Mutagenesis is a fundamental tool for studying gene function. One can use clonal deletion methods to eliminate the wild-type allele in a tissue-specific manner, thereby uncovering gene functions in different regions of the organism. Wachsman et al. (pages 2581–2591) report on the Brother of Brainbow system, which creates specific deletion clones of gametophytic essential genes. The cover displays confocal images of fluorescently marked Brother of Brainbow clones in Arabidopsis roots. The middle panel shows a root tip 3 days after long heat-shock induction of CRE, leading to formation of broad clones. The outer roots show the six possible expression combinations as a result of single (cyan fluorescent protein or red fluorescent protein together with yellow fluorescent protein), double (magenta, cyan fluorescent protein, or red fluorescent protein), or no (yellow fluorescent protein) recombination event(s) in the parental germ cells, mediated by CRE recombinase.
A Novel Calcium Binding Site in the Slow Vacuolar Cation Channel TPC1 Senses Luminal Calcium Levels

Beata Dadacz-Narloch, Diana Beyhl, Christina Larisch, Enrique J. López-Sanjurjo, Ralf Reski, Kazuyuki Kuchitsu, Thomas D. Müller, Dirk Becker, Gerald Schönknecht, and Rainer Hedrich

Independent Recruitment of an O-Methyltransferase for Syringyl Lignin Biosynthesis in Selaginella moellendorffii

Jing-Ke Weng, Takuya Akiyama, John Ralph, and Clint Chapple

The FRD3 Citrate Effluxer Promotes Iron Nutrition between Symplastically Disconnected Tissues throughout Arabidopsis Development

Hannetz Roschztattardtz, Mathilde Séguela-Arnaud, Jean-François Briat, Grégory Vert, and Catherine Curie

Identification of Genes in the Phenylalanine Metabolic Pathway by Ectopic Expression of a MYB Transcription Factor in Tomato Fruit


The Defective Proteasome but Not Substrate Recognition Function Is Responsible for the Null Phenotypes of the Arabidopsis Proteasome Subunit RPN10

Ya-Ling Lin, Shu-Chiun Sung, Hwang-Long Tsai, Ting-Ting Yu, Ramalingam Radjacommare, Raju Usharani, Antony S. Fatimababy, Hsia-Yin Lin, Ya-Ying Wang, and Hongyong Fu

Symbiotic Rhizobia Bacteria Trigger a Change in Localization and Dynamics of the Medicago truncatula Receptor Kinase LYK3

Cara H. Haney, Brendan K. Riely, David M. Tricoli, Doug R. Cook, David W. Ehrhardt, and Sharon R. Long

Perturbation of Arabidopsis Amino Acid Metabolism Causes Incompatibility with the Adapted Biotrophic Pathogen Hyaloperonospora arabidopsidis

Johannes Stuttmann, Hans-Michael Hubberten, Steffen Rietz, Jagreet Kaur, Paul Muskett, Raphael Gueroids, Pawel Bednarek, Rainer Hoeftgen, and Jane E. Parker

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