



Cover image: Pictured is a green-headed tanager (*Tangara seledon*) in Itatiaia National Park, Brazil. Carl H. Oliveros et al. analyzed the DNA of 137 passerine families as well as fossil and geological records and found that passerine diversification began around 47 million years ago in Australia and did not strongly correlate with changing global temperatures or the colonization of new continents. The findings suggest that passerine diversification likely resulted from complex mechanisms that included several climatological and geological events. See the article by Oliveros et al. on pages 7916–7925. Image courtesy of Daniel J. Field.

From the Cover

- 7916 Diversification of passerine birds
- 7718 Reaction mechanisms of electrocatalysis
- 7805 Targeting signal for protein degradation
- 7990 Gene expression and symbiosis

Contents

THIS WEEK IN PNAS

- 7599 In This Issue

SCIENCE AND CULTURE—How science intersects with culture

- 7602 Can climate change games boost public understanding?
Roberta Kwok

INNER WORKINGS—An over-the-shoulder look at scientists at work

- 7605 Newborn stars don't have enough dust to build planets. What are the missing ingredients?
Nola Taylor Redd

PROFILE

- 7608 Profile of Dame Carol Robinson
Jennifer Viegas
→ See Inaugural Article on page 2814 in issue 8 of volume 116

COMMENTARIES

- 7611 Theory and experiments join forces to characterize the electrocatalytic interface
Stephan N. Steinmann, Zi-Yang Wei, and Philippe Sautet
→ See companion article on page 7718
- 7614 Synthetic ubiquitinated proteins meet the proteasome: Distinct roles of ubiquitin in a chain
Gerbrand J. van der Heden van Noort, Jin Gan, and Huib Ovaa
→ See companion article on page 7805
- 7617 Shining light on microbial signaling to distant organs
Fredrik Bäckhed
→ See companion article on page 7990

LETTERS

- 7620 Plague, camels, and lice
Rémi Barbieri, M. Drancourt, and D. Raoult

- 7622 **Reply to Barbieri et al.: Out of the Land of Darkness: Plague on the fur trade routes**
Barbara Bramanti, Amine Namouchi, Boris V. Schmid, Katharine R. Dean, and Nils Chr. Stenseth

INAUGURAL ARTICLE

- 7624 **Nanobody-based CAR T cells that target the tumor microenvironment inhibit the growth of solid tumors in immunocompetent mice**
Yushu Joy Xie, Michael Dougan, Noor Jaikhani, Jessica Ingram, Tao Fang, Laura Kummer, Noor Momin, Novalia Pishessa, Steffen Rickelt, Richard O. Hynes, and Hidde Ploegh

ARTHUR M. SACKLER COLLOQUIUM ON THE SCIENCE OF SCIENCE COMMUNICATION III

INTRODUCTION

- 7632 **The Science of Science Communication III**
Baruch Fischhoff and Dietram A. Scheufele

COLLOQUIUM PAPERS

- 7634 **Communicating uncertainty in policy analysis**
Charles F. Manski
- 7642 **Conflict across representational gaps: Threats to and opportunities for improved communication**
Matthew A. Cronin and Laurie R. Weingart
- 7650 **Science, health, and cultural literacy in a rapidly changing communications landscape**
Susan C. Scrimshaw
- 7656 **Scientific communication in a post-truth society**
Shanto Iyengar and Douglas S. Massey
- 7662 **Science audiences, misinformation, and fake news**
Dietram A. Scheufele and Nicole M. Krause
- 7670 **Evaluating science communication**
Baruch Fischhoff
- 7676 **Reflections on an interdisciplinary collaboration to inform public understanding of climate change, mitigation, and impacts**
Wändi Bruine de Bruin and M. Granger Morgan
- 7684 **On the future of transportation in an era of automated and autonomous vehicles**
P. A. Hancock, Illah Nourbakhsh, and Jack Stewart
- 7692 **Promises and perils of gene drives: Navigating the communication of complex, post-normal science**
Dominique Brossard, Pam Belluck, Fred Gould, and Christopher D. Wirz
- 7698 **How to communicate large-scale social challenges: The problem of the disappearing American corporation**
Gerald F. Davis

