August/Sept 2020

Proceedings Of The National Academy Of Sciences Of The United States Of America

Wu, Zhiqiang; Waneka, Gus; Broz, Amanda K.; King, Connor R.; Sloan, Daniel B.

Mitochondrial and plastid genomes in land plants exhibit some of the slowest rates of sequence evolution observed in any eukaryotic genome, suggesting an exceptional ability to prevent or correct mutations. However, the mechanisms respon..

Annals Of Botany

Stress signalling dynamics of the mitochondrial electron transport chain and oxidative phosphorylation system in higher plants

Dourmap, Corentin; Roque, Solene; Morin, Amelie; Caubriere, Damien; Kerdiles, Margaux; et al.

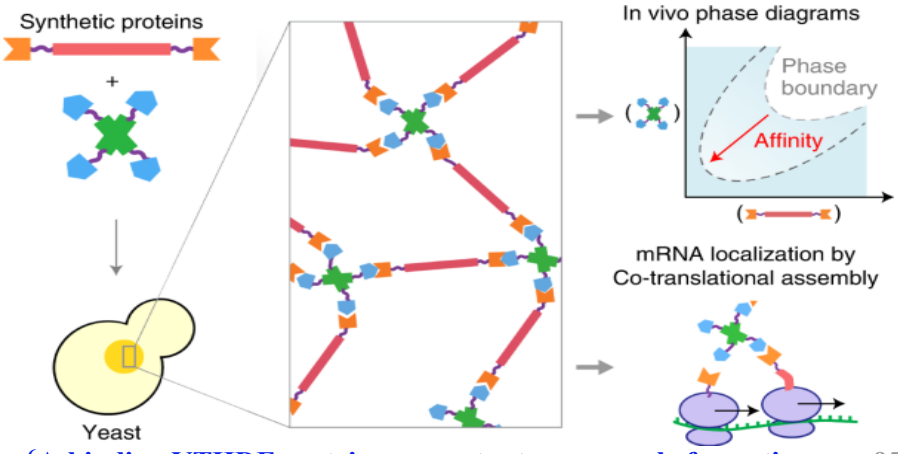
Background Mitochondria play a diversity of physiological and metabolic roles under conditions of abiotic or biotic stress. They may be directly subjected to physico-chemical constraints, and they are also involved in integrative respons...

Designer protein assemblies with tunable phase diagrams in living cells pp939 - 945

Meta Heidenreich, Joseph M. Georgeson, Emanuele Locatelli, Lorenzo Rovigatti, Saