

Molecular Plant

Published on behalf of CSPB and CEMPS, CAS

Volume 15 Number 2 February 2022

Correspondences

203 Genetics-inspired data-driven approaches explain and predict crop performance fluctuations attributed to changing climatic conditions

Xianran Li, Tingting Guo, Guihua Bai, Zhiwu Zhang, Deven See, Juliet Marshall, Kimberly A. Garland-Campbell, and Jianming Yu

207 H2A.Z contributes to trithorax activity at the AGAMOUS locus

Un-Sa Lee, Tomasz Bieluszewski, Jun Xiao, Ayako Yamaguchi, and Doris Wagner

Editor's Highlights

211 Hypermobility of SHORT-ROOT in the development of multiple cortex layers

M. Arif Ashraf and Erin Sparks

212 O2-ZmGRAS11 coordinates cell expansion and endosperm filling

Chun-Lin Shi and Liuji Wu

Opinion

213 Linking environmental signals to plant metabolism: The combination of field trials and environment simulators Jing Zhang, Xiao Yang, Xin Zhang, Li Zhang, Zixing Zhang, Yang Zhang, and Qichang Yang

Spotlights

216 Moonlighting PPKL1 reveals a role of cytokinin in regulating rice grain size

Tomáš Werner and Thomas Schmülling

219 A war on the cell wall

Jian Chen, Huan Chen, Fengquan Liu, and Zheng Qing Fu

222 Harnessing genetic variation at regulatory regions to fine-tune traits for climate-resilient crops

Diep R. Ganguly, Lee T. Hickey, and Peter A. Crisp

Old dog, new trick: The PHR-SPX system regulates arbuscular mycorrhizal symbiosis

Debatosh Das and Caroline Gutjahr

Review Article

225

228 Nitric oxide regulation of plant metabolism

Kapuganti Jagadis Gupta, Vemula Chandra Kaladhar, Teresa B. Fitzpatrick, Alisdair R. Fernie, lan Max Møller, and Gary J. Loake

Resource Articles

243 A FLASH pipeline for arrayed CRISPR library construction and the gene function discovery of rice receptor-like kinases

Kaiyuan Chen, Runnan Ke, Manman Du, Yuqing Yi, Yache Chen, Xiaochun Wang, Lu Yao, Hao Liu, Xin Hou, Lizhong Xiong, Yinong Yang, and Kabin Xie

258 Rice metabolic regulatory network spanning the entire life cycle Chenkun Yang, Shuangqian Shen, Shen Zhou, Yufei Li, Yuyuan Mao, Junjie Zhou, Yuheng Shi, Longxu An, Qianqian Zhou, Wenju Peng, Yuanyuan Lyu, Xuemei Liu, Wei Chen, Shouchuang Wang, Lianghuan Qu, Xianqing Liu, Alisdair R. Fernie, and Jie Luo

Research Articles

276 Variation in *cis*-regulation of a NAC transcription factor contributes to drought tolerance in wheat

Hude Mao, Shumin Li, Bin Chen, Chao Jian, Fangming Mei, Yifang Zhang, Fangfang Li, Nan Chen, Tian Li, Linying Du, Li Ding, Zhongxue Wang, Xinxiu Cheng, Xiaojing Wang, and Zhensheng Kang

293 A cryptic inhibitor of cytokinin phosphorelay controls rice grain size

Dapu Liu, He Zhao, Yunhua Xiao, Guoxia Zhang, Shouyun Cao, Wenchao Yin, Yangwen Qian, Yanhai Yin, Jinsong Zhang, Shouyi Chen, Chengcai Chu, and Hongning Tong

308 Parallel selection of distinct *Tof5* alleles drove the adaptation of cultivated and wild soybean to high latitudes

Lidong Dong, Qun Cheng, Chao Fang, Lingping Kong, Hui Yang, Zhihong Hou, Yongli Li, Haiyang Nan, Yuhang Zhang, Qingshan Chen, Chunbao Zhang, Kun Kou, Tong Su, Lingshuang Wang, Shichen Li, Haiyang Li, Xiaoya Lin, Yang Tang, Xiaohui Zhao, Sijia Lu, Baohui Liu, and Fanjiang Kong

322 The HB40-JUB1 transcriptional regulatory network controls gibberellin homeostasis in *Arabidopsis*

Shuchao Dong, Danuse Tarkowska, Mastoureh Sedaghatmehr, Maryna Welsch, Saurabh Gupta, Bernd Mueller-Roeber, and Salma Balazadeh

The nucleolus as a genomic safe harbor for strong gene expression in *Nannochloropsis oceanica*

Christian Südfeld, Ana Pozo-Rodríguez, Sara A. Manjavacas Díez, René H. Wijffels, Maria J. Barbosa, and Sarah D'Adamo

Research Reports

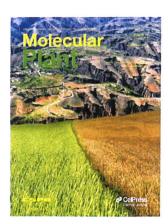
340

363

354 Lack of ethylene does not affect reproductive success and synergid cell death in Arabidopsis Wenhao Li, Qiyun Li, Mohan Lyu, Zhijuan Wang, Zihan Song, Shangwei Zhong, Hongya Gu, Juan Dong, Thomas Dresselhaus, Sheng Zhong, and Li-Jia Qu

Dual and opposing roles of EIN3 reveal a generation conflict during seed growth

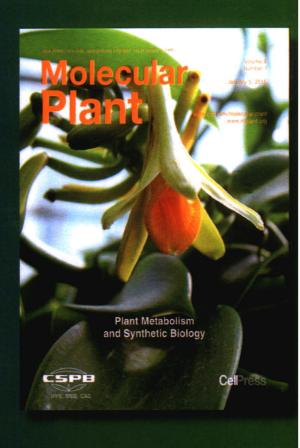
Juliane Heydlauff, Isil Erbasol Serbes, Dieu Vo, Yanbo Mao, Sonja Gieseking, Thomas Nakel, Theresa Harten, Ronny Völz, Anja Hoffmann, and Rita Groß-Hardt



On The Cover

Wheat is a staple crop mainly cultivated in arid and semi-arid areas worldwide. However, wheat production is frequently threatened by water scarcity that is further exacerbated by global warming and population growth. Developing drought-tolerant cultivars is a central challenge for wheat breeders, which relies on the better understanding of the genotype-phenotype relationship. In this issue, Mao et al. discover that the variation in *cis*-regulation of a NAC transcription factor (TaNAC071-A) contributes to drought tolerance in wheat. The study reveals a novel genetic mechanism underlying wheat drought tolerance and will facilitate the breeding of drought-tolerant wheat cultivars. Image by: Hude Mao and Zhensheng Kang.

Share your plant biology breakthroughs with the world



Give your plant biology research the global visibility and recognition it deserves. Share your breakthroughs with the world in *Molecular Plant*, now published by Cell Press. Submit your manuscript today!

Learn more and sign up for free e-Tables of Contents at www.cell.com/molecular-plant

Postal Delivery No.4-161 ¥ 230/Issue

CellPress