PHYSICAL SCIENCES

APPLIED PHYSICAL SCIENCES

- 7703 **Boron–oxygen complex yields n-type surface layer in semiconducting diamond**
Xiaobing Liu, Xin Chen, David J. Singh, Richard A. Stern, Jinsong Wu, Sylvain Petitgirard, Craig R. Bina, and Steven D. Jacobsen
- 7867 **Energetic regulation of coordinated leader–follower dynamics during collective invasion of breast cancer cells**
Jian Zhang, Kayla F. Goliwas, Wenjun Wang, Paul V. Tafalele, Francois Bordeleau, and Cynthia A. Reinhart-King

- 7873 **Ephemeral states in protein folding under force captured with a magnetic tweezers design**
Rafael Tapia-Rojo, Edward C. Eckels, and Julio M. Fernández

ASTRONOMY

- 7712 **Night-sky radiometry can revolutionize the characterization of light-pollution sources globally**
Miroslav Kocifaj, Héctor Antonio Solano-Lamphar, and Gordon Videen

BIOPHYSICS AND COMPUTATIONAL BIOLOGY

- 8070 **Chemical synthesis rewriting of a bacterial genome to achieve design flexibility and biological functionality**
Jonathan E. Venetz, Luca Del Medico, Alexander Wölfle, Philipp Schächle, Yves Bucher, Donat Appert, Flavia Tschan, Carlos E. Flores-Tinoco, Mariëlle van Kooten, Rym Guennoun, Samuel Deutsch, Matthias Christen, and Beat Christen

CHEMISTRY

- 7718 **Reaction intermediates during operando electrocatalysis identified from full solvent quantum mechanics molecular dynamics**
Tao Cheng, Alessandro Fortunelli, and William A. Goddard III
→ See Commentary on page 7611
- 7805 **Diverse fate of ubiquitin chain moieties: The proximal is degraded with the target, and the distal protects the proximal from removal and recycles**
Hao Sun, Sachitanand M. Mali, Sumeet K. Singh, Roman Meledin, Ashraf Brik, Yong Tae Kwon, Yelena Kravtsova-Ivantsiv, Beatrice Bercovich, and Aaron Ciechanover
→ See Commentary on page 7614

COMPUTER SCIENCES

- 7723 **Unsupervised learning by competing hidden units**
Dmitry Krotov and John J. Hopfield

EARTH, ATMOSPHERIC, AND PLANETARY SCIENCES

- 7732 **Tropical cyclone activity affected by volcanically induced ITCZ shifts**
Francesco S. R. Pausata and Suzana J. Camargo

ENGINEERING

- 7738 **Cryoprotectant-free cryopreservation of mammalian cells by superflash freezing**
Yoshitake Akiyama (秋山 佳文), Masato Shinose, Hiroki Watanabe, Shigeru Yamada, and Yasunari Kanda
- 7744 **Photothermal-responsive nanosized hybrid polymersome as versatile therapeutics codelivery nanovehicle for effective tumor suppression**
Hongbo Zhang, Wenguo Cui, Xiangmeng Qu, Huayin Wu, Liangliang Qu, Xu Zhang, Ermei Mäkilä, Jarno Salonen, Yueqi Zhu, Zhou Yang, Dong Chen, Hélder A. Santos, Mingtan Hai, and David A. Weitz
- 7750 **Digital logic for soft devices**
Daniel J. Preston, Philipp Rothmund, Haihui Joy Jiang, Markus P. Nemitz, Jeff Rawson, Zhigang Suo, and George M. Whitesides
- 7899 **Nontoxic nanopore electroporation for effective intracellular delivery of biological macromolecules**
Yuhong Cao, Enbo Ma, Stefano Cestellos-Blanco, Bei Zhang, Ruoyi Qiu, Yude Su, Jennifer A. Doudna, and Peidong Yang
- 7951 **Cone photoreceptor classification in the living human eye from photostimulation-induced phase dynamics**
Furu Zhang, Kazuhiro Kurokawa, Ayoub Lassoued, James A. Crowell, and Donald T. Miller

ENVIRONMENTAL SCIENCES

- 7760** Ammonia emission control in China would mitigate haze pollution and nitrogen deposition, but worsen acid rain

