ON THE COVER

Embryogenesis begins after ovule fertilization when the zygote undergoes cell division to establish the apical and basal embryo and then continues with specialized cell divisions until a mature embryo is formed. Inhibitor and genetic studies have shown that auxin gradients contribute to both ovule and embryo development. The Arabidopsis thaliana protein APM1 is an M1 metaloprotease that has affinity for and catalyzes the hydrolysis of the auxin transport inhibitor naphthylphthalamic acid. Peer et al. (pages 1693–1721) show that, in addition to embryonic patterning defects, apm1 loss-of-function alleles exhibit distinct seedling lethal phenotypes caused by premature determinacy of the primary root meristem. The cover image shows four ovules in a silique from an apm1-1 heterozygous plant as well as a pollen tube in the top right corner. The two synergid cells, an egg cell, and two polar nuclei are visible in the center left ovule.
Subunits of the Plastid ClpPR Protease Complex Have Differential Contributions to Embryogenesis, Plastid Biogenesis, and Plant Development in Arabidopsis

Jitae Kim, Andrea Rudella, Verenicé Ramirez Rodríguez, Boris Zyballov, Paul Dominic B. Olinares, and Klaas J. van Wijk

Mutation of the Membrane-Associated M1 Protease APM1 Results in Distinct Embryonic and Seedling Developmental Defects in Arabidopsis

Wendy Ann Peer, Fazeeda N. Hosein, Anindita Bandyopadhyay, Srinivas N. Makam, Marisa S. Otegui, Gil-Je Lee, Joshua J. Blakeslee, Yan Cheng, Boosaree Titapiwatanakun, Bahktiyor Yakubov, Bharat Bangari, and Angus S. Murphy

A Role for Multiple Circadian Clock Genes in the Response to Signals That Break Seed Dormancy in Arabidopsis

Steven Penfield and Anthony Hall

Establishment of the Winter-Annual Growth Habit via FRIGIDA-Mediated Histone Methylation at FLOWERING LOCUS C in Arabidopsis

Danhua Jiang, Xiaofeng Gu, and Yuehui He

A Pivotal Role of the Basic Leucine Zipper Transcription Factor bZIP53 in the Regulation of Arabidopsis Seed Maturation Gene Expression Based on Heterodimerization and Protein Complex Formation

Rosario Alonso, Luis Oráte-Sánchez, Friderjof Weltmeier, Andrea Ehrlert, Isabel Díaz, Katrin Dietrich, Jesús Vicente-Carbajosa, and Wolfgang Droge-Laser

Biochemical Evidence for Translational Repression by Arabidopsis MicroRNAs

Elodie Lanet, Etienne Delannoy, Rodnay Sormani, Maïna Floris, Peter Brodersen, Patrice Créto, Olivier Voinnet, and Christophe Robaglia

The PLASTID DIVISION1 and 2 Components of the Chloroplast Division Machinery Determine the Rate of Chloroplast Division in Land Plant Cell Differentiation

Kumiko Okazaki, Yukihiro Kabeya, Kenji Suzuki, Toshiyuki Mori, Takanari Ichikawa, Minami Matsui, Hiromitsu Nakanishi, and Shin-ya Miyagishima

A 1-Megadalton Translocation Complex Containing Tic20 and Tic21 Mediates Chloroplast Protein Import at the Inner Envelope Membrane

Shingo Kikuchi, Maya Oishi, Yoshino Hirabayashi, Dong Wook Lee, Inhwan Hwang, and Masato Nakai

Lutein Accumulation in the Absence of Zeaxanthin Restores Nonphotochemical Quenching in the Arabidopsis thaliana npq1 Mutant

Zhirong Li, Tae Kyu Ahn, Thomas J. Avenson, Matteo Ballottari, Jeffrey A. Cruz, David M. Kramer, Roberto Bassi, Graham R. Fleming, Jay D. Keasling, and Krishna K. Niyogi

The Plastidic Bile Acid Transporter 5 Is Required for the Biosynthesis of Methionine-Derived Glucosinolates in Arabidopsis thaliana

Tamara Gigolashvili, Ruslan Yatusevich, Inga Rollwitz, Melanie Humphry, Jonathan Gershenson, and Ulf-Ingo Flügge

The Multifunctional Enzyme CYP71B15 (PHYTOALEXIN DEFICIENT3) Converts Cysteine-Indole-3-Acetonitrile to Camalexin in the Indole-3-Acetonitrile Metabolic Network of Arabidopsis thaliana

Christoph Böttcher, Lore Westphal, Constanze Schmotz, Elke Prade, Dierk Scheel, and Erich Glawischnig

Crystal Structure of the Complex between Pseudomonas Effector AvrPtoB and the Tomato Pto Kinase Reveals Both a Shared and a Unique Interface Compared with AvrPto-Pto

Jing Dong, Fangming Xiao, Fenxia Fan, Lichuan Gu, Haixing Cang, Gregory B. Martin, and JiJie Chai
A Cell Wall–Degrading Esterase of Xanthomonas oryzae Requires a Unique Substrate Recognition Module for Pathogenesis on Rice

Gudlur Aparna, Avradip Chatterjee, Ramesh V. Sonti, and Rajan Sankaranarayanan

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