The myrosinase-glucosinolate defense system is characteristic of the Brassicaceae. Myrosinase accumulates and is sequestered in vacuoles of myrosin cells, while glucosinolates accumulate in adjacent cells or cellular compartments. When these cells are ruptured by herbivores, the myrosinase reacts with glucosinolates to produce toxic compounds. Myrosin cells form specifically along leaf veins in Arabidopsis, but the mechanism underlying their formation is unknown. Shirakawa et al. (pages 4448–4461) show that myrosin cell development requires the endocytosis-mediated polar localization of the auxin-efflux carrier PIN1 in leaf primordia. The authors propose that the arrangement of myrosin cells near vascular cells via polar PIN1 localization might protect this essential transport system from herbivore damage. The cover shows a cross section of GUS-stained rosette leaves of wild-type plants expressing the myrosin cell marker MYR001::GUS. Myrosin cells specifically develop side by side with both procambium and phloem.
A DEK Domain-Containing Protein Modulates Chromatin Structure and Function in Arabidopsis

Sascha Waidmann, Branislav Kusenda, Juliane Mayerhofer, Karl Mechtler, and Claudia Jonak

ULTRAPETALA trxG Genes Interact with KANADI/Transcription Factor Genes to Regulate Arabidopsis Gynoecium Patterning

Helena R. Pires, Mona M. Monfared, Elena A. Shemyakina, and Jennifer C. Fletcher

REDUCED DORMANCY5 Encodes a Protein Phosphatase 2C That Is Required for Seed Dormancy in Arabidopsis

Yong Xiang, Kazumi Nakabayashi, Jia Ding, Fei He, Leónie Bentsink, and Wim J.J. Soppe

Brassinosteroid Regulates Cell Elongation by Modulating Gibberellin Metabolism in Rice

Hongning Tong, Yunhua Xiao, Dapu Liu, Shaopei Gao, Linchuan Liu, Yanhai Yin, Yun Jin, Qian Qian, and Chengcai Chu

BRASSINOSTEROID INSENSITIVE2 Interacts with ABSCISIC ACID INSENSITIVES to Mediate the Antagonism of Brassinosteroids to Abscisic Acid during Seed Germination in Arabidopsis

Yanru Hu and Diquiu Yu

The Microtubule Plus-End Tracking Proteins SPR1 and EB1b Interact to Maintain Polar Cell Elongation and Directional Organ Growth in Arabidopsis

Charitha Galva, Viktor Kirik, Jelmer J. Lindeboom, Despoina Kaloriti, David M. Rancour, Patrick J. Hussey, Sebastian Y. Bednarek, David W. Ehrhardt, and John C. Sedbrook

RISAP Is a TGN-Associated RAC5 Effector Regulating Membrane Traffic during Polar Cell Growth in Tobacco

Octavian Stephan, Stephanie Cottler, Sara Fahlén, Adriana Montes-Rodriguez, Jia Sun, D. Magnus Eklund, Ulrich Klahre, and Benedikt Kost

Myrosin Cell Development Is Regulated by Endocytosis Machinery and PIN1 Polarity in Leaf Primordia of Arabidopsis thaliana

Makoto Shirakawa, Haruko Ueda, Tomoo Shimada, Takayuki Kohchi, and Ikuko Hara-Nishimura

Ectopic Lignification in the Flax lignified bast fiber1 Mutant Stem Is Associated with Tissue-Specific Modifications in Gene Expression and Cell Wall Composition

Maxime Chantreau, Antoine Portelette, Rebecca Daoue, Shingo Kyoto, David Crönier, Kris Morreel, Sandrine Arribat, Godfrey Neutelings, Malika Chabi, Wout Boerjan, Arata Yoshinaga, François Mesnard, Sebastien Grec, Brigitte Chabbert, and Simon Hawkins

ABCG26-Mediated Polyketide Trafficking and Hydroxycinnamoyl Spermidines Contribute to Pollen Wall Exine Formation in Arabidopsis

Teagen D. Quilichini, A. Lacey Samuels, and Carl J. Douglas

Cellular Metabolites Enhance the Light Sensitivity of Arabidopsis Cryptochrome through Alternate Electron Transfer Pathways

Christopher Engelhard, Xuecong Wang, David Robles, Julia Moldt, Lars-Oliver Essen, Alfred Batschauer, Robert Bittl, and Margaret Ahmad

The Arabidopsis EDR1 Protein Kinase Negatively Regulates the ATL1 E3 Ubiquitin Ligase to Suppress Cell Death
Arabidopsis PIAL1 and 2 Promote SUMO Chain Formation as E4-Type SUMO Ligases and Are Involved in Stress Responses and Sulfur Metabolism

Konstantin Tomanov, Anja Zeschmann, Rebecca Hermkes, Karolin Eifler, Ionida Ziba, Michele Grieco, Maria Novatchkova, Kay Hofmann,Holger Hesse, and Andreas Bachmair

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