

An international journal devoted to basic research into the origins, development, and function of plants from the molecular to the whole organism and their interactions within the biotic and abiotic environment.

**Editor-in-Chief**

**Michael R. Blatt**  
Glasgow, UK

**Associate Editors**

**Julian Hibberd** Cambridge, UK  
**Cathie Martin** Norwich, UK  
**Gerhard Thiel** Darmstadt, Germany  
**Alice Cheung** Amherst, MA, USA  
**Hong Ma** Shanghai, China  
**Jiming Jiang** Madison, WI, USA  
**Graham Farquhar** Canberra, Australia  
**Anna Amtmann** Glasgow, UK  
**Molly Jahn** Madison, WI  
**Teun Munnik** Amsterdam, The Netherlands  
**Yair Shachar-Hill** East Lansing, MI, USA  
**Dr. Julia Bailey-Serres** Riverside, CA, USA

**Research Area and Sections**

Biochemistry and Metabolism  
 Breakthrough Technologies  
 Cell Biology  
 Genes, Development, and Evolution  
 Ecophysiology and Sustainability  
 Membranes, Transport, and Biophysics  
 Signaling and Response  
 Systems and Synthetic Biology  
 Reviews

**International Board of Monitoring Editors**

**Lisa Ainsworth**  
Urbana-Champaign, IL, USA  
**Antony Bacic**  
Parkville, VIC, Australia  
**Diane C. Bassham**  
Ames, IA, USA  
**Carl Bernacchi**  
Urbana, IL, USA  
**Joerg Bohlmann**  
Vancouver, Canada  
**François Chaumont**  
Louvain, Belgium  
**John Christie**  
Glasgow, UK  
**Vitaly Citovsky**  
Stony Brook, NY, USA  
**Hervé Cochard**  
Clermont-Ferrand, France  
**Karl-Josef Dietz**  
Bielefeld, Germany  
**José Dinneny**  
Stanford, CA, USA  
**Jeffrey J. Doyle**  
Ithaca, NY, USA  
**Robert Edwards**  
Durham, UK  
**John R. Evans**  
Canberra, ACT, Australia  
**Peter Geigenberger**  
Munich, Germany  
**Anja Geitmann**  
Montréal, Canada

**Thomas Girke**  
Riverside, CA, USA  
**Zhizhong Gong**  
Beijing, China  
**Kim Hammond-Kosack**  
Rothamsted, UK  
**Matthew Hannah**  
Brussels, Belgium  
**Stacey Harmer**  
Davis, CA, USA  
**Klaus Harter**  
Tuebingen, Germany  
**Gregg A. Howe**  
East Lansing, MI, USA  
**Ning Jiang**  
East Lansing, MI, USA  
**Hailing Jin**  
Riverside, CA  
**Elizabeth Kellogg**  
St. Louis, MO, USA  
**Anthony Kinney**  
Wilmington, DE, USA  
**Leon Kochian**  
Ithaca, NY, USA  
**Joachim Kopka**  
Golm, Germany  
**Cris Kuhlemeier**  
Bern, Switzerland  
**Frans Maathuis**  
York, UK  
**Tony Miller**  
Norwich, UK

**Ron Mittler**  
Denton, TX, USA  
**Ferenc Nagy**  
Szeged, Hungary  
**Jennifer Nemhauser**  
Seattle, WA, USA  
**Graham Noctor**  
Paris, France  
**Ralph Panstruga**  
Aachen, Germany  
**Eran Pichersky**  
Ann Arbor, MI, USA  
**Ronald Pierik**  
Utrecht, The Netherlands  
**Sue Rhee**  
Stanford, CA, USA  
**Jocelyn K.C. Rose**  
Ithaca, NY, USA  
**Alexander Ruban**  
London, UK  
**Wataru Sakamoto**  
Okayama, Japan  
**Eric Schaller**  
Hanover, NH, USA  
**Ron R. Sederoff**  
Raleigh, NC, USA  
**Motoaki Seki**  
Yokohama, Japan  
**Shin-Han Shiu**  
East Lansing, MI, USA  
**Neelima Sinha**  
Davis, CA, USA

**Alison Smith**  
Cambridge, UK  
**Laurie Smith**  
La Jolla, CA, USA  
**Julie M. Stone**  
Lincoln, NE, USA  
**Dan Szymanski**  
West Lafayette, IN, USA  
**Keiko U. Torii**  
Seattle, WA, USA  
**Yi-Fang Tsay**  
Taipei, Taiwan  
**Nico von Wiren**  
Gatersleben, Germany  
**Doris Wagner**  
Philadelphia, PA, USA  
**Elsbeth Walker**  
Amherst, MA, USA  
**Alex Webb**  
Cambridge, UK  
**Astrid Wingler**  
London, UK  
**Eleanore T. Wurtzel**  
Bronx, NY, USA  
**Hong-Wei Xue**  
Shanghai, China  
**Shaul Yalovsky**  
Tel Aviv, Israel

**Publisher**

American Society of Plant Biologists,  
Crispin Taylor, Executive Director;  
ctaylor@aspb.org

**Publications Director**

Nancy A. Winchester; nancyw@aspb.org

**Managing Editor**

Patti Lockhart; plochhart@aspb.org

**PA to Editor-in-Chief**

Claire Osborne; Claire.Osborne@glasgow.ac.uk

**Science Writer**

Peter V. Minorsky; peminorsky@aspb.org

**Production Manager**

Jon Munn; jmunnn@aspb.org

**Manuscript Manager**

Ashton Wolf; awolf@aspb.org



*Plant Physiology*<sup>®</sup> (ISSN 1532-2548) is an electronic journal published monthly by the American Society of Plant Biologists, 15501 Monona Drive, Rockville, MD 20855-2768, USA, and is produced by Dartmouth Journal Services, Waterbury, VT. The institutional price is based on type of institution; contact institution@aspb.org. A subscription includes access to all content in both *The Plant Cell* and *Plant Physiology*<sup>®</sup>. For matters regarding subscriptions, contact Suzanne Cholwek, 15501 Monona Drive, Rockville, MD 20855-2768; telephone 301-296-0926; fax 301-251-6740; suzanne@aspb.org. **Permission to Reprint:** Permission to make digital or hard copies of part or all of a work published in *Plant Physiology*<sup>®</sup> is granted without fee for personal or classroom use provided that copies are not made or distributed for profit or commercial advantage and that copies bear the full citation and the following notice on the first page: "Copyright American Society of Plant Biologists." For all other kinds of copying, request permission in writing from Diane McCauley, Publications Assistant, at diane@aspb.org. www.plantphysiol.org  
 © 2015 American Society of Plant Biologists. All rights reserved.