Mingxu Liu, Xin Huang, Yu Song, Jie Tang, Junji Cao, Xiaoye Zhang, Qiang Zhang, Shuxiao Wang, Tingting Xu, Ling Kang, Xuhui Cai, Hongsheng Zhang, Fumo Yang, Huanbo Wang, Jian Zhen Yu, Alexis K. H. Lau, Lingyan He, Xiaofeng Huang, Lei Duan, Aijun Ding, Likun Xue, Jian Gao, Bin Liu, and Tong Zhu

PHYSICS

- 7766** Diffusing wave microrheology of highly scattering concentrated monodisperse emulsions

Ha Seong Kim, Nesrin Şenbil, Chi Zhang, Frank Scheffold, and Thomas G. Mason

SUSTAINABILITY SCIENCE

- 7676** Reflections on an interdisciplinary collaboration to inform public understanding of climate change, mitigation, and impacts

Wändi Bruine de Bruin and M. Granger Morgan

SOCIAL SCIENCES

ANTHROPOLOGY

- 7650** Science, health, and cultural literacy in a rapidly changing communications landscape

Susan C. Scrimshaw

ECONOMIC SCIENCES

- 7634** Communicating uncertainty in policy analysis

Charles F. Manski

- 7772** Punishing and toxic neighborhood environments independently predict the intergenerational social mobility of black and white children

Robert Manduca and Robert J. Sampson

ENVIRONMENTAL SCIENCES

- 7676** Reflections on an interdisciplinary collaboration to inform public understanding of climate change, mitigation, and impacts

Wändi Bruine de Bruin and M. Granger Morgan

- 7712** Night-sky radiometry can revolutionize the characterization of light-pollution sources globally

Miroslav Kocifaj, Héctor Antonio Solano-Lamphar, and Gorden Videen

PSYCHOLOGICAL AND COGNITIVE SCIENCES

- 7684** On the future of transportation in an era of automated and autonomous vehicles

P. A. Hancock, Illah Nourbakhsh, and Jack Stewart

- 7778** The mixed effects of online diversity training

Edward H. Chang, Katherine L. Milkman, Dena M. Gromet, Robert W. Rebele, Cade Massey, Angela L. Duckworth, and Adam M. Grant

SOCIAL SCIENCES

- 7642** Conflict across representational gaps: Threats to and opportunities for improved communication

Matthew A. Cronin and Laurie R. Weingart

- 7656** Scientific communication in a post-truth society

Shanto Iyengar and Douglas S. Massey

- 7662** Science audiences, misinformation, and fake news

Dietram A. Scheufele and Nicole M. Krause

- 7692** Promises and perils of gene drives: Navigating the communication of complex, post-normal science

Dominique Brossard, Pam Belluck, Fred Gould, and Christopher D. Wirz

- 7698** How to communicate large-scale social challenges: The problem of the disappearing American corporation

Gerald F. Davis

SUSTAINABILITY SCIENCE

- 7670** Evaluating science communication

Baruch Fischhoff

- 7784** Modeling cocaine traffickers and counterdrug interdiction forces as a complex adaptive system

Nicholas R. Magliocca, Kendra McSweeney, Steven E. Sesnie, Elizabeth Tellman, Jennifer A. Devine, Erik A. Nielsen, Zoe Pearson, and David J. Wrathall

BIOLOGICAL SCIENCES

APPLIED BIOLOGICAL SCIENCES

- 7793** Prion protein quantification in human cerebrospinal fluid as a tool for prion disease drug development

Sonia M. Vallabh, Chloe K. Nobuhara, Franc Llorens, Inga Zerr, Piero Parchi, Sabina Capellari, Eric Kuhn, Jacob Klickstein, Jiri G. Safar, Flavia C. Nery, Kathryn J. Swoboda, Michael D. Geschwind, Henrik Zetterberg, Steven E. Arnold, Eric Vallabh Minikel, and Stuart L. Schreiber

- 7799** Precise small-molecule cleavage of an r(CUG) repeat expansion in a myotonic dystrophy mouse model

Alicia J. Angelbello, Suzanne G. Rzuczek, Kendra K. Mckee, Jonathan L. Chen, Hailey Olafson, Michael D. Cameron, Walter N. Moss, Eric T. Wang, and Matthew D. Disney

