February #1 2020

The OPR Protein MTHI1 Controls the Expression of Two Different Subunits of ATP Synthase CFo in Chlamydomonas reinhardtii

Shinichiro Ozawa, Marina Cavaiuolo, Domitille Jarrige, Richard Kuras, Mark Rutgers, Stephan Eberhard, Dominique Drapier, Francis-Andre Wollman and Yves Choquet

Plant Cell 2020 tpc.19.00770; Advance Publication January 27, 2020; doi:10.1105/tpc.19.00770

[http://www.plantcell.org/content/early/2020/01/27/tpc.19.00770.abstract](http://www.plantcell.org/content/early/2020/01/27/tpc.19.00770.abstract?papetoc)

Matrix Redox Physiology Governs the Regulation of Plant Mitochondrial Metabolism through Post-Translational Protein Modifications

Ian Max Møller, Abir U Igamberdiev, Natalia V. Bykova, Iris Finkemeier, Allan G. Rasmusson and Markus Schwarzländer

Plant Cell 2020 tpc.19.00535; Advance Publication January 6, 2020; doi:10.1105/tpc.19.00535

[http://www.plantcell.org/content/early/2020/01/24/tpc.19.00535.abstract](http://www.plantcell.org/content/early/2020/01/24/tpc.19.00535.abstract?papetoc)

[Antioxidants & Redox Signaling](https://www.liebertpub.com/journal/ars)[Vol. 32, No. 7](https://www.liebertpub.com/toc/ars/32/7) Review Article

[**Vitamin C in Plants: Novel Concepts, New Perspectives, and Outstanding Issues**](https://www.liebertpub.com/doi/full/10.1089/ars.2019.7819)

[Christine H. Foyer](https://www.liebertpub.com/doi/abs/10.1089/ars.2019.7819)

,

[Tina Kyndt](https://www.liebertpub.com/doi/abs/10.1089/ars.2019.7819)

, and

[Robert D. Hancock](https://www.liebertpub.com/doi/abs/10.1089/ars.2019.7819)

Published Online:23 Jan 2020<https://doi.org/10.1089/ars.2019.7819>

Plant Journal

FOCUSED REVIEW

**Open Access**

##### [Natural genetic variation in photosynthesis: an untapped resource to increase crop yield potential?](http://el.wiley.com/wf/click?upn=-2F4d0Y8aR13lVHu481anTzUsxpIxqnXKO7aDEMGBvYypDYLmOREZ49UvzGxcwdvdbwYHbRuWVOUTqOGAjrAH2T9PMpfGNJxZ4KKgLl-2Fuyo19DYY4ExF1gSm8biFjsHPzz9cSz2TVogDCLd0OAaS8S0tpd-2Fz4jAIf5TTar2H-2Fnq-2Bq6lz93w2ElLS-2F29sUhkpHuUZMhSZhRE5GSBogS5gvdWTpsO6a4Ydxd-2BCIoNEkC0vLdaZeAOi-2BxSL25D2SHAAYkECi3HR38YNYY3nT4uFOAz5GUYxPQMSdkZk-2FIbeVag2VOhDGfSWueFwKE95HNTvOXAwLNEiYZDyoroZTigg-2Bl-2B55m3dZPQ5k0AUbQUG1Opak7nS9N14zGDc31A8rM0Wi053GEOyAPNKO-2F-2Fjn-2FXLGkHg-3D-3D_QPG-2FyTBxmlRua5I0wyfNnCM0iFf0iLBst12cL5vuJIHjG0QV5beT8i3pXYKHAbWBNiPuUvbJPrSVYN1NOIP4e0V091aYpllqT-2BFa4-2FALfCRM1wX3cn7cw8vi-2Bcs1aAs1wfHkZLhlCpdoUYdT7CtzeyJ9X4qCDdYYoYJFWrQrXrMDFrDHiVlY01cQzlHWgXG7toJKkosJSeGRRzZEvozBscA4gIiYy8UmDntX6MHNYTCsj74E6xtcrWULMzubgpxG1BlsZkr5cyVCviDt5nIDp4woj2RBK3MCVNA-2BeTMrRdidkY-2FOg-2FIot5aDTs4gZQd7)

Michele Faralli, Tracy Lawson

Pages: 518-528 | First Published: 18 October 2019

**Significance Statement**

The MS focuses on natural genetic variation in photosynthesis and other physiological processes as possible targets for exploitation for yield improvements.

TECHNICAL ADVANCE

##### [tuxnet: a simple interface to process RNA sequencing data and infer gene regulatory networks](http://el.wiley.com/wf/click?upn=-2F4d0Y8aR13lVHu481anTzUsxpIxqnXKO7aDEMGBvYypDYLmOREZ49UvzGxcwdvdbwYHbRuWVOUTqOGAjrAH2T9PMpfGNJxZ4KKgLl-2Fuyo19DYY4ExF1gSm8biFjsHPzz9cSz2TVogDCLd0OAaS8S0tpd-2Fz4jAIf5TTar2H-2Fnq-2Bq6lz93w2ElLS-2F29sUhkpHuUZMhSZhRE5GSBogS5gvdWTpsO6a4Ydxd-2BCIoNEkC0vLdaZeAOi-2BxSL25D2SHAAYkECi3HR38YNYY3nT4uFOAz5GUYxPQMSdkZk-2FIbeVag2VOhDGfSWueFwKE95HNTvOX0IhzqsApZI7l6Hv5p7Vi-2BX3ZiXpuAv3ro0XokhzDBPUQTE9XcYER7ZojrCHjvHT3jSxEOIG703wIV2WqzV7xUw-3D-3D_QPG-2FyTBxmlRua5I0wyfNnCM0iFf0iLBst12cL5vuJIHjG0QV5beT8i3pXYKHAbWBNiPuUvbJPrSVYN1NOIP4e0V091aYpllqT-2BFa4-2FALfCRM1wX3cn7cw8vi-2Bcs1aAs1tHXUUbXFUuDAnNLUcKsiUCYJmMLyRUbGCh5coG-2FBD-2FkDUBAfKg6OAMu1Tf5KCOssuVY-2FcOX2KFDK0fOAIyHjBCNxhD5AMx3pnBtN8pPLPB7qM8hkZli-2BNYJP-2FrQb9k6ncN8jyaz7ZGSltmw-2F-2FrkQN0WPXp2T4bZnjrOVTbOOiZqDlruKiO5038TtjBfzOnsj)

Ryan J. Spurney, Lisa Van den Broeck, Natalie M. Clark, Adam P. Fisher, Maria A. de Luis Balaguer, Rosangela Sozzani

Pages: 716-730 | First Published: 30 September 2019

**Significance Statement**

tuxnet offers a simple integrated interface for both computational and non‐computational biologists to perform RNA‐seq data analysis and infer GRNs from RNA‐seq data ([https://rspurney.github.io/TuxNet/](http://el.wiley.com/wf/click?upn=-2F4d0Y8aR13lVHu481anTzUfQZfdwd3ASO2q7xNwBfe1m-2ByJ8UTaHt-2BGkxYk1tc7o_QPG-2FyTBxmlRua5I0wyfNnCM0iFf0iLBst12cL5vuJIHjG0QV5beT8i3pXYKHAbWBNiPuUvbJPrSVYN1NOIP4e0V091aYpllqT-2BFa4-2FALfCRM1wX3cn7cw8vi-2Bcs1aAs1luc5xrZS2nKB7DQU328km7plGMfvZmNli78-2BIB8m0wk3QCD9uwPITngIBpi-2FSfctNQXvvFcp0Eg3IC-2BcPiFybzGIRh96TkJLK0SWC9rWty6BCauAwiEcOsn-2F74j4KcT9wNKFMjX8-2BzCemil-2BWJcmvT0UBFi2d2GTqSLj6rjx7wq79VELDI437FF61Y-2BJYloW)). By implementing network inference techniques, tuxnet allows for the prediction of causal regulations with high confidence and thus is a practical tool to evaluate and handle transcriptome data.

