RDR6-deficient plants despite the accumulation of high levels of replicating PVX and PVX-derived primary siRNAs. This effect is unrelated to the accumulation of virus-encoded suppressors of RNA silencing and suggests that the primary siRNAs are ineffective in driving RNA silencing. The cover photograph shows the silencing of a transiently expressed GFP reporter gene in a wild-type Nicotiana benthamiana leaf infected with a vein-restricted PVX vector. Such silencing is not observed in a RDR6-deficient background. Photography by Phil Roberts.
 Proteins from Multiple Metabolic Pathways Associate with Starch Biosynthetic Enzymes in High Molecular Weight Complexes: A Model for Regulation of Carbon Allocation in Maize Amyloplasts. 
Tracie A. Hennen-Bierwagen, Qiaohui Lin, Florent Grimaud, Véronique Planchot, Peter L. Keeling, Martha G. James, and Alan M. Myers  

Chloroplast NADPH-Thioredoxin Reductase Interacts with Photoperiodic Development in Arabidopsis. 
Anna Lepistö, Saajaliisa Kangasjärvi, Eeva-Maria Luomala, Günter Brader, Nina Sipari, Mika Keränen, Markku Keinänen, and Eevi Rintamäki  

How Does Cyclic Electron Flow Alleviate Photoinhibition in Arabidopsis? 
Shunichi Takahashi, Sara E. Milward, Da-Yong Fan, Wah Soon Chow, and Murray R. Badger  

Experimental Evidence for Ascorbate-Dependent Electron Transport in Leaves with Inactive Oxygen-Evolving Complexes. 
Szilvia Z. Tóth, Jos T. Puthur, Valéria Nagy, and Gyöző Garab  

 Constitutive Repression and Activation of Auxin Signaling in Arabidopsis. 
Hanbing Li, Yan Cheng, Angus Murphy, Gretchen Hagen, and Tom J. Guilfoyle  

The Signal Peptide Peptidase Is Required for Pollen Function in Arabidopsis. 
Sungwon Han, Laura Green, and Danny J. Schnell  

Trichoderma virens, a Plant Beneficial Fungus, Enhances Biomass Production and Promotes Lateral Root Growth through an Auxin-Dependent Mechanism in Arabidopsis. 
Hexon Angel Contreras-Cornejo, Lourdes Macías-Rodríguez, Carlos Cortés-Penagos, and José López-Bucio  

Nitric Oxide Contributes to Cadmium Toxicity in Arabidopsis by Promoting Cadmium Accumulation in Roots and by Up-Regulating Genes Related to Iron Uptake. 
Angélique Besson-Bard, Antoine Gravot, Pierre Richaud, Pascaline Auray, Céline Duc, Frédéric Gaynard, Ludovine Taconnat, Jean-Pierre Renou, Alain Pugin, and David Wendehenne  

System Potentials, a Novel Electrical Long-Distance Apoplastic Signal in Plants, Induced by Wounding. 
Matthias R. Zimmermann, Heiko Maischak, Axel Mithöfer, Wilhelm Boland, and Hubert H. Felle  

Highly Diversified Molecular Evolution of Downstream Transcription Start Sites in Rice and Arabidopsis. 
Tsuyoshi Tanaka, Kanako O. Koyanagi, and Takeshi Itoh  

The Proteome of Seed Development in the Model Legume Lotus japonicus. 
Sven Dam, Brian S. Laursen, Jane H. Ørnfelt, Bjørne Jochimsen, Hans Henrik Stærfeldt, Carsten Friis, Kasper Nielsen, Nicolas Goffard, Søren Besenbacher, Lene Krasensky, Claudio Jonak, and Elisabeth Waigmann  

Molecular and Functional Characterization of PEBP Genes in Barley Reveal the Diversification of Their Roles in Flowering. 
Rie Kikuchi, Hiroyuki Kawahigashi, Tsuyu Ando, Takui Tonooka, and Hirokazu Handa  

