Grass seed (technically referred to as grain) are borne on axillary branches whose branching patterns dictate most of the variation in grass inflorescence architecture. Normal maize ears are unbranched, and tassels have long branches only at their base. The ramosa2 (ra2) mutant of maize has increased branching, with short branches replaced by long, indeterminate ones. Bortiri et al. (pages 574–585) cloned ra2 and report that it encodes a LOB domain transcription factor. The mutant phenotype and early expression pattern of ra2 indicate that it functions in the patterning of stem cells in axillary meristems. The ra2 expression pattern is conserved in rice, barley, sorghum, and maize, suggesting that ra2 is critical for shaping the initial steps of grass inflorescence architecture. On the cover, a scanning electron microscopy image of a ra2 mutant ear (right) compared to a normal ear (left) shows the loss of determinacy and branching in the ra2 mutant.
The Arabidopsis SOMATIC EMBRYOGENESIS RECEPTOR-LIKE KINASE1 Protein
Complex Includes BRASSINOSTEROID-INSENSITIVE1
Rumyana Karlova, Sjef Boeren, Eugenia Russinova, José Aker, Jacques Vervoort, and Sacco de Vries

FLOWERING LOCUS C Mediates Natural Variation in the High-Temperature Response of the Arabidopsis Circadian Clock

Transcriptome Profiling, Molecular Biological, and Physiological Studies Reveal a Major Role for Ethylene in Cotton Fiber Cell Elongation
Yong-Hui Shi, Sheng-Wei Zhu, Xi-Zeng Mao, Jian-Xun Feng, Yong-Mei Qin, Liang Zhang, Jing Cheng, Li-Ping Wei, Zhi-Yong Wang, and Yu-Xian Zhu

SUGAR-DEPENDENT1 Encodes a Pataxin Domain Triacylglycerol Lipase That Initiates Storage Oil Breakdown in Germinating Arabidopsis Seeds
Peter J. Eastmond

Cytoplasmic Male Sterility of Rice with Boro II Cytoplasm Is Caused by a Cytoxic Peptide and Is Restored by Two Related PPR Motif Genes via Distinct Modes of mRNA Silencing
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The Free NADH Concentration Is Kept Constant in Plant Mitochondria under Different Metabolic Conditions
Marina R. Kasimova, Jurgita Grigiene, Klaas Krab, Peter H. Hagedorn, Henrik Flyvbjerg, Peter E. Andersen, and Ian M. Moller

The Arabidopsis Aux/IAA Protein Family Has Diversified in Degradation and Auxin Responsiveness
Kate A. Dreher, Jessica Brown, Robert E. Saw, and Judy Callis

Vacuolar H+-ATPase Activity Is Required for Endocytic and Secretory Trafficking in Arabidopsis
Jan Dettmer, Anne Hong-Hermesdorf, York-Dieter Stierhof, and Karin Schumacher

Arabidopsis PEN3/PDR8, an ATP Binding Cassette Transporter, Contributes to Nonhost Resistance to Inappropriate Pathogens That Enter by Direct Penetration
Mónica Stein, Jan Dittgen, Clara Sánchez-Rodríguez, Bi-Huei Hou, Antonio Molina, Paul Schulze-Lefert, Volker Lipka, and Shauna Somerville

Abiotic Stress Sensitive1 Is Localized to the Vacuole in Arabidopsis
James E. Wood, Alexander R. Iqbal, and Jürgen Marx

The Chimeric Arabidopsis CYCLIC NUCLEOTIDE-GATED ION CHANNEL11/12 Activates Multiple Pathogen Resistance Responses
Keiko Yoshiohka, Wolfgang Moeder, Hong-Gu Kang, Pradeep Kachroo, Khaled Masmoudi, Gerald Berkowitz, and Daniel F. Klessig

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Wenxian Sun, F. Mark Dunning, Christine Pfund, Rebecca Weingarten, and Andrew F. Bent

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