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| --- |
| [**Striking Diversity of Mitochondria-Specific Translation Processes across Eukaryotes**](http://snowplow.apps.clarivate.com/r/tp2?u=https%3A%2F%2Fgateway.webofknowledge.com%2Fgateway%2FGateway.cgi%3FGWVersion%3D2%26SrcAuth%3DAlerting%26AlertId%3D3539d926-b773-4c15-b73d-cdf55bea4642%26KeyQueryID%3D922bb4c2-9a07-498c-a335-ef09885dfea7%26SrcApp%3Dcitation%26DestApp%3DWOS%26DestLinkType%3DFullRecord%26KeyUT%3DWOS%3A000507915000006&co=%7B%22schema%22%3A%22iglu%3Acom.snowplowanalytics.snowplow%2Fcontexts%2Fjsonschema%2F1-0-0%22%2C%22data%22%3A%5B%7B%22schema%22%3A%22http%3A%2F%2Fjson-schema.clarivate.io%2Figlu%2Femailengine%2F1-0-0%22%2C%22data%22%3A%7B%22emailInstId%22%3A%2291e1227d-d55b-468b-a4c8-6182113e3933%22%7D%7D%5D%7D&e=se&aid=email-eng&se_ac=alert-wos-click-on-record-link)  |
| Waltz, Florent; Giege, Philippe  |
| Trends In Biochemical Sciences  |
|  Mitochondria are essential organelles that act as energy conversion powerhouses and metabolic hubs. Their gene expression machineries combine traits inherited from prokaryote ancestors and specific features acquired during eukaryote evol...  |

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| --- |
|  [**Structure-Function Analysis Reveals the Singularity of Plant Mitochondrial DNA Replication Components: A Mosaic and Redundant System**](http://snowplow.apps.clarivate.com/r/tp2?u=https%3A%2F%2Fgateway.webofknowledge.com%2Fgateway%2FGateway.cgi%3FGWVersion%3D2%26SrcAuth%3DAlerting%26AlertId%3D3539d926-b773-4c15-b73d-cdf55bea4642%26KeyQueryID%3D922bb4c2-9a07-498c-a335-ef09885dfea7%26SrcApp%3Dcitation%26DestApp%3DWOS%26DestLinkType%3DFullRecord%26KeyUT%3DWOS%3A000506648700008&co=%7B%22schema%22%3A%22iglu%3Acom.snowplowanalytics.snowplow%2Fcontexts%2Fjsonschema%2F1-0-0%22%2C%22data%22%3A%5B%7B%22schema%22%3A%22http%3A%2F%2Fjson-schema.clarivate.io%2Figlu%2Femailengine%2F1-0-0%22%2C%22data%22%3A%7B%22emailInstId%22%3A%2291e1227d-d55b-468b-a4c8-6182113e3933%22%7D%7D%5D%7D&e=se&aid=email-eng&se_ac=alert-wos-click-on-record-link)  |
| Brieba, Luis Gabriel  |
| Plants-basel  |
|  Plants are sessile organisms, and their DNA is particularly exposed to damaging agents. The integrity of plant mitochondrial and plastid genomes is necessary for cell survival. During evolution, plants have evolved mechanisms to replicat.. |

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Nitric oxide homeostasis is required for light-dependent regulation of conidiation in Aspergillus.

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[Structural Biology and Molecular Biophysics](https://crm.elifesciences.org/crm/sites/all/modules/civicrm/extern/url.php?u=56454&qid=17704442)

### [**Two forms of Opa1 cooperate to complete fusion of the mitochondrial inner-membrane**](https://crm.elifesciences.org/crm/sites/all/modules/civicrm/extern/url.php?u=56468&qid=17704442)

**Yifan Ge, Xiaojun Shi ... Luke H Chao**

An in vitro reconstitution assay reveals stoichiometric levels of the short form of Opa1 work together with the long form of Opa1 to mediate efficient and fast membrane pore opening.

[Cell Biology](https://crm.elifesciences.org/crm/sites/all/modules/civicrm/extern/url.php?u=56439&qid=17704442), [Developmental Biology](https://crm.elifesciences.org/crm/sites/all/modules/civicrm/extern/url.php?u=56449&qid=17704442)

### [**Recruitment of mRNAs to P granules by condensation with intrinsically-disordered proteins**](https://crm.elifesciences.org/crm/sites/all/modules/civicrm/extern/url.php?u=56450&qid=17704442)

**Chih-Yung S Lee, Andrea Putnam ... Geraldine Seydoux**

[**Genetically engineered moths can knock down crop pests, but will they take off?**](https://www.sciencemag.org/news/2020/01/genetically-engineered-moths-can-knock-down-crop-pests-will-they-take)

Diamondback moths love broccoli. They’re also fond of cabbage, cauliflower, and related crops. And they quickly evolve resistance to insecticides and crops genetically modified to kill them. But frustrated farmers might get a new weapon against them: genetically engineered versions of the moths that mate with wild pests and cause half their offspring to die.

Science

 Systems Biology

# Single-cell protein profiling

1. Gemma Alderton

Single-cell DNA and RNA sequencing can describe numerous aspects of cell state, but such techniques cannot assess the functional effectors of cells: proteins. In a Perspective, Slavlov discusses the advances in single-cell mass spectrometry techniques that allow protein profiling, including characterization of protein modifications and potentially complex composition and subcellular localization. Although there are limitations to this emerging technology, single-cell proteomics may add to the characterization of cellular components and provide functional information about signaling networks in homeostasis and disease.

Science, this issue p. [512](https://science.sciencemag.org/lookup/doi/10.1126/science.aaz6695)

**ER regulates stress granule fission**

1. Stella M. Hurtley

A hallmark of eukaryotic cells is the ability to compartmentalize essential reactions into membrane-bound and membraneless organelles. Membrane-bound organelles form networks through transport vesicles and interorganellar contact sites. The endoplasmic reticulum (ER) has emerged as a network hub and forms physical connections with nearly every membrane-bound organelle. Lee *et al.* now identify another class of ER contact sites that appear to help regulate the biogenesis and fission of membraneless ribonucleoprotein (RNP) granules (see the Perspective by Kornmann and Weis). Live-cell fluorescence microscopy of human cells revealed that ER tubule dynamics are spatially and temporally coupled to the fission site of two types of RNP granules, processing bodies (P-bodies) and stress granules.

*Science*, this issue p. [eaay7108](https://science.sciencemag.org/lookup/doi/10.1126/science.aay7108); see also p. [507](https://science.sciencemag.org/lookup/doi/10.1126/science.aba3771)

PerspectiveSystems Biology

**Unpicking the proteome in single cells**

1. Nikolai Slavov

See all authors and affiliations

*Science* 31 Jan 2020:
Vol. 367, Issue 6477, pp. 512-513
DOI: 10.1126/science.aaz6695

[Reversible phosphorylation of Rpn1 regulates 26S proteasome assembly and function](http://apps.webofknowledge.com/full_record.do?product=WOS&search_mode=CitingArticles&qid=9&SID=8FIKWkZgGPdHTj6EtQI&page=1&doc=1)

By: [Liu, Xiaoyan](http://apps.webofknowledge.com/OneClickSearch.do?product=WOS&search_mode=OneClickSearch&excludeEventConfig=ExcludeIfFromFullRecPage&colName=WOS&SID=8FIKWkZgGPdHTj6EtQI&field=AU&value=Liu,%20Xiaoyan); [Xiao, Weidi](http://apps.webofknowledge.com/OneClickSearch.do?product=WOS&search_mode=OneClickSearch&excludeEventConfig=ExcludeIfFromFullRecPage&colName=WOS&SID=8FIKWkZgGPdHTj6EtQI&field=AU&value=Xiao,%20Weidi); [Zhang, Yanan](http://apps.webofknowledge.com/OneClickSearch.do?product=WOS&search_mode=OneClickSearch&excludeEventConfig=ExcludeIfFromFullRecPage&colName=WOS&SID=8FIKWkZgGPdHTj6EtQI&field=AU&value=Zhang,%20Yanan); et al.

PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA   Volume: 117   Issue: 1   Pages: 328-336   Published: JAN 7 2020

[Interplay between the Ubiquitin Proteasome System and Mitochondria for Protein Homeostasis](http://apps.webofknowledge.com/full_record.do?product=WOS&search_mode=CitingArticles&qid=9&SID=8FIKWkZgGPdHTj6EtQI&page=1&doc=5)

By: [Escobar-Henriques, Mafalda](http://apps.webofknowledge.com/OutboundService.do?SID=8FIKWkZgGPdHTj6EtQI&mode=rrcAuthorRecordService&action=go&product=WOS&daisIds=2720224); [Altin, Selver](http://apps.webofknowledge.com/OutboundService.do?SID=8FIKWkZgGPdHTj6EtQI&mode=rrcAuthorRecordService&action=go&product=WOS&daisIds=13657313); [den Brave, Fabian](http://apps.webofknowledge.com/OutboundService.do?SID=8FIKWkZgGPdHTj6EtQI&mode=rrcAuthorRecordService&action=go&product=WOS&daisIds=8803489)

CURRENT ISSUES IN MOLECULAR BIOLOGY   Volume: 35   Pages: 35-58   Published: 2020

[Post-translational Modifications of Key Machinery in the Control of Mitophagy](http://apps.webofknowledge.com/full_record.do?product=WOS&search_mode=CitingArticles&qid=9&SID=8FIKWkZgGPdHTj6EtQI&page=1&doc=4)

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TRENDS IN BIOCHEMICAL SCIENCES   Volume: 45   Issue: 1   Pages: 58-75   Published: JAN 2020



[Imbalance of ER and Mitochondria Interactions: Prelude to Cardiac Ageing and Disease?](http://apps.webofknowledge.com/full_record.do?product=WOS&search_mode=CitingArticles&qid=9&SID=8FIKWkZgGPdHTj6EtQI&page=1&doc=11)

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CELLS   Volume: 8   Issue: 12     Article Number: 1617   Published: DEC 2019

[Mitocellular communication: Shaping health and disease](http://apps.webofknowledge.com/full_record.do?product=WOS&search_mode=CitingArticles&qid=9&SID=8FIKWkZgGPdHTj6EtQI&page=1&doc=17)

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SCIENCE   Volume: 366   Issue: 6467   Special Issue: SI   Pages: 827-832   Published: NOV 15 2019

[The Good and the Bad of Mitochondrial Breakups](https://apps.webofknowledge.com/full_record.do?product=WOS&search_mode=CitingArticles&qid=23&SID=8FIKWkZgGPdHTj6EtQI&page=1&doc=3)

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TRENDS IN CELL BIOLOGY   Volume: 29   Issue: 11   Pages: 888-900   Published: NOV 2019

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JOURNAL OF BIOLOGICAL CHEMISTRY   Volume: 295   Issue: 1   Pages: 158-169   Published: JAN 3 2020



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[Plant Biology](https://crm.elifesciences.org/crm/sites/all/modules/civicrm/extern/url.php?u=56651&qid=17761333)

### [**A *cis*-carotene derived apocarotenoid regulates etioplast and chloroplast development**](https://crm.elifesciences.org/crm/sites/all/modules/civicrm/extern/url.php?u=56656&qid=17761333)

**Christopher I Cazzonelli, Xin Hou ... Barry J Pogson**

Carotenoids are not just required as core components for plastid biogenesis, they can be cleaved into an apocarotenoid signal that regulates etioplast and chloroplast development during extended periods of darkness.

[Structural Biology and Molecular Biophysics](https://crm.elifesciences.org/crm/sites/all/modules/civicrm/extern/url.php?u=56623&qid=17761333)

### [**Structure of the AAA protein Msp1 reveals mechanism of mislocalized membrane protein extraction**](https://crm.elifesciences.org/crm/sites/all/modules/civicrm/extern/url.php?u=56634&qid=17761333)

**Lan Wang, Alexander Myasnikov ... Peter Walter**

Physiologia Plantarum

Minireviews

##### [The short and intricate life of the suspensor](http://el.wiley.com/ls/click?upn=3P-2FFNDAGSso-2BACQqCJSxZQYXuyDFuSyQWVXTOVuATZfE2ZYhBvN14MKB0KVXOLGO8obGng7vSyli3t-2BN6pmypnjU-2BzZ-2BIevn4lYbmuPTVuFQrhUH446YBDlxEMNJNLcEkJWRA9dZOsCvMn2QgYCBhErDjLgjTRLQhKlM-2FgK3b3m9Ira-2FJCNb090Lrcu7-2BGzNr1EVl3qhpFlYIBYIiQsZvEEbWS7jbplkmgJn0ITYscnjLNgdse0ZLDvSjTVPhlAQt35jWqdCzfs95Yt2sWmILA6s45R4J4uIUN49ZbY-2BJnMCU9mil3d3a5aEtk-2FvViwk2wonj82WukJV2bLvYleIDIWC6zeT-2Bg4bjd-2BAV113VBK3xBGZ7qr2evii8-2FeWX4AbYdESAlzTAQy5N3xltu9JWnHnvsztmm1a9DOvsRRlQkY-3Dj2v1_HkAt-2FolY2N9G7SBtQolAIZGllYDvfaqSPk1wLioQsLbg-2BlZCeb9mKojEutUZwJJ-2FfXGn6-2ByACsBkOJM2UYNCBiGwdBCbspFEoaNw5c-2Bg8qBEpQ0DYiLUp5tG-2F26QUfR71xfKFce6vhDjr8yODQvZBaELDyqFwEHyBQm2bnTtO6Lv8U6uiUTU0pYNAstwvOX5w-2FBm0tk2CBTYRKURaiQp5GthgVLurZmm7qq4nhxX1hPFPqaCSiT0kk7mqdNOy-2BB2orpkF8OaepxYCNqXfxuGrJnirfpA25YFZhdm9v9cV3hGHd-2Fv5hgYEiBg61Gj8tfs)

Downs Jacob, Jones Brian

Version of Record online: 23 January 2020

## Current Biology

## [Lateral Root Initiation: The Emergence of New Primordia Following Cell Death](https://cwhib9vv.r.us-east-1.awstrack.me/L0/https%3A//www.sciencedirect.com/science%3F_ob%3DGatewayURL%26_method%3DcitationSearch%26_version%3D1%26_piikey%3DS0960982219316653%26_origin%3DRV_SD_TOC_EMAIL%26dgcid%3Draven_sd_via_email/1/010001700bb1c4aa-55d08dfb-91fd-4aa6-84d3-92c785839bb6-000000/uABoWM_mV9VTsytEKq8ycG1kF7s%3D147)

## [Cell Death in Cells Overlying Lateral Root Primordia Facilitates Organ Growth in *Arabidopsis*](https://cwhib9vv.r.us-east-1.awstrack.me/L0/https%3A//www.sciencedirect.com/science%3F_ob%3DGatewayURL%26_method%3DcitationSearch%26_version%3D1%26_piikey%3DS0960982219315805%26_origin%3DRV_SD_TOC_EMAIL%26dgcid%3Draven_sd_via_email/1/010001700bb1c4aa-55d08dfb-91fd-4aa6-84d3-92c785839bb6-000000/b-ls2VknwERXeqY6UZhiQh5iKlQ%3D147)

*Pages 455-464.e7*

Sacha Escamez, Domenique André, Bernadette Sztojka, Benjamin Bollhöner, ... Hannele Tuominen



*Pages R121-R122*

Guy Wachsman, Philip N. Benfey

## [Membrane Biology: Transmembrane Helices Need to Fit the Surrounding Fat](https://cwhib9vv.r.us-east-1.awstrack.me/L0/https%3A//www.sciencedirect.com/science%3F_ob%3DGatewayURL%26_method%3DcitationSearch%26_version%3D1%26_piikey%3DS0960982219316057%26_origin%3DRV_SD_TOC_EMAIL%26dgcid%3Draven_sd_via_email/1/010001700bb1c4aa-55d08dfb-91fd-4aa6-84d3-92c785839bb6-000000/NKVPEjzh6nv8XalOpMI6pHJMUng%3D147)

*Pages R122-R124*

Takeshi Harayama

## [Delineating the Rules for Structural Adaptation of Membrane-Associated Proteins to Evolutionary Changes in Membrane Lipidome](https://cwhib9vv.r.us-east-1.awstrack.me/L0/https%3A//www.sciencedirect.com/science%3F_ob%3DGatewayURL%26_method%3DcitationSearch%26_version%3D1%26_piikey%3DS0960982219315131%26_origin%3DRV_SD_TOC_EMAIL%26dgcid%3Draven_sd_via_email/1/010001700bb1c4aa-55d08dfb-91fd-4aa6-84d3-92c785839bb6-000000/DsZN3DO-WZm1AjFnVLsabstuguY%3D147)