BIOCHEMISTRY

- 7805** Diverse fate of ubiquitin chain moieties: The proximal is degraded with the target, and the distal protects the proximal from removal and recycles

Hao Sun, Sachitanand M. Mali, Sumeet K. Singh, Roman Meledin, Ashraf Brik, Yong Tae Kwon, Yelena Kravtsova-Ivantsiv, Beatrice Bercovich, and Aaron Ciechanover
→ See Commentary on page 7614

- 7813** Spontaneous ribosomal translocation of mRNA and tRNAs into a chimeric hybrid state

Jie Zhou, Laura Lancaster, John Paul Donohue, and Harry F. Noller

- 7819** Structures of ligand-occupied β -Klotho complexes reveal a molecular mechanism underlying endocrine FGF specificity and activity

Ekaterina S. Kuzina, Peter Man-Un Ung, Jyotidarsini Mohanty, Francisco Tome, Jungyuen Choi, Els Pardon, Jan Steyaert, Irit Lax, Avner Schlessinger, Joseph Schlessinger, and Sangwon Lee

- 7825** Peptidoglycan hydrolase of an unusual cross-link cleavage specificity contributes to bacterial cell wall synthesis

Pavan Kumar Chodiseti and Manjula Reddy

- 7831** Papain-like cysteine proteases prepare plant cyclic peptide precursors for cyclization

Fabian B. H. Rehm, Mark A. Jackson, Ewout De Geyter, Kuok Yap, Edward K. Gilding, Thomas Durek, and David J. Craik

- 7837** A U2-snRNP-independent role of SF3b in promoting mRNA export

Ke Wang, Changping Yin, Xian Du, Suli Chen, Jianshu Wang, Li Zhang, Lantian Wang, Yong Yu, Binkai Chi, Min Shi, Changshou Wang, Robin Reed, Yu Zhou, Jing Huang, and Hong Cheng

7847 **Repertoires of G protein-coupled receptors for Ciona-specific neuropeptides**

Akira Shiraiishi, Toshimi Okuda, Natsuko Miyasaka, Tomohiro Osugi, Yasushi Okuno, Jun Inoue, and Honoo Satake

7857 **O-GlcNAcylation of core components of the translation initiation machinery regulates protein synthesis**

Xuexia Li, Qiang Zhu, Xiaoliu Shi, Yaxian Cheng, Xueliu Li, Huan Xu, Xiaotao Duan, Linda C. Hsieh-Wilson, Jennifer Chu, Jerry Pelletier, Maowei Ni, Zhiguo Zheng, Sihui Li, and Wen Yi

BIOPHYSICS AND COMPUTATIONAL BIOLOGY

7738 **Cryoprotectant-free cryopreservation of mammalian cells by superflash freezing**

Yoshitake Akiyama (秋山 佳文), Masato Shinose, Hiroki Watanabe, Shigeru Yamada, and Yasunari Kanda

7867 **Energetic regulation of coordinated leader–follower dynamics during collective invasion of breast cancer cells**

Jian Zhang, Kayla F. Goliwas, Wenjun Wang, Paul V. Tafalele, Francois Bordeleau, and Cynthia A. Reinhart-King

7873 **Ephemeral states in protein folding under force captured with a magnetic tweezers design**

Rafael Tapia-Rojo, Edward C. Eckels, and Julio M. Fernández

7879 **I_{Ks} ion-channel pore conductance can result from individual voltage sensor movements**

Maartje Westhoff, Jodene Eldstrom, Christopher I. Murray, Emely Thompson, and David Fedida

7889 **Spontaneous driving forces give rise to protein–RNA condensates with coexisting phases and complex material properties**

Steven Boeynaems, Alex S. Holehouse, Venera Weinhardt, Denes Kovacs, Joris Van Lindt, Carolyn Larabell, Ludo Van Den Bosch, Rhiju Das, Peter S. Tompa, Rohit V. Pappu, and Aaron D. Gitler

CELL BIOLOGY

7899 **Nontoxic nanopore electroporation for effective intracellular delivery of biological macromolecules**

Yuhong Cao, Enbo Ma, Stefano Cestellos-Blanco, Bei Zhang, Ruoyi Qiu, Yude Su, Jennifer A. Doudna, and Peidong Yang

