ON THE COVER

Tobacco BY-2 suspension-cultured cells are an excellent model system for deciphering the molecular signals that are necessary and sufficient to target proteins to specific plant cell organelles. On pages 185–197 of this issue, Lee et al. describe their use of this system to investigate the targeting of cottonseed isocitrate lyase (cIL) to glyoxysomes—specialized types of peroxisomes. In the experiments highlighted on the cover, two different cIL-encoding constructs were introduced into BY-2 cells by biolistic bombardment. The wild-type protein was targeted to and accumulated in glyoxysomes, as shown by the punctate immunofluorescence staining in the cells on the right. Conversely, a mutated protein lacking the three C-terminal amino acids (ARM-COOH) of wild-type cIL accumulated only in the cytoplasm (diffuse staining in the cells on the left), demonstrating that the extreme C terminus of cIL is required in vivo to target the enzyme to glyoxysomes. Interestingly, however, in BY-2 cells cobombarded with DNA constructs coding for both the mutated and wild-type cILs, both proteins accumulated in glyoxysomes. These observations indicate that the mutant proteins were “piggybacked” into glyoxysomes via an association with the wild-type cIL.

IN THIS ISSUE

Damage Control
Crispin B. Taylor

RESEARCH ARTICLES

FON1, an Arabidopsis Gene That Terminates Floral Meristem Activity and Controls Flower Organ Number
Hai Huang and Hong Ma

A Single Gene Encodes a Selective Toxin Causal to the Development of Tan Spot of Wheat
Lynda M. Ciuffetti, Robert P. Tuori, and Janey M. Gaventa

The Maize Pathogenesis-Related PRms Protein Localizes to Plasmodesmata in Maize Radicles
Isabel Murillo, Laura Cavallarin, and Blanca San Segundo

Dynamics of Phragmoplastin in Living Cells during Cell Plate Formation and Uncoupling of Cell Elongation from the Plane of Cell Division
Xiangju Gu and Deesh Pal S. Verma

The Wheat Transcriptional Activator SPA: A Seed-Specific bZIP Protein That Recognizes the GCN4-like Motif in the Bifactorial Endosperm Box of Prolamin Genes
Diego Albani, Michael C. U. Hammond-Kosack, Caroline Smith, Steven Conlan, Vincent Colot, Michael Holdsworth, and Michael W. Bevan

Oilseed Isocitrate Lyases Lacking Their Essential Type I Peroxisomal Targeting Signal Are Piggybacked to Glyoxysomes
Michael S. Lee, Robert T. Mullen, and Richard N. Trelease

An Enzyme Similar to Animal Type II Photolyases Mediates Photoreactivation in Arabidopsis
Margaret Ahmad, Jose A. Jarillo, Leszek J. Klimczak, Laurie G. Landry, Tao Peng, Robert L. Last, and Anthony R. Cashmore
Localization of Hydrogen Peroxide Accumulation during the Hypersensitive Reaction of Lettuce Cells to Pseudomonas syringae pv phaseolicola
Charles S. Bestwick, Ian R. Brown, Mark H. R. Bennett, and John W. Mansfield

Cell Cycle Phase Specificity of Putative Cyclin-Dependent Kinase Variants in Synchronized Alfalfa Cells
Zoltán Magyar, Tamás Mészáros, Pál Miskolczi, Mária Deák, Attila Fehér, Spencer Brown, Éva Kondorosi, Alekos Athanasiadis, Sándor Pongor, Metin Bilgin, László Bakó, Csaba Koncz, and Dénès Dudits

The Self-Incompatibility (S) Haplotypes of Brassica Contain Highly Divergent and Rearranged Sequences of Ancient Origin
Douglas C. Boyes, Mikhail E. Nasrallah, Julia Vrebalov, and June B. Nasrallah

Race-Specific Elicitors of Cladosporium fulvum Promote Translocation of Cytosolic Components of NADPH Oxidase to the Plasma Membrane of Tomato Cells
Ti Xing, Verna J. Higgins, and Eduardo Blumwald

Salicylic Acid Potentiates an Agonist-Dependent Gain Control That Amplifies Pathogen Signals in the Activation of Defense Mechanisms
Ken Shirasu, Hiroki Nakajima, V. Krishnamachari Rajasekhar, Richard A. Dixon, and Chris Lamb

CORRECTION

209–221
223–235
237–247
249–259
261–270
271
This information is current as of August 4, 2017

Permissions

eTOCs
Sign up for eTOCs at:
http://www.plantcell.org/cgi/alerts/ctmain

CiteTrack Alerts
Sign up for CiteTrack Alerts at:
http://www.plantcell.org/cgi/alerts/ctmain

Subscription Information
Subscription Information for The Plant Cell and Plant Physiology is available at:
http://www.aspb.org/publications/subscriptions.cfm

© American Society of Plant Biologists
ADVANCING THE SCIENCE OF PLANT BIOLOGY