*Pages 367-380.e8*

Maria Makarova, Maria Peter, Gabor Balogh, Attila Glatz, ... Snezhana Oliferenko

## [Salicylic Acid Targets Protein Phosphatase 2A to Attenuate Growth in Plants](https://cwhib9vv.r.us-east-1.awstrack.me/L0/https%3A//www.sciencedirect.com/science%3F_ob%3DGatewayURL%26_method%3DcitationSearch%26_version%3D1%26_piikey%3DS0960982219315283%26_origin%3DRV_SD_TOC_EMAIL%26dgcid%3Draven_sd_via_email/1/010001700bb1c4aa-55d08dfb-91fd-4aa6-84d3-92c785839bb6-000000/HGQ5H9dabFsKqn9oRTUThjCE1q0%3D147)

*Pages 381-395.e8*

Shutang Tan, Melinda Abas, Inge Verstraeten, Matouš Glanc, ... Jiří Friml

## [The Origin of Land Plants Is Rooted in Two Bursts of Genomic Novelty](https://cwhib9vv.r.us-east-1.awstrack.me/L0/https%3A//www.sciencedirect.com/science%3F_ob%3DGatewayURL%26_method%3DcitationSearch%26_version%3D1%26_piikey%3DS0960982219315957%26_origin%3DRV_SD_TOC_EMAIL%26dgcid%3Draven_sd_via_email/1/010001700bb1c4aa-55d08dfb-91fd-4aa6-84d3-92c785839bb6-000000/Wtm8hd5vbW4Bol2aEEDND6SMB08%3D147)

*Pages 530-536.e2*

Alexander M.C. Bowles, Ulrike Bechtold, Jordi Paps

*Graphical abstract
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PLOS Computational Biology Volume 16(1) January 2020

#### [Computational simulation of the reactive oxygen species and redox network in the regulation of chloroplast metabolism](http://click.e.plos.org/?qs=311212b1f8c00408acc6f3552d57cefdd454aa7c91f9fcb289d5bf5d0c2b168cb33040d00968664becfce0ca76cbc0b0)

**Melanie Gerken, Sergej Kakorin, Kamel Chibani, Karl-Josef Dietz**

Plant Journal

##### [Photosynthesis and photosynthetic efficiencies along the terrestrial plant’s phylogeny: lessons for improving crop photosynthesis](http://el.wiley.com/ls/click?upn=3P-2FFNDAGSso-2BACQqCJSxZQYXuyDFuSyQWVXTOVuATZfE2ZYhBvN14MKB0KVXOLGO8obGng7vSyli3t-2BN6pmypmfSBPRgOjz1-2BoMhV9vTSGbwxwDJE4QhKGEBwQEh4JM-2F6dPjqrOc5t-2FygXnXv6xEFZtgFwkziUmIZkjQQjNJ5pe2eKXIM9aUpfBBBGq4fy2bZS6yhJNZT8WEKMMbW3qZ8-2B3o859TaMieL-2FdJebg5yBWIemHepQaZvzbLHTa7ObnDtq0ckE5ylr-2F4kgBFi9DONtxmw6Rm0eQ5Uyixqb1jveFzlNM-2BtgF2Y1eaRvDNHfPwybEcWKSLhOrK7hyw8DB2U92qOHThs6nIEaqYU5oBEEQ21ysJ5VOYCgRGAAFkjYn5OKgjJ0Dk87gopMq6pa-2FjCuRq5LvVM-2BVQKzSf3dA6NXw-3DdHNq_HkAt-2FolY2N9G7SBtQolAIebGHMIcepevkbRzg2lvJN13USR46qpOU2nwZmhFKiAOiTZ5eg9UFHE-2FeiCV-2BOFk2bKKkjihbMXVGANNtD5CoYuZsDPxkISILo5cTay07pZt1sY0FC-2FzxNxYU8ByGjrumEVe9CQ9sTtC7h1ohuPrXSwQP0k78JuWdChFnDxJoloWZqkTWV3K3hBtRmP-2FzrnWpBjZWRqQbQESkachtbZXTd7B1gciHP-2BsDaaCh0N-2FiUVfJyWQqiX94rs2hrwtZ2k-2BOJqFIVqoSM2O1OXVWcIIylfWq-2BaPEVmAoIQZVeZX4ocu)

Jaume Flexas, Marc Carriquí

Version of Record online: 24 January 2020

**Significance Statement**

The variation of maximum photosynthesis, water‐use‐efficiency and nitrogen‐use‐efficiency along the land plants' phylogeny is reviewed.

##### [Endoplasmic reticulum‐mediated unfolded protein response is an integral part of singlet oxygen signaling in plants](http://el.wiley.com/ls/click?upn=3P-2FFNDAGSso-2BACQqCJSxZQYXuyDFuSyQWVXTOVuATZfE2ZYhBvN14MKB0KVXOLGO8obGng7vSyli3t-2BN6pmypmfSBPRgOjz1-2BoMhV9vTSGbwxwDJE4QhKGEBwQEh4JM-2F6dPjqrOc5t-2FygXnXv6xEFZtgFwkziUmIZkjQQjNJ5pe2eKXIM9aUpfBBBGq4fy2bZS6yhJNZT8WEKMMbW3qZ8-2B3o859TaMieL-2FdJebg5yBWIemHepQaZvzbLHTa7ObnDtq0ckE5ylr-2F4kgBFi9DONtxmw6Rm0eQ5Uyixqb1jveFzlNM-2BtgF2Y1eaRvDNHfPwUqgrAP7DDvJ-2BH2sZrxPWEtvNWFddVPVvRWYgO3Vd-2BdFUh2Uxu4oKfWvkTQT4vT-2BFwU8bxqoaJBKmf5mwSrjxVCOZ2CBiXJ3X13lTzt7GnSI-3DZTcg_HkAt-2FolY2N9G7SBtQolAIebGHMIcepevkbRzg2lvJN13USR46qpOU2nwZmhFKiAOZElmPYDxC3WcXMEw9-2F0Do3-2BTzSNdsEsAQsWCEF8j3dQn9wBy7Kq2qyNGI5hWzAIRsa2gJ5bnKlVFZU7n2mtZDRZLQUqvADr9-2Fv7bPa-2FSEHOh36KCJud5p7Xz5ygRwFPv2xvcXA-2B2A5gPm8lTEROgd5c0HRsf31oS-2FUOgR-2F4BZH0JTeeR2il0QgeOS8TVsT7JU-2FXuDo0ezgL2RJd44BF1yr9AaLssrlh1SRs1EJ8bv6vM4m-2FaOsxMzMWfpzePQPmC)

Inès Beaugelin, Anne Chevalier, Stefano D’Alessandro, Brigitte Ksas, Michel Havaux

First Published: 23 January 2020

## CELL

## [Modulation of RNA Condensation by the DEAD-Box Protein eIF4A](https://cwhib9vv.r.us-east-1.awstrack.me/L0/https%3A//www.sciencedirect.com/science%3F_ob%3DGatewayURL%26_method%3DcitationSearch%26_version%3D1%26_piikey%3DS0092867419313935%26_origin%3DRV_SD_TOC_EMAIL%26dgcid%3Draven_sd_via_email/1/010001701b277d1e-004c7a60-8be2-44ee-ade9-cdea604ebf24-000000/3xr9AjdXh-opn8oXkR2vOSv4GuU%3D148)

*Pages 411-426.e16*

Devin Tauber, Gabriel Tauber, Anthony Khong, Briana Van Treeck, ... Roy Parker



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| [DIX Domain Polymerization Drives Assembly of Plant Cell Polarity Complexes](https://cwhib9vv.r.us-east-1.awstrack.me/L0/https%3A//www.sciencedirect.com/science%3F_ob%3DGatewayURL%26_method%3DcitationSearch%26_version%3D1%26_piikey%3DS0092867420300581%26_origin%3DRV_SD_TOC_EMAIL%26dgcid%3Draven_sd_via_email/1/010001701b277d1e-004c7a60-8be2-44ee-ade9-cdea604ebf24-000000/rStXB2TcHO0gwD-Vqu7YbDgL-b4%3D148) *Pages 427-439.e12* Maritza van Dop, Marc Fiedler, Sumanth Mutte, Jeroen de Keijzer, ... Dolf Weijers *Graphical abstract http://ars.els-cdn.com/content/image/1-s2.0-S0092867420300581-fx1.jpg* |