ECOLOGY

7905 **Predicting future invaders and future invasions**

Alice Fournier, Caterina Penone, Maria Grazia Pennino, and Franck Courchamp

EVOLUTION

7911 **Disease mortality in domesticated animals is predicted by host evolutionary relationships**

Maxwell J. Farrell and T. Jonathan Davies

7916 **Earth history and the passerine superradiation**

Carl H. Oliveros, Daniel J. Field, Daniel T. Ksepka, F. Keith Barker, Alexandre Aleixo, Michael J. Andersen, Per Alström, Brett W. Benz, Edward L. Braun, Michael J. Braun, Gustavo A. Bravo, Robb T. Brumfield, R. Terry Chesser, Santiago Claramunt, Joel Cracraft, Andrés M. Cuervo, Elizabeth P. Derryberry, Travis C. Glenn, Michael G. Harvey, Peter A. Hosner, Leo Joseph, Rebecca T. Kimball, Andrew L. Mack, Colin M. Miskelly, A. Townsend Peterson, Mark B. Robbins, Frederick H. Sheldon, Luís Fábio Silveira, Brian Tilston Smith, Noor D. White, Robert G. Moyle, and Brant C. Faircloth

GENETICS

7692 **Promises and perils of gene drives: Navigating the communication of complex, post-normal science**
Dominique Brossard, Pam Belluck, Fred Gould, and Christopher D. Wirz

IMMUNOLOGY AND INFLAMMATION

7926 **Small-molecule factor B inhibitor for the treatment of complement-mediated diseases**

Anna Schubart, Karen Anderson, Nello Mainolfi, Holger Sellner, Takeru Ehara, Christopher M. Adams, Aengus Mac Sweeney, Sha-Mei Liao, Maura Crowley, Amanda Littlewood-Evans, Sophie Sarret, Grazyna Wieczorek, Ludovic Perrot, Valérie Dubost, Thierry Flandre, Yuzhou Zhang, Richard J. H. Smith, Antonio M. Risitano, Rajeshri G. Karki, Chun Zhang, Eric Valeur, Finton Sirockin, Bernd Gerhartz, Paulus Erbel, Nicola Hughes, Thomas M. Smith, Frederic Cumin, Upendra A. Argikar, Börje Haraldsson, Muneto Mogi, Richard Sedrani, Christian Wiesmann, Bruce Jaffee, Jürgen Maibaum, Stefanie Flohr, Richard Harrison, and Jörg Eder

7932 **Uniquely human *CHRFAM7A* gene increases the hematopoietic stem cell reservoir in mice and amplifies their inflammatory response**

Todd W. Costantini, Theresa W. Chan, Olga Cohen, Simone Langness, Sabrina Treadwell, Elliot Williams, Brian P. Eliceiri, and Andrew Baird

7941 **Hierarchy of clinical manifestations in SAVI N153S and V154M mouse models**

Mona Motwani, Sudesh Pawaria, Jennifer Bernier, Stephanie Moses, Kate Henry, Terry Fang, Linda Burkly, Ann Marshak-Rothstein, and Katherine A. Fitzgerald

MEDICAL SCIENCES

7624 **Nanobody-based CAR T cells that target the tumor microenvironment inhibit the growth of solid tumors in immunocompetent mice**

Yushu Joy Xie, Michael Dougan, Noor Jaikhani, Jessica Ingram, Tao Fang, Laura Kummer, Noor Momin, Novalia Pishesha, Steffen Rickelt, Richard O. Hynes, and Hidde Ploegh

7744 **Photothermal-responsive nanosized hybrid polymersome as versatile therapeutics codelivery nanovehicle for effective tumor suppression**

Hongbo Zhang, Wenguo Cui, Xiangmeng Qu, Huayin Wu, Liangliang Qu, Xu Zhang, Ermei Mäkilä, Jarno Salonen, Yueqi Zhu, Zhou Yang, Dong Chen, Hélder A. Santos, Mingtan Hai, and David A. Weitz

7951 **Cone photoreceptor classification in the living human eye from photostimulation-induced phase dynamics**

