The ability to precisely modify DNA in cells offers great opportunities for basic and applied research, yet it remains difficult to achieve for most plant species. Baltes et al. (pages 151–163) demonstrate the feasibility of using geminivirus replicons for genome engineering in Arabidopsis and tobacco. They engineer geminivirus vectors to repair a nonfunctional gus:nptII reporter gene and demonstrate the production of leaf cells, calli, and plantlets with precise DNA sequence changes. The cover is a composite image of tobacco leaf tissue showing individual cells that have undergone gene targeting with geminivirus vectors to restore GUS activity (blue specks; background image) and a shoot that was regenerated from transformed leaf cells (foreground).
Insights into the Maize Pan-Genome and Pan-Transcriptome

Candice N. Hirsch, Jillian M. Foerster, James M. Johnson, Rajandee S. Sekhon, German Muttoni, Brieanne Vaillancourt, Francisco Peñagaricano, Erika Lindquist, Mary Ann Pedraza, Kerrie Barry, Natalia de Leon, Shawn M. Kaeppler, and C. Robin Buell

Extensive Translational Regulation of Gene Expression in an Allopolyploid (Glycine dolichocarpa)

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DNA Replicons for Plant Genome Engineering

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A Wheat SIMILAR TO RCD-ONE Gene Enhances Seedling Growth and Abiotic Stress Resistance by Modulating Redox Homeostasis and Maintaining Genomic Integrity

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The BOY NAMED SUE Quantitative Trait Locus Confers Increased Meiotic Stability to an Adapted Natural Allopolyploid of Arabidopsis

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Arabidopsis KANADI1 Acts as a Transcriptional Repressor by Interacting with a Specific cis-Element and Regulates Auxin Biosynthesis, Transport, and Signaling in Opposition to HD-ZIPIII Factors

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Susheng Song, Huang Huang, Hua Gao, Jiaojiao Wang, Dewei Wu, Shuhua Yang, Qingzhe Zhai, Chuanyou Li, Tiancong Qi, and Daoxin Xie

AUXIN BINDING PROTEIN1 Links Cell Wall Remodeling, Auxin Signaling, and Cell Expansion in Arabidopsis

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