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| [Co-incidence of Damage and Microbial Patterns Controls Localized Immune Responses in Roots](https://cwhib9vv.r.us-east-1.awstrack.me/L0/https%3A//www.sciencedirect.com/science%3F_ob%3DGatewayURL%26_method%3DcitationSearch%26_version%3D1%26_piikey%3DS009286742030060X%26_origin%3DRV_SD_TOC_EMAIL%26dgcid%3Draven_sd_via_email/1/010001701b277d1e-004c7a60-8be2-44ee-ade9-cdea604ebf24-000000/6_2sQtNYCDi2gWQGviX-qb1ygRE%3D148) *Pages 440-453.e18* Feng Zhou, Aurélia Emonet, Valérie Dénervaud Tendon, Peter Marhavy, ... Niko Geldner *Graphical abstract http://ars.els-cdn.com/content/image/1-s2.0-S009286742030060X-fx1.jpg* |

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**Molecular Cell**

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| **Review**  |

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| [Harnessing the Power of Proteolysis for Targeted Protein Inactivation](https://cwhib9vv.r.us-east-1.awstrack.me/L0/https%3A//www.sciencedirect.com/science%3F_ob%3DGatewayURL%26_method%3DcitationSearch%26_version%3D1%26_piikey%3DS1097276520300101%26_origin%3DRV_SD_TOC_EMAIL%26dgcid%3Draven_sd_via_email/1/010001701b256cc9-56480824-500f-4710-ad66-43df6e436138-000000/l-_-IpUbYTqsxrta6lcPpRiITG4%3D148) *Pages 446-460* Rati Verma, Dane Mohl, Raymond J. Deshaies  |

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Nature Cell Biology

[**HSF1 phase transition mediates stress adaptation and cell fate decisions    pp151 - 158**](https://marketing.springernature.com:443/sap/public/cuan/link/888/2636DF89E07475D5B12F51C672469794D3E1E5FA?_V_=2&_K11_=E3FE65372D086D00553FCC56D994A5E1E1AB91A3&_L54AD1F204_=c2NlbmFyaW89TUxDUEcmdGFyZ2V0PWh0dHA6Ly93d3cubmF0dXJlLmNvbS9hcnRpY2xlcy9zNDE1NTYtMDE5LTA0NTgtMz91dG1fc291cmNlPW5jYl9ldG9jJnV0bV9tZWRpdW09ZW1haWwmdXRtX2NhbXBhaWduPXRvY180MTU1Nl8yMl8yJnV0bV9jb250ZW50PTIwMjAwMjA3JldULmVjX2lkPU5DQi0yMDIwMDImc2FwLW91dGJvdW5kLWlkPTI2MzZERjg5RTA3NDc1RDVCMTJGNTFDNjcyNDY5Nzk0RDNFMUU1RkEmbWt0LWtleT0wMDUwNTZCMDMzMUIxRUQ3ODJFRUQ0NDc5RTlDNTAwQQ&_K13_=10&_K14_=798a739e3b6ee68dcc05b1dc974336a6fb204981b72aaac3aeed9e65ec727cff)
Giorgio Gaglia, Rumana Rashid, Clarence Yapp, Gaurav N. Joshi, Carmen G. Li *et al.*
doi:10.1038/s41556-019-0458-3

Gaglia et al. show, using single-cell imaging and analysis in human tumours, that phase transition of heat-shock factor 1 (HSF1) to form intranuclear stress bodies mediates cell-fate decisions underlying cell survival or death.

Science

# Structure of an active human histone pre-mRNA 3′-end processing machinery

Yadong Sun …Liang Tong1

Science  07 Feb 2020:
Vol. 367, Issue 6478, pp. 700-703

The 3′-end processing machinery for metazoan replication-dependent histone precursor messenger RNAs (pre-mRNAs) contains the U7 small nuclear ribonucleoprotein and shares the key cleavage module with the canonical cleavage and polyadenylation machinery. We reconstituted an active human histone pre-mRNA processing machinery using 13 recombinant proteins and two RNAs and determined its structure by cryo–electron microscopy. The overall structure is highly asymmetrical and resembles an amphora with one long handle. We captured the pre-mRNA in the active site of the endonuclease, the 73-kilodalton subunit of the cleavage and polyadenylation specificity factor, poised for cleavage. The endonuclease and the entire cleavage module undergo extensive rearrangements for activation, triggered through the recognition of the duplex between the authentic pre-mRNA and U7 small nuclear RNA (snRNA). Our study also has notable implications for understanding canonical and snRNA 3′-end processing.

### [Structure of an active human histone pre-mRNA 3′-end processing machinery](https://science.sciencemag.org/content/367/6478/700)

By Yadong Sun, Yixiao Zhang, Wei Shen Aik, Xiao-Cui Yang, William F. Marzluff, Thomas Walz, Zbigniew Dominski, Liang Tong

Science07 Feb 2020 : 700-703 Full Access

An active human histone pre-mRNA 3′-end processing machinery was reconstituted and its structure solved at near-atomic resolution.

 Plant Science

# Decoupling tillering and fertilization

1. Pamela J. Hines

For rice as an agricultural crop, more tillers, or branches that carry grains, are desired, as is less demand for nitrogen fertilization. Unfortunately, for many rice varieties, the number of tillers depends on the amount of nitrogen fertilization. Wu et al. now show that nitrogen status affects chromatin function through modification of histones, a process in which the transcription factor NGR5 recruits polycomb repressive complex 2 to target genes. Some of these genes regulate tillering, such that with more nitrogen, the plants develop more tillers. NGR5 is regulated by proteasomal destruction and mediates hormone signaling. An increase in NGR5 levels can drive increases in rice tillering and yield without requiring increases in nitrogen-rich fertilizer.

Science, this issue p. [eaaz2046](https://science.sciencemag.org/lookup/doi/10.1126/science.aaz2046)

### [Enhanced sustainable green revolution yield via nitrogen-responsive chromatin modulation in rice](https://science.sciencemag.org/content/367/6478/eaaz2046)

By Kun Wu, Shuansuo Wang, Wenzhen Song, Jianqing Zhang, Yun Wang, Qian Liu, Jianping Yu, Yafeng Ye, Shan Li, Jianfeng Chen, Ying Zhao, Jing Wang, Xiaokang Wu, Meiyue Wang, Yijing Zhang, Binmei Liu, Yuejin Wu, Nicholas P. Harberd, Xiangdong Fu

Science07 Feb 2020 Full Access

Nitrogen fertilization of rice drives chromatin modifications that regulate expression of genes influencing plant shape and yield.

 Phase Separation

# Not too sticky

Valda Vinson

There is increasing evidence for a role of liquid-liquid phase separation (LLPS) in many cellular processes. Many proteins that undergo LLPS include prionlike domains (PLDs), which are enriched in polar amino acids and often interspersed with aromatic residues. Combining experimental data with simulations, Martin et al. quantified concentrations of PLDs in coexisting dilute and dense phases as a function of temperature and show that the phase behavior is determined by the number of aromatic residues and their patterning, with uniform patterning of aromatic residues promoting LLPS and inhibiting aggregation. They developed a sticker-and-spacers model that can predict the phase behavior of PLDs on the basis of their sequence.

Science, this issue p. [694](https://science.sciencemag.org/lookup/doi/10.1126/science.aaw8653)

