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In Silico Plant Biology Comes of Age 3857
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Systems Analysis of Shoot Apical Meristem Growth and Development: Integrating Hormonal and Mechanical Signaling 3907
James A.H. Murray, Angharad Jones, Christophe Godin, and Jan Traas

ON THE COVER

Fruit growth in Brassicacea species depends on fertilization of the gynoecium and subsequent hormonal activities. In Arabidopsis thaliana, the plant hormone gibberellin is required to degrade the growth-inhibiting DELLA proteins to induce fruit growth. The cover shows the stigmatic tissue of a Brassica rapa gynoecium where pollen will germinate and grow down the ovary to fertilize the ovules. Fuentes et al. (pages 3982–3996) demonstrate that, in addition to DELLA-dependent signaling, gibberellin-induced fruit growth also occurs via a DELLA-independent pathway. (Photo by Thomas Girin.)
LARGE-SCALE BIOLOGY ARTICLES

Systems and Trans-System Level Analysis Identifies Conserved Iron Deficiency Responses in the Plant Lineage

Eugen I. Urzica, David Casero, Hiroaki Yamasaki, Scott I. Hsieh, Lital N. Adler, Steven J. Karpowicz, Crysten E. Blaby-Haas, Steven G. Clarke, Joseph A. Loo, Matteo Pellegrini, and Sabeeha S. Merchant

Conserved Noncoding Sequences Highlight Shared Components of Regulatory Networks in Dicotyledonous Plants

Laura Baxter, Aleksey Jironkin, Richard Hickman, Jay Moore, Christopher Barrington, Peter Krusche, Nigel P. Dyer, Vicky Buchanan-Wollaston, Alexander Tiskin, Jim Beynon, Katherine Denby, and Sascha Ott

RESEARCH ARTICLES

Spatiotemporal Regulation of Lateral Root Organogenesis in Arabidopsis by Cytokinin

Agnieszka Bielach, Kateřina Podlesáková, Peter Marhavý, Jéroém Duclercq, Candela Cuesta, Bruno Müller, Wim Grunewald, Petr Tarkowski, and Eva Benková

Fruit Growth in Arabidopsis Occurs via DELLA-Dependent and DELLA-Independent Gibberellin Responses

Sara Fuentes, Karin Ljung, Karim Sorefan, Elizabeth Alvey, Nicholas P. Harberd, and Lars Östergaard

Arabidopsis bZIP16 Transcription Factor Integrates Light and Hormone Signaling Pathways to Regulate Early Seedling Development

Wen-Ping Hsieh, Hsu-Liang Hsieh, and Shu-Hsing Wu

Arabidopsis MICROTUBULE DESTABILIZING PROTEIN40 Is Involved in Brassinosteroid Regulation of Hypocotyl Elongation

Xianling Wang, Jin Zhang, Ming Yuan, David W. Ehrhardt, Zhiyong Wang, and Tonglin Mao

The Armadillo Repeat Gene ZAK IXIK Promotes Arabidopsis Early Embryo and Endosperm Development through a Distinctive Gametophytic Maternal Effect

Quy A. Ngo, Celia Baroux, Daniela Guthörl, Peter Mozzerov, Margaret A. Collinge, Venkatesan Sundaresan, and Ueli Grossniklaus

Characterization of a NADH-Dependent Glutamate Dehydrogenase Mutant of Arabidopsis Demonstrates the Key Role of this Enzyme in Root Carbon and Nitrogen Metabolism

Jean-Xavier Fontaine, Thérèse Tercé-Laforgue, Patrick Armengaud, Gilles Clément, Jean-Pierre Renou, Sandra Pelletier, Manuella Catterou, Marianne Azzopardi, Yves Gibon, Peter J. Lea, Bertrand Hirel, and Frédéric Dubois

Mutation of Arabidopsis SPLICEOSOMAL TIMEKEEPER LOCUS1 Causes Circadian Clock Defects

Matthew A. Jones, Brian A. Williams, Jim McNicol, Craig G. Simpson, John W.S. Brown, and Stacey L. Harmer
RETINOBLASTOMA RELATED1 Regulates Asymmetric Cell Divisions in Arabidopsis

Annika K. Weimer, Moritz K. Nowack, Daniel Bouyer, Xin’Ai Zhao, Hirofumi Harashima, Sadaf Naseer, Freya De Winter, Nico Dismeyer, Niko Geldner, and Arp Schnittger

Spatiotemporal Asymmetry of the Meiotic Program Underlies the Predominantly Distal Distribution of Meiotic Crossovers in Barley


Agrobacterium May Delay Plant Nonhomologous End-Joining DNA Repair via XRCC4 to Favor T-DNA Integration

Zarir E. Vaghchhipawala, Balaji Vasudevan, Seonghee Lee, Mustafa R. Morsy, and Kirankumar S. Mysore

Spatiotemporal Asymmetry of the Meiotic Program Underlies the Predominantly Distal Distribution of Meiotic Crossovers in Barley


Nondisjunction in Favor of a Chromosome: The Mechanism of Rye B Chromosome Drive during Pollen Mitosis

Ali M. Banaei-Moghaddam, Veit Schubert, Katrin Kumke, Oda Weij, Sonja Klemme, Kiyotaka Nagaki, Jiří Macas, Mónica González-Sánchez, Victoria Heredia, Diana Gómez-Revilla, Miriam González-García, Juan M. Vega, Maria J. Puertas, and Andreas Houben

The DUF59 Family Gene AE7 Acts in the Cytosolic Iron-Sulfur Cluster Assembly Pathway to Maintain Nuclear Genome Integrity in Arabidopsis

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The Spectrum and Frequency of Self-Inflicted and Host Gene Mutations Produced by the Transposon Ac in Maize

Jun T. Huang and Hugo K. Dooner

BASIC PENTACYSTEINE Proteins Mediate MADS Domain Complex Binding to the DNA for Tissue-Specific Expression of Target Genes in Arabidopsis

Sara Simonini, Irina Roig-Villanova, Veronica Gregis, Bilitis Colombo, Lucia Colombo, and Martin M. Kater

Structural Basis of Efficient Electron Transport between Photosynthetic Membrane Proteins and Plastocyanin in Spinach Revealed Using Nuclear Magnetic Resonance

Takumi Ueda, Naoko Nomoto, Masamichi Koga, Hiroki Ogasa, Yuuta Ogawa, Masahiko Matsumoto, Pavlos Stampoulis, Koji Sode, Hiroaki Terasawa, and Ichio Shimada

The Arabidopsis Thylakoid ADP/ATP Carrier TAAC Has an Additional Role in Supplying Plastidic Phosphoadenosine 5'-Phosphosulfate to the Cytosol

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Non-Recognition-of-BTH4, an Arabidopsis Mediator Subunit Homolog, Is Necessary for Development and Response to Salicylic Acid
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Constitutively Active Mitogen-Activated Protein Kinase Versions Reveal Functions of Arabidopsis MPK4 in Pathogen Defense Signaling
Souha Berriri, Ana Victoria Garcia, Nicolas Frei dit Frey, Wilfried Rozhon, Stéphane Pateyron, Nathalie Leonhardt, Jean-Luc Montillet, Jeffrey Leung, Heribert Hirt, and Jean Colcombet

The Arabidopsis Mediator Complex Subunit16 Positively Regulates Salicylate-Mediated Systemic Acquired Resistance and Jasmonate/Ethylene-Induced Defense Pathways
Xudong Zhang, Chenggang Wang, Yanping Zhang, Yijun Sun, and Zhonglin Mou

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