Furu Zhang, Kazuhiro Kurokawa, Ayoub Lassoued, James A. Crowell, and Donald T. Miller

7957 **Target identification reveals lanosterol synthase as a vulnerability in glioma**

Richard E. Phillips, Yanhong Yang, Ryan C. Smith, Bonne M. Thompson, Tomoko Yamasaki, Yadira M. Soto-Feliciano, Kosuke Funato, Yupu Liang, Javier Garcia-Bermudez, Xiaoshi Wang, Benjamin A. Garcia, Kazuhiko Yamasaki, Jeffrey G. McDonald, Kivanç Birsoy, Viviane Tabar, and C. David Allis

7963 **Ubiquitin C-terminal hydrolase L1 (UCH-L1) loss causes neurodegeneration by altering protein turnover in the first postnatal weeks**

Anna T. Reinicke, Karoline Laban, Marlies Sachs, Vanessa Kraus, Michael Walden, Markus Damme, Wiebke Sachs, Julia Reichelt, Michaela Schweizer, Philipp Christoph Janiesch, Kent E. Duncan, Paul Saftig, Markus M. Rinschen, Fabio Morellini, and Catherine Meyer-Schwesinger

- 7973** **Hepatic posttranscriptional network comprised of CCR4–NOT deadenylase and FGF21 maintains systemic metabolic homeostasis**
 Masahiro Morita, Nadeem Siddiqui, Sakie Katsumura, Christopher Rouya, Ola Larsson, Takeshi Nagashima, Bahareh Hekmatnejad, Akinori Takahashi, Hiroshi Kiyonari, Mengwei Zang, René St-Arnaud, Yuichi Oike, Vincent Giguère, Ivan Topisirovic, Mariko Okada-Hatakeyama, Tadashi Yamamoto, and Nahum Sonenberg

MICROBIOLOGY

- 7982** **Horizontal gene transfer allowed the emergence of broad host range entomopathogens**
 Qiangqiang Zhang, Xiaoxuan Chen, Chuan Xu, Hong Zhao, Xing Zhang, Guohong Zeng, Ying Qian, Ran Liu, Na Guo, Wubin Mi, Yamin Meng, Raymond J. St. Leger, and Weiguo Fang

- 7990** **Critical symbiont signals drive both local and systemic changes in diel and developmental host gene expression**
 Silvia Moriano-Gutierrez, Eric J. Koch, Hailey Bussan, Kymberleigh Romano, Mahdi Belcaid, Federico E. Rey, Edward G. Ruby, and Margaret J. McFall-Ngai
 → See Commentary on page 7617

NEUROSCIENCE

- 7723** **Unsupervised learning by competing hidden units**
 Dmitry Krotov and John J. Hopfield

- 8000** **Loss of postnatal quiescence of neural stem cells through mTOR activation upon genetic removal of cysteine string protein- α**
 Jose L. Nieto-González, Leonardo Gómez-Sánchez, Fabiola Mavillard, Pedro Linares-Clemente, María C. Rivero, Marina Valenzuela-Villatoro, José L. Muñoz-Bravo, Ricardo Pardal, and Rafael Fernández-Chacón

- 8010** **Pejvakin-mediated pexophagy protects auditory hair cells against noise-induced damage**
 Jean Defourny, Alain Aghaie, Isabelle Perfettini, Paul Avan, Sedigheh Delmoghani, and Christine Petit

- 8018** **Macroscale intrinsic network architecture of the hypothalamus**
 Joel D. Hahn, Olaf Sporns, Alan G. Watts, and Larry W. Swanson

- 8028** **The STEP₆₁ interactome reveals subunit-specific AMPA receptor binding and synaptic regulation**
 Sehoon Won, Salvatore Incontro, Yan Li, Roger A. Nicoll, and Katherine W. Roche

PHYSIOLOGY

- 8038** **Phospholipid membranes drive abdominal aortic aneurysm development through stimulating coagulation factor activity**
 Keith Allen-Redpath, Maceler Aldrovandi, Sarah N. Lauder, Anastasia Gketsopoulou, Victoria J. Tyrrell, David A. Slatter, Robert Andrews, W. John Watkins, Georgia Atkinson, Eileen McNeill, Anna Gilfedder, Majd Protty, James Burston, Sam R. C. Johnson, Patricia R. S. Rodrigues, Dylan O. Jones, Regent Lee, Ashok Handa, Keith Channon, Samya Obaji, Jorge Alvarez-Jarreta, Gerhard Krönke, Jochen Ackermann, P. Vince Jenkins, Peter W. Collins, and Valerie B. O'Donnell