**Plant, Cell & Environment**

##### [VIPP2 interacts with VIPP1 and HSP22E/F at chloroplast membranes and modulates a retrograde signal for](http://el.wiley.com/ls/click?upn=3P-2FFNDAGSso-2BACQqCJSxZQYXuyDFuSyQWVXTOVuATZfE2ZYhBvN14MKB0KVXOLGO8obGng7vSyli3t-2BN6pmypnjU-2BzZ-2BIevn4lYbmuPTVuFQrhUH446YBDlxEMNJNLcEkJWRA9dZOsCvMn2QgYCBhLws-2BCR3-2FHSUZzk6twHtGefumhE6tdWrt-2BwA-2FyosckuYUZpR5pyDy8TN-2Bka4z6dg7MDNkmpZcX0ph7VrzT82dJ-2FDeOVB1WGoAGdbSl6yTHrrsDBjJ6EmjPzMZXPHod8V1XdBSLTLMVw53NTl49BbJ924AnOM8zIYQB59ZhbP4VMISwYLzzyT6aBtaqDXdKzpJlXRAYegnTkcaJL4GZxB2iBA9Zr-2B5f0DggrO7E-2BulC5fwBr5-2F0mC8cPt7WidzSKIvf4L6R3RmgsGrXRPZn4gHOU-3DTv3I_HkAt-2FolY2N9G7SBtQolAIZGllYDvfaqSPk1wLioQsLbg-2BlZCeb9mKojEutUZwJJ-2FHP3VmJsKRaMOAyrAh74ylYa-2BLjUuTG0UGk8DG10bIZ57HywozhSgx3snt0TjVA3iCC9UkZVHmQIlDU3910AePUanw8Tul4QHHLsy2wi96O3lCfK0CljHVAFKYyvJ56SNjH5CXudaYMGp-2BZwxyxp0ZAFolLBChQxe8wbOq2msSOQCafTH8sB2EbzEeyYKpwR0fxIw2IeHOjTQC0yO09yADbpQZh1ZDjuWEv0QtgTEpK8J6gkpPuhAfc9RcUTfoAru) *[HSP22E/F](http://el.wiley.com/ls/click?upn=3P-2FFNDAGSso-2BACQqCJSxZQYXuyDFuSyQWVXTOVuATZfE2ZYhBvN14MKB0KVXOLGO8obGng7vSyli3t-2BN6pmypnjU-2BzZ-2BIevn4lYbmuPTVuFQrhUH446YBDlxEMNJNLcEkJWRA9dZOsCvMn2QgYCBhLws-2BCR3-2FHSUZzk6twHtGefumhE6tdWrt-2BwA-2FyosckuYUZpR5pyDy8TN-2Bka4z6dg7MDNkmpZcX0ph7VrzT82dJ-2FDeOVB1WGoAGdbSl6yTHrrsDBjJ6EmjPzMZXPHod8V1XdBSLTLMVw53NTl49BbJ924AnOM8zIYQB59ZhbP4VMISwYLzzyT6aBtaqDXdKzpJlXRAYegnTkcaJL4GZxB2iBA9Zr-2B5f0DggrO7E-2BulC5fwBr5-2F0mC8cPt7WidzSKIvf4L6R3RmgsGrXRPZn4gHOU-3DTv3I_HkAt-2FolY2N9G7SBtQolAIZGllYDvfaqSPk1wLioQsLbg-2BlZCeb9mKojEutUZwJJ-2FHP3VmJsKRaMOAyrAh74ylYa-2BLjUuTG0UGk8DG10bIZ57HywozhSgx3snt0TjVA3iCC9UkZVHmQIlDU3910AePUanw8Tul4QHHLsy2wi96O3lCfK0CljHVAFKYyvJ56SNjH5CXudaYMGp-2BZwxyxp0ZAFolLBChQxe8wbOq2msSOQCafTH8sB2EbzEeyYKpwR0fxIw2IeHOjTQC0yO09yADbpQZh1ZDjuWEv0QtgTEpK8J6gkpPuhAfc9RcUTfoAru)* [gene expression](http://el.wiley.com/ls/click?upn=3P-2FFNDAGSso-2BACQqCJSxZQYXuyDFuSyQWVXTOVuATZfE2ZYhBvN14MKB0KVXOLGO8obGng7vSyli3t-2BN6pmypnjU-2BzZ-2BIevn4lYbmuPTVuFQrhUH446YBDlxEMNJNLcEkJWRA9dZOsCvMn2QgYCBhLws-2BCR3-2FHSUZzk6twHtGefumhE6tdWrt-2BwA-2FyosckuYUZpR5pyDy8TN-2Bka4z6dg7MDNkmpZcX0ph7VrzT82dJ-2FDeOVB1WGoAGdbSl6yTHrrsDBjJ6EmjPzMZXPHod8V1XdBSLTLMVw53NTl49BbJ924AnOM8zIYQB59ZhbP4VMISwYLzzyT6aBtaqDXdKzpJlXRAYegnTkcaJL4GZxB2iBA9Zr-2B5f0DggrO7E-2BulC5fwBr5-2F0mC8cPt7WidzSKIvf4L6R3RmgsGrXRPZn4gHOU-3DTv3I_HkAt-2FolY2N9G7SBtQolAIZGllYDvfaqSPk1wLioQsLbg-2BlZCeb9mKojEutUZwJJ-2FHP3VmJsKRaMOAyrAh74ylYa-2BLjUuTG0UGk8DG10bIZ57HywozhSgx3snt0TjVA3iCC9UkZVHmQIlDU3910AePUanw8Tul4QHHLsy2wi96O3lCfK0CljHVAFKYyvJ56SNjH5CXudaYMGp-2BZwxyxp0ZAFolLBChQxe8wbOq2msSOQCafTH8sB2EbzEeyYKpwR0fxIw2IeHOjTQC0yO09yADbpQZh1ZDjuWEv0QtgTEpK8J6gkpPuhAfc9RcUTfoAru)

Jasmine Theis, Justus Niemeyer, Stefan Schmollinger, Fabian Ries, Mark Rütgers, Tilak Kumar Gupta, Frederik Sommer, Ligia Segatto Muranaka, Benedikt Venn, Miriam Schulz‐Raffelt, Felix Willmund, Benjamin D. Engel, Michael Schroda

First Published: 29 January 2020

##### [Glutathione‐dependent denitrosation of GSNOR1 promotes oxidative signaling downstream of H2O2](http://el.wiley.com/ls/click?upn=3P-2FFNDAGSso-2BACQqCJSxZQYXuyDFuSyQWVXTOVuATZfE2ZYhBvN14MKB0KVXOLGO8obGng7vSyli3t-2BN6pmypnjU-2BzZ-2BIevn4lYbmuPTVuFQrhUH446YBDlxEMNJNLcEkJWRA9dZOsCvMn2QgYCBhLws-2BCR3-2FHSUZzk6twHtGefumhE6tdWrt-2BwA-2FyosckuYUZpR5pyDy8TN-2Bka4z6dg7MDNkmpZcX0ph7VrzT82dJ-2FDeOVB1WGoAGdbSl6yTHrrsDBjJ6EmjPzMZXPHod8V1XdBSLTLMVw53NTl49BbJ924AnOM8zIYQB59ZhbP4VMI134X-2FemPSXbUe8Lf1yO3OWk7vN-2FLEjZLFAFbj4mmQK3F0rBF24CowtKixaW8KelBeJrK1g-2B5qZSYJo8yOpMIbORj5cLAlCmKoeW6Qn9vv6I-3DMoyy_HkAt-2FolY2N9G7SBtQolAIZGllYDvfaqSPk1wLioQsLbg-2BlZCeb9mKojEutUZwJJ-2FHP3VmJsKRaMOAyrAh74ylYa-2BLjUuTG0UGk8DG10bIZ57HywozhSgx3snt0TjVA3i8RpmDvkR2cjI-2FzliQ3b9DUgDrLV2wmtnpczbpOM6jWk-2B8d-2BAN7fFvwLZQS0g2VhWQRdNBUjaNIig4V0WzywJ-2Fe12EdSuB3q9yJO40YdZYuIuBzbYn2UuTIkHA6pFToiZnpoQOi3nkN7ZrQTFAn6Vi4td6iTBdhNoFX8YE0Zvhk4KCYK-2FiYw0OfNUY07kO5Zg)

Tianru Zhang, Mingyue Ma, Tao Chen, Linlin Zhang, Lingling Fan, Wei Zhang, Bo Wei, Shengchun Li, Wei Xuan, Graham Noctor, Yi Han

Methods in Enzymology

## [Reversible biotinylation of purified proteins for measuring protein–protein interactions](https://cwhib9vv.r.us-east-1.awstrack.me/L0/https%3A//www.sciencedirect.com/science%3F_ob%3DGatewayURL%26_method%3DcitationSearch%26_version%3D1%26_piikey%3DS0076687919304653%26_origin%3DRV_SD_TOC_EMAIL%26dgcid%3Draven_sd_via_email/1/01000170240511b1-2ba4e8f7-75de-46fa-b94d-9a62e6744b16-000000/Q50-gC22d1XISGc758Ls-TAvDK0%3D148)

*Pages 281-294*

Hemlata Dwivedi-Agnihotri, Ashish Srivastava, Arun K. Shukla

**Plant Cell**

CRK2 and C-terminal Phosphorylation of NADPH Oxidase RBOHD Regulate Reactive Oxygen Species Production in Arabidopsis

Sachie Kimura, Kerri Hunter, Lauri Vaahtera, Huy Cuong Tran, Matteo Citterico, Aleksia Vaattovaara, Anne Rokka, Sara Christina Stolze, Anne Harzen, Lena Meissner, Maya Melina Tabea Wilkens, Thorsten Hamann, Masatsugu Toyota, Hirofumi Nakagami and Michael Wrzaczek

Plant Cell 2020 tpc.19.00525; Advance Publication February 7, 2020; doi:10.1105/tpc.19.00525 **OPEN**

[http://www.plantcell.org/content/early/2020/02/07/tpc.19.00525.abstract](http://www.plantcell.org/content/early/2020/02/07/tpc.19.00525.abstract?papetoc)

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| --- |
| [**AuxSen: A Biosensor for Direct Visualization of Auxin**](http://sm1.multiview.com/t/gcH1AAbbaBPWBR2cQDWOxZ1cBHtaJClHMMJaaaaaJClBPDYQNraa?s=2_8382~amp;c=whfqmhof~255zchpbidn.tnZtr.fcv~amp;k=Dk~amp;y=)  |

From bioRxiv via Plantae
Auxins participate in nearly every aspect of plants' life cycle, but the information about the actual distribution of this hormone is scarce. Now, Herud-Sikimic and colleagues have developed AuxSen, a genetically encoded, reversible biosensor for in vivo imaging of auxin distribution.

