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**On the Cover:** Ser/Arg-rich (SR) proteins constitute a family of RNA-binding proteins implicated in both constitutive and alternative splicing in plants and animals. Arabidopsis (*Arabidopsis thaliana*) SR proteins are involved in plant development and have been shown to be regulated by environmental cues. Rausin et al. (pp. 273–284) investigated the dynamic distribution of the Arabidopsis RSZp22 splicing factor, a homolog of the human 9G8 SR protein. This work provides a detailed analysis of the RSZp22 expression profile, and the cover shows fluorescent imaging of RSZp22:GUS activity throughout Arabidopsis floral organs. Comparison of transient ectopic- and stable tissue-specific expression highlights key advantages of both approaches for protein dynamic studies. RSZp22 is a nucleocytoplasmic shuttling protein, and the RNA-binding motifs are required for CRM1/XPO1-dependent nuclear export in vivo. Photography and cover design by Patrick Motte.

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**ON THE INSIDE**

Peter V. Minorsky

**UPDATES**

[C] Detoxification without Intoxication: Herbicide Safeners Activate Plant Defense Gene Expression. Dean E. Riechers, Klaus Kreuz, and Qin Zhang

**GENOME ANALYSIS**

[W][OA] Significance of Light, Sugar, and Amino Acid Supply for Diurnal Gene Regulation in Developing Barley Caryopses. Elke Mangelsen, Dierk Wanke, Joachim Kilian, Eva Sundberg, Klaus Harter, and Christer Jansson


**BREAKTHROUGH TECHNOLOGIES**

[C][W] MISSA Is a Highly Efficient in Vivo DNA Assembly Method for Plant Multiple-Gene Transformation. Qi-Jun Chen, Min Xie, Xiao-Xiao Ma, Li Dong, Jia Chen, and Xue-Chen Wang

[C] The Development of an Efficient Multipurpose Bean Pod Mottle Virus Viral Vector Set for Foreign Gene Expression and RNA Silencing. Chunquan Zhang, Jeffrey D. Bradshaw, Steven A. Whitham, and John H. Hill

**RESEARCH ARTICLES**

**BIOCHEMICAL PROCESSES AND MACROMOLECULAR STRUCTURES**

[C][W][OA] Isolation and Characterization of the Z-ISO Gene Encoding a Missing Component of Carotenoid Biosynthesis in Plants. Yu Chen, Faqiang Li, and Eleanor T. Wurtzel

[W][OA] Enzyme Activity Profiles during Fruit Development in Tomato Cultivars and *Solanum pennellii*. Marie-Caroline Steinhauser, Dirk Steinhauser, Karin Koehl, Fernando Carrari, Yves Gibon, Alisdair R. Fernie, and Mark Stitt

**BIOENERGETICS AND PHOTOSYNTHESIS**


**CELL BIOLOGY AND SIGNAL TRANSDUCTION**

[W][OA] The Protein Kinase SnRK2.6 Mediates the Regulation of Sucrose Metabolism and Plant Growth in Arabidopsis. Zhifu Zheng, Xiaoping Xu, Rodney A. Crosley, Scott A. Greenwalt, Yuejin Sun, Beth Blakeslee, Lizhen Wang, Weiing Ni, Megan S. Sopko, Chenglin Yao, Kerrm Yau, Stephanie Burton, Meibao Zhuang, David G. McCaskill, Daniel Gachotte, Mark Thompson, and Thomas W. Greene

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Root-Specific Expression of OsNAC10 Improves Drought Tolerance and Grain Yield in Rice under Field Drought Conditions. Jin Seo Jeong, Youn Shin Kim, Kwang Hun Baek, Harin Jung, Sun-Hwa Ha, Yang Do Choi, Min Kyun Kim, Christophe Reuzeau, and Ju-Kon Kim

GENETICS, GENOMICS, AND MOLECULAR EVOLUTION

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CLE Peptides Control *Medicago truncatula* Nodulation Locally and Systemically. Virginie Mortier, Griet Den Herder, Ryan Whitford, Willem Van de Velde, Stephane Rombauts, Katrien D’haeseleer, Marcelle Holsters, and Sofie Goormachtig

WHOLE PLANT AND ECOPHYSIOLOGY

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SYSTEMS BIOLOGY, MOLECULAR BIOLOGY, AND GENE REGULATION

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Mathematical Modeling of the Central Carbohydrate Metabolism in Arabidopsis Reveals a Substantial Regulatory Influence of Vacuolar Invertase on Whole Plant Carbon Metabolism. Thomas Nägele, Sebastian Henkel, Imke Hörnilller, Thomas Sauter, Oliver Sawodny, Michael Ederer, and Arnd G. Heyer

Dynamic Nucleocytoplasmic Shuttling of an Arabidopsis SR Splicing Factor: Role of the RNA-Binding Domains. Glwadys Rausin, Vinciane Tillemans, Nancy Stankovic, Marc Hanikenne, and Patrick Motte

RNA Interference-Mediated Change in Protein Body Morphology and Seed Opacity through Loss of Different Zein Proteins. Yongrui Wu and Joachim Messing

A Complex Interplay of Three R2R3 MYB Transcription Factors Determines the Profile of Aliphatic Glucosinolates in Arabidopsis. Ida Elken Sønderby, Meike Burow, Heather C. Rowe, Daniel J. Kliebenstein, and Barbara Ann Halkier

CORRECTIONS

GIGANTEA Acts in Blue Light Signaling and Has Biochemically Separable Roles in Circadian Clock and Flowering Time Regulation. E.L. Martin-Tryon, J.A. Kreps, and S.L. Harmer

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