PLANT BIOLOGY

- 8048** ***Arabidopsis* and *Chlamydomonas* phosphoribulokinase crystal structures complete the redox structural proteome of the Calvin–Benson cycle**
 Libero Gurrieri, Alessandra Del Giudice, Nicola Demitri, Giuseppe Falini, Nicolae Viorel Pavel, Mirko Zaffagnini, Maurizio Polentarutti, Pierre Crozet, Christophe H. Marchand, Julien Henri, Paolo Trost, Stéphane D. Lemaire, Francesca Sparla, and Simona Fermari

- 8054** **Structural analysis of *Phytophthora* suppressor of RNA silencing 2 (PSR2) reveals a conserved modular fold contributing to virulence**
 Jinqiu He, Wenwu Ye, Du Seok Choi, Baixing Wu, Yi Zhai, Baodian Guo, Shuyi Duan, Yuanchao Wang, Jianhua Gan, Wenbo Ma, and Jinbiao Ma

- 8060** **Histone 2B monoubiquitination complex integrates transcript elongation with RNA processing at circadian clock and flowering regulators**
 Magdalena Woloszynska, Sabine Le Gall, Pia Neyt, Tommaso M. Boccardi, Marion Grasser, Gernot Längst, Stijn Aesaert, Griet Coussens, Stijn Dhondt, Eveline Van De Slijke, Leonardo Bruno, Jorge Fung-Uceda, Paloma Mas, Marc Van Montagu, Dirk Inzé, Kristiina Himanen, Geert De Jaeger, Klaus D. Grasser, and Mieke Van Lijsebettens

SYSTEMS BIOLOGY

- 8070** **Chemical synthesis rewriting of a bacterial genome to achieve design flexibility and biological functionality**
 Jonathan E. Venetz, Luca Del Medico, Alexander Wöflle, Philipp Schächle, Yves Bucher, Donat Appert, Flavia Tschan, Carlos E. Flores-Tinoco, Mariëlle van Kooten, Rym Guennoun, Samuel Deutsch, Matthias Christen, and Beat Christen

CORRECTIONS

- BIOCHEMISTRY, CHEMISTRY**
8080 **Biosynthesis of the immunosuppressants FK506, FK520, and rapamycin involves a previously undescribed family of enzymes acting on chorismate**
 Jennifer N. Andexer, Steven G. Kendrew, Mohammad Nur-e-Alam, Orestis Lazos, Teresa A. Foster, Anna-Sophie Zimmermann, Tony D. Warneck, Dipen Suthar, Nigel J. Coates, Frank E. Koehn, Jerauld S. Skotnicki, Guy T. Carter, Matthew A. Gregory, Christine J. Martin, Steven J. Moss, Peter F. Leadlay, and Barrie Wilkinson

- ENVIRONMENTAL SCIENCES**
8081 **Tree clusters in savannas result from islands of soil moisture**
 Ignacio Rodriguez-Iturbe, Zijuan Chen, Ann Carla Stave, and Simon Asher Levin

SI CORRECTION

- PSYCHOLOGICAL AND COGNITIVE SCIENCES**
8082 **Relational mobility predicts social behaviors in 39 countries and is tied to historical farming and threat**
 Robert Thomson, Masaki Yuki, Thomas Talhelm, Joanna Schug, Mie Kito, Arin H. Ayanian, Julia C. Becker, Maja Becker, Chi-yue Chiu, Hoon-Seok Choi, Carolina M. Ferreira, Marta Fülöp, Pelin Gul, Ana Maria Houghton-Illera, Mihkel Joasoo, Jonathan Jong, Christopher M. Kavanagh, Dmytro Khutkyy, Claudia Manzi, Urszula M. Marcinkowska, Taciano L. Milfont, Félix Neto, Timo von Oertzen, Ruthie Pliskin, Alvaro San Martin, Purnima Singh, and Mariko L. Visserman