# The mitochondrial HSP90 paralog TRAP1 forms an OXPHOS-regulated tetramer and is involved in mitochondrial metabolic homeostasis

* [Abhinav Joshi](https://bmcbiol.biomedcentral.com/articles/10.1186/s12915-020-0740-7?sap-outbound-id=5B69167E9FA74069E97492406D83B397B1B445BF&utm_source=hybris-campaign&utm_medium=email&utm_campaign=000_MKQ5584_0000018821_BMCF_USG_BMCBiology_eToc_Feb20_US&utm_content=EN_internal_41685_20200206&mkt-key=005056B0331B1ED782EED4479E9C500A#auth-1), ….&
* [Didier Picard](https://bmcbiol.biomedcentral.com/articles/10.1186/s12915-020-0740-7?sap-outbound-id=5B69167E9FA74069E97492406D83B397B1B445BF&utm_source=hybris-campaign&utm_medium=email&utm_campaign=000_MKQ5584_0000018821_BMCF_USG_BMCBiology_eToc_Feb20_US&utm_content=EN_internal_41685_20200206&mkt-key=005056B0331B1ED782EED4479E9C500A#auth-14)

[*BMC Biology*](https://bmcbiol.biomedcentral.com/) **volume 18**, Article number: 10 (2020) [Cite this article](https://bmcbiol.biomedcentral.com/articles/10.1186/s12915-020-0740-7?sap-outbound-id=5B69167E9FA74069E97492406D83B397B1B445BF&utm_source=hybris-campaign&utm_medium=email&utm_campaign=000_MKQ5584_0000018821_BMCF_USG_BMCBiology_eToc_Feb20_US&utm_content=EN_internal_41685_20200206&mkt-key=005056B0331B1ED782EED4479E9C500A#citeas)

Research
[The mitochondrial carrier pathway transports non-canonical substrates with an odd number of transmembrane segments](https://marketing.springernature.com:443/sap/public/cuan/link/888/5B69167E9FA74069E97492406D83B397B1B445BF?_V_=2&_K11_=9B22B5CD8C05CC06BE520AE5460D0905DFA7AF4A&_L54AD1F204_=c2NlbmFyaW89TUxDUEcmdGFyZ2V0PWh0dHBzOi8vYm1jYmlvbC5iaW9tZWRjZW50cmFsLmNvbS9hcnRpY2xlcy8xMC4xMTg2L3MxMjkxNS0wMTktMDczMy02P3NhcC1vdXRib3VuZC1pZD01QjY5MTY3RTlGQTc0MDY5RTk3NDkyNDA2RDgzQjM5N0IxQjQ0NUJGJnV0bV9zb3VyY2U9aHlicmlzLWNhbXBhaWduJnV0bV9tZWRpdW09ZW1haWwmdXRtX2NhbXBhaWduPTAwMF9NS1E1NTg0XzAwMDAwMTg4MjFfQk1DRl9VU0dfQk1DQmlvbG9neV9lVG9jX0ZlYjIwX1VTJnV0bV9jb250ZW50PUVOX2ludGVybmFsXzQxNjg1XzIwMjAwMjA2Jm1rdC1rZXk9MDA1MDU2QjAzMzFCMUVENzgyRUVENDQ3OUU5QzUwMEE&_K13_=10&_K14_=38075daae6feb2dc9ef6f89a968ed21497d31d5abceea284e8e3ba9cb47dcc13)

* Heike Rampelt et al.
* BMC Biology 2020 **18**:2

**Plant Cell**

Multiple Quality Control Mechanisms in the ER and TGN Determine Subcellular Dynamics and Salt-Stress Tolerance Function of KORRIGAN1

Yukihiro Nagashima, Zeyang Ma, Xueting Liu, Xiaoning Qian, Xiuren Zhang, Antje von Schaewen and Hisashi Koiwa

Plant Cell 2020 32: 470-485. First Published on December 18, 2019; doi:10.1105/tpc.19.00714

[http://www.plantcell.org/content/32/2/470.abstract](http://www.plantcell.org/content/32/2/470.abstract?etoc)

A concerted function of multiple sequence motifs in Arabidopsis KORRIGAN1 protein determines its destination in the secretory pathway and physiological function.

**eLIFE**

### [**Efficient conversion of chemical energy into mechanical work by Hsp70 chaperones**](https://crm.elifesciences.org/crm/sites/all/modules/civicrm/extern/url.php?u=56750&qid=17792265)

**Salvatore Assenza, Alberto Stefano Sassi ... Alessandro Barducci**

A multiscale modeling approach reveals how the energy from ATP hydrolysis is used by Hsp70 chaperones to remodel the conformation of their substrates through a novel force-generating mechanism.

### [**Reticulon proteins modulate autophagy of the endoplasmic reticulum in maize endosperm**](https://crm.elifesciences.org/crm/sites/all/modules/civicrm/extern/url.php?u=56726&qid=17792265)

**Xiaoguo Zhang, Xinxin Ding ... Marisa Otegui**

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Publisher Correction: Processive extrusion of polypeptide loops by a Hsp100 disaggregase.

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eLIFE

[Developmental Biology](https://crm.elifesciences.org/crm/sites/all/modules/civicrm/extern/url.php?u=56920&qid=17820287), [Plant Biology](https://crm.elifesciences.org/crm/sites/all/modules/civicrm/extern/url.php?u=56924&qid=17820287)

### [**Shaping the genome of plants**](https://crm.elifesciences.org/crm/sites/all/modules/civicrm/extern/url.php?u=56925&qid=17820287)

**Ajeet Chaudhary, Rachele Tofanelli, Kay Schneitz**

Fertilization of an egg cell by more than one sperm cell can produce viable progeny in a flowering plant.

[Developmental Biology](https://crm.elifesciences.org/crm/sites/all/modules/civicrm/extern/url.php?u=56920&qid=17820287), [Plant Biology](https://crm.elifesciences.org/crm/sites/all/modules/civicrm/extern/url.php?u=56924&qid=17820287)

### [**Selective egg cell polyspermy bypasses the triploid block**](https://crm.elifesciences.org/crm/sites/all/modules/civicrm/extern/url.php?u=56947&qid=17820287)

**Yanbo Mao, Alexander Gabel ... Rita Groß-Hardt**

A ménàge à trois introduces extra DNA only to plant embryos, thus skipping endosperm-induced seed hybridization barriers.

[Cell Biology](https://crm.elifesciences.org/crm/sites/all/modules/civicrm/extern/url.php?u=56932&qid=17820287), [Developmental Biology](https://crm.elifesciences.org/crm/sites/all/modules/civicrm/extern/url.php?u=56920&qid=17820287)

### [**Recruitment of mRNAs to P granules by condensation with intrinsically-disordered proteins**](https://crm.elifesciences.org/crm/sites/all/modules/civicrm/extern/url.php?u=56958&qid=17820287)

**Chih-Yung S Lee, Andrea Putnam ... Geraldine Seydoux**

The intrinsically-disordered protein MEG-3 recruits mRNAs to P granules by forming gel-like condensates with ribosome-depleted mRNAs.

**NATURE BIOTECH**

 News & Views | 14 January 2020

### [Vertical farms bear fruit](https://www.nature.com/articles/s41587-019-0400-z)

Engineering perishable crops for use in indoor farms promises to expand the adoption of this high-yielding, efficient means of food production.

