Reyes et al. (pages 769–784) use a combination of molecular approaches, in vivo imaging of fluorescent proteins, and structural analysis by electron tomography to study storage proteins, such as zeins, in maize seed tissue. They investigate patterns of gene transcription and protein transport in aleurone cells and describe an atypical autophagic mechanism for the delivery of these proteins to the vacuole that may be common to cereals. The cover shows an electron tomographic reconstruction of a developing maize aleurone cell containing vacuoles with large aggregates of storage proteins (red) and intravacuolar membranes (green); mitochondria (gold), plastids (green), lipid bodies (blue), and ribosomes (gray) are abundant in the cytoplasm.
The R2R3 MYB Transcription Factor DUO1 Activates a Male Germline-Specific Regulon Essential for Sperm Cell Differentiation in Arabidopsis

Michael Borg, Lynette Brownfield, Hoda Khatab, Anna Sidorova, Melanie Lingaya, and David Twell

vanishing tassel2 Encodes a Grass-Specific Tryptophan Aminotransferase Required for Vegetative and Reproductive Development in Maize

Kimberly A. Phillips, Andrea L. Skirpan, Xing Liu, Ashley Christensen, Thomas L. Slewinski, Christopher Hudson, Solmaz Barazesh, Jerry D. Cohen, Simon Malcomber, and Paula McSteen

A Per-ARNT-Sim-Like Sensor Domain Uniquely Regulates the Activity of the Homeodomain Leucine Zipper Transcription Factor REVOLUTA in Arabidopsis

Enrico Magnani and M. Kathryn Barton

12-Oxo-Phytodienoic Acid Accumulation during Seed Development Represses Seed Germination in Arabidopsis

Anuja Dave, M. Luisa Hernández, Zhesi He, Vasilios M.E. Andriotis, Fabián E. Vaistij, Tony R. Larson, and Ian A. Graham

Antisense Inhibition of the Iron-Sulphur Subunit of Succinate Dehydrogenase Enhances Photosynthesis and Growth in Tomato via an Organic Acid–Mediated Effect on Stomatal Aperture

Wagner L. Araújo, Adriano Nunes-Nesi, Sonia Osorio, Björn Usadel, Daniela Fuentes, Réka Nagy, Ilse Balbo, Martin Lehmann, Claudia Studart-Witkowski, Takayuki Tohge, Enrico Martinoia, Xavier Jordana, Fábio M. DaMatta, and Alisdair R. Fernie

Mutation of Rice BC12/GDD1, Which Encodes a Kinesin-Like Protein That Binds to a GA Biosynthesis Gene Promoter, Leads to Dwarfism with Impaired Cell Elongation

Juan Li, Jiayu Jiang, Qian Qian, Yunyuan Xu, Cui Zhang, Jun Xiao, Cheng Du, Wei Luo, Guoxing Zou, Mingluan Chen, Yunqing Huang, Yuqi Feng, Zhukuan Cheng, Ming Yuan, and Kang Chong

The Arabidopsis bHLH Transcription Factors MYC3 and MYC4 Are Targets of JAZ Repressors and Act Additively with MYC2 in the Activation of Jasmone Responses

Patricia Fernández-Calvo, Andrea Chini, Gemma Fernández-Barbero, José-Manuel Chico, Selena Gimenez-Ibanez, Jan Geerinck, Dominique Eckhout, Fabian Schweizer, Marta Godoy, José Manuel Franco-Zorrilla, Laurens Pauwels, Erwin Witters, María Isabel Puga, Javier Paz-Ares, Alain Goossens, Philippe Reymond, Geert De Jaeger, and Roberto Solano
Metabolic Engineering in *Nicotiana benthamiana* Reveals Key Enzyme Functions in *Arabidopsis* Indole Glucosinolate Modification

Marina Pfalz, Michael Dalgaard Mikkelsen, Pawel Bednarek, Carl Erik Olsen, Barbara Ann Halkier, and Juergen Kroymann

An *Arabidopsis* Dual-Localized Pentatricopeptide Repeat Protein Interacts with Nuclear Proteins Involved in Gene Expression Regulation

Kamel Hammani, Anthony Gobert, Kamal Hleibieh, Laurence Choulier, Ian Small, and Philippe Giege

Crosstalk between Hsp90 and Hsp70 Chaperones and Heat Stress Transcription Factors in Tomato

Alexander Hahn, Daniela Bublak, Enrico Schleiff, and Klaus-Dieter Scharf

Rice Two-Pore K⁺ Channels AreExpressed in Different Types of Vacuoles

Stanislav Isayenkov, Jean-Charles Isner, and Frans J.M. Maathuis

Delivery of Prolamins to the Protein Storage Vacuole in Maize Aleurone Cells

Francisca C. Reyes, Taijoon Chung, David Holding, Rudolf Jung, Richard Vierstra, and Marisa S. Otegui

The *Arabidopsis* Multistress Regulator TSPO Is a Heme Binding Membrane Protein and a Potential Scavenger of Porphyrins via an Autophagy-Dependent Degradation Mechanism

Celine Vanhee, Grzegorz Zapotoczny, Danièle Masquelier, Michel Ghislain, and Henri Batoko

Oxidative DNA Damage Bypass in *Arabidopsis thaliana* Requires DNA Polymerase λ and Proliferating Cell Nuclear Antigen 2

Alessandra Amoroso, Lorenzo Concia, Caterina Maggio, Cécile Raynaud, Catherine Bergouinioux, Emmanuelle Crespan, Rino Cell, and Giovanni Maga

Proteomics and Functional Analyses of Pepper Abscisic Acid–Responsive 1 (*ABR1*), Which Is Involved in Cell Death and Defense Signaling

Du Seok Choi and Byung Kook Hwang