Microtubule-Associated Protein AtMPB2C Plays a Role in Organization of Cortical Microtubules, Stomata Patterning, and Tobamovirus Infectivity. 
Pia Ruggenthaler, Daniela Fichtenbauer, Julia Krasensky, Claudia Jonak, and Elisabeth Waigmann  

Continued on next page

Eternal Youth, the Fate of Developing Arabidopsis Leaves upon Rhodococcus fascians Infection. Stephen Depuydt, Lieven De Veylder, Marcelle Holsters, and Danny Vereecke

Compromised Virus-Induced Gene Silencing in RDR6-Deficient Plants. Fabián E. Vaistij and Louise Jones

Molecular Interactions between the Specialist Herbivore Manduca sexta (Lepidoptera, Sphingidae) and Its Natural Host Nicotiana attenuata. VIII. An Unbiased GCxGC-ToFMS Analysis of the Plant’s Elicited Volatile Emissions. Emmanuel Gaquerel, Alexander Weinhold, and Ian T. Baldwin

Compromised Virus-Induced Gene Silencing in RDR6-Deficient Plants. Fabián E. Vaistij and Louise Jones

Biotic and Abiotic Stimulation of Root Epidermal Cells Reveals Common and Specific Responses to Arbuscular Mycorrhizal Fungi. Andrea Genre, Giuseppe Ortu, Chiara Bertoldo, Elena Martino, and Paola Bonfante


Diel Growth Cycle of Isolated Leaf Discs Analyzed with a Novel, High-Throughput Three-Dimensional Imaging Method Is Identical to That of Intact Leaves. Bernhard Biskup, Hanno Scharr, Andreas Fischbach, Anika Wiese-Klinkenberg, Ulrich Schurr, and Achim Walter


In Vivo Interference with AtTCP20 Function Induces Severe Plant Growth Alterations and Deregulates the Expression of Many Genes Important for Development. Christine Herove, Patrick Dabos, Claude Bardet, Alain Jaunee, Marie Christine Auriac, Agnès Ramboer, Fabrice Lacout, and Dominique Tremousaugue

A Rice Kinase-Protein Interaction Map. Xiaodong Ding, Todd Richter, Mei Chen, Hiroaki Fujii, Young Su Seo, Mingtang Xie, Xiaowu Zheng, Siddhartha Kanrar, Rebecca A. Stevenson, Christopher Dardick, Ying Li, Hao Jiang, Yan Zhang, Fahong Yu, Laura E. Bartley, Maosheng Chern, Rebecca Bart, Xiuhua Chen, Lihuang Zhu, William G. Farmerie, Michael Grishkova, Jian-Kang Zhu, Michael E. Fromm, Pamela C. Ronald, and Wen-Yuan Song

Cell Culture-Induced Gradual and Frequent Epigenetic Reprogramming of Invertedly Repeated Tobacco Transgene Epialleles. Katerina Krizova, Miloslava Fojtova, Ann Depicker, and Ales Kovarik

Gene and Metabolite Regulatory Network Analysis of Early Developing Fruit Tissues Highlights New Candidate Genes for the Control of Tomato Fruit Composition and Development. Fabien Mounet, Arminn Moingt, Virginie Garcia, Johann Petit, Michael Maucourt, Catherine Deborde, Stéphane Bernillon, Guénadée Le Gall, Ian Calquhoun, Marianne Defernez, Jean-Luc Giraudel, Dominique Rolin, Christophe Rothan, and Martine Lemaire-Chamley
CORRECTIONS

AtPTR1 and AtPTR5 Transport Dipeptides in Planta.  
N.Y. Komarova, K. Thor, A. Gubler, S. Meier, D. Dietrich, 
A. Weichert, M.S. Grotemeyer, M. Tegeder, and D. Rentsch

The “On the Cover” section of the January 2009 issue did not credit the author responsible for creating the cover image. Andrew Doust (Doust et al., pp. 137–141) created the cover image and key.

[C] Some figures in this article are displayed in color online but in black and white in the print edition.
[W] Indicates Web-only data.
[OA] Open Access articles can be viewed online without a subscription.