Cathryn A. O’Sullivan …. & Graham D. Bonnett

Letter | 23 December 2019

### [Rapid customization of Solanaceae fruit crops for urban agriculture](https://www.nature.com/articles/s41587-019-0361-2)

Compact early fruiting tomato and groundcherry plants suitable for urban farming are produced using genome editing.

**Choon-Tak Kwon ….& Zachary B. Lippman**

**PLANT JOURNAL**

##### **[The Earth BioGenome project: opportunities and challenges for plant genomics and conservation](http://el.wiley.com/ls/click?upn=3P-2FFNDAGSso-2BACQqCJSxZQYXuyDFuSyQWVXTOVuATZfE2ZYhBvN14MKB0KVXOLGO8obGng7vSyli3t-2BN6pmypmfSBPRgOjz1-2BoMhV9vTSGbwxwDJE4QhKGEBwQEh4JM-2F6dPjqrOc5t-2FygXnXv6xEFQrSXfpK9GDDsEZqEU58z2VQP5LRgfHrjf2ePXzJA7rznmfHGi8GL4JT2Smrxd8RPhSIWYMFvho90nSWt1Flb9lJX1xWCEpJhrzPRtp8nnt5NNdVFELbsWVJVmGlwod1RylK0tp7FI53ei0cW8n0kE7VpTfPtWYEeD18qp16nL-2F52pC-2Fn9EXv-2FIM3SFzgvEQ0-2BkDF8TMWD-2F7nv82YHaJAGPuznNuJ9zZS5uV8hKy-2FSLnmTOJK8CJ9-2BhTTHRw96J5uZiC31JCi7MPTxeL1duvk0M-3DZk5b_HkAt-2FolY2N9G7SBtQolAIebGHMIcepevkbRzg2lvJN13USR46qpOU2nwZmhFKiAOgAdivE9T3NZ9ShN7-2BBCM5zWvvAHEJjlyAFn5MaIybTVGKtRwhBsWV5U8sK878aGtAMFXHTcElp7SZv78BaAtdLWbSwgVX3r1loe-2BRzvi4U618Fg3ZYBnu23vGdo-2FsD6JI-2BCqGYGNBmhb3oj2aG9NNYJhtB4h3WSLaRtDvKn3gORgXc3116yB7DqA6hyUneVR6Y4BCZ2KPvAlrq8XomqyggQWwOYhNR-2BKo5gGYGnEhHWd6PlcZtVLBlCWlYqRYVna)**

* Moises Exposito‐Alonso, Hajk‐Georg Drost, Hernán A. Burbano, Detlef Weigel

The Earth BioGenome project aims to sequence and produce reference genomes for all eukaryotic species on Earth. What biological insights do we gain from sequencing? What plant species should we sequence? Are there any foreseeable challenges? Is this the right time to sequence all species? In this Perspectives article, we address these questions and study the opportunities and challenges of the Earth BioGenome project for plant genomics and conservation.

##### [Wide‐ranging transcriptome remodelling mediated by alternative polyadenylation in response to abiotic stresses in](http://el.wiley.com/ls/click?upn=3P-2FFNDAGSso-2BACQqCJSxZQYXuyDFuSyQWVXTOVuATZfE2ZYhBvN14MKB0KVXOLGO8obGng7vSyli3t-2BN6pmypmfSBPRgOjz1-2BoMhV9vTSGbwxwDJE4QhKGEBwQEh4JM-2F6dPjqrOc5t-2FygXnXv6xEFQrSXfpK9GDDsEZqEU58z2VQP5LRgfHrjf2ePXzJA7rznmfHGi8GL4JT2Smrxd8RPhSIWYMFvho90nSWt1Flb9lJX1xWCEpJhrzPRtp8nnt5NNdVFELbsWVJVmGlwod1RylK0tp7FI53ei0cW8n0kE7VpTfPtWYEeD18qp16nL-2F5XUF03SbSFmvUUAkMtg-2FDKlKe9nAG9-2FCZIadh8KFSMPU3pvQZpNvPDNAcVd4d0Nh6A3OfLF9WXDxYTOVVDEubPxYLi1nwsMY7OtWu4H5QIhY-3DvW3t_HkAt-2FolY2N9G7SBtQolAIebGHMIcepevkbRzg2lvJN13USR46qpOU2nwZmhFKiAOgAdivE9T3NZ9ShN7-2BBCM5zWvvAHEJjlyAFn5MaIybTVGKtRwhBsWV5U8sK878aGt-2BrReKCUTyhKlAhwPp71d7BqdLGwPkcyO6BUi0XctydI0FN3G-2FRJT-2F7Bln2ByOFZ6VA5QgYVtogBKbp6CUbqjlR-2FuBMjHcKYiLq7lA-2BOTJlbemBYz3t0DfHgLpbgyObpZildp7wYjXOMT2v1pQRsjW-2FkA-2B9C47bdoK-2F-2Bicgf5S-2Bgg2pM-2FQcfxrYahSbDTwzIs) *[Sorghum](http://el.wiley.com/ls/click?upn=3P-2FFNDAGSso-2BACQqCJSxZQYXuyDFuSyQWVXTOVuATZfE2ZYhBvN14MKB0KVXOLGO8obGng7vSyli3t-2BN6pmypmfSBPRgOjz1-2BoMhV9vTSGbwxwDJE4QhKGEBwQEh4JM-2F6dPjqrOc5t-2FygXnXv6xEFQrSXfpK9GDDsEZqEU58z2VQP5LRgfHrjf2ePXzJA7rznmfHGi8GL4JT2Smrxd8RPhSIWYMFvho90nSWt1Flb9lJX1xWCEpJhrzPRtp8nnt5NNdVFELbsWVJVmGlwod1RylK0tp7FI53ei0cW8n0kE7VpTfPtWYEeD18qp16nL-2F5XUF03SbSFmvUUAkMtg-2FDKlKe9nAG9-2FCZIadh8KFSMPU3pvQZpNvPDNAcVd4d0Nh6A3OfLF9WXDxYTOVVDEubPxYLi1nwsMY7OtWu4H5QIhY-3DvW3t_HkAt-2FolY2N9G7SBtQolAIebGHMIcepevkbRzg2lvJN13USR46qpOU2nwZmhFKiAOgAdivE9T3NZ9ShN7-2BBCM5zWvvAHEJjlyAFn5MaIybTVGKtRwhBsWV5U8sK878aGt-2BrReKCUTyhKlAhwPp71d7BqdLGwPkcyO6BUi0XctydI0FN3G-2FRJT-2F7Bln2ByOFZ6VA5QgYVtogBKbp6CUbqjlR-2FuBMjHcKYiLq7lA-2BOTJlbemBYz3t0DfHgLpbgyObpZildp7wYjXOMT2v1pQRsjW-2FkA-2B9C47bdoK-2F-2Bicgf5S-2Bgg2pM-2FQcfxrYahSbDTwzIs)*

Manohar Chakrabarti, Laura de Lorenzo, Salah E. Abdel‐Ghany, Anireddy S. N. Reddy, Arthur G. Hunt

* Our study revealed extensive prevalence of alternative polyadenylation (APA) and elucidated its role in fine‐tuning the regulation of abiotic stress responses and identified a novel stress‐induced G‐rich sequence motif associated with the stress‐induced intronic APA in *Sorghum*. We also identified a large number of hitherto‐unknown abiotic stress‐responsive transcripts in *Sorghum*.

### **Nature Structural & Molecular Biology Contents: 2020 Volume #27 issue #2**

### [Structure of the Bcs1 AAA-ATPase suggests an airlock-like translocation mechanism for folded proteins](https://www.nature.com/articles/s41594-019-0364-1)

The cryo-EM structure of Bcs1, an AAA-ATPase of the inner mitochondrial membrane, reveals two large aqueous vestibules separated by a seal-forming middle domain, an architecture that suggests an airlock-like translocation mechanism for its folded substrate.

Lukas Kater […] & Roland Beckmann

### [Structures of AAA protein translocase Bcs1 suggest translocation mechanism of a folded protein](https://www.nature.com/articles/s41594-020-0373-0)

Structures of mouse Bcs, a mitochondrial membrane-bound AAA protein, in two different conformations reveal a potential mechanism of translocating folded proteins across a membrane and allow mapping of human disease-associated mutations.

Wai Kwan Tang[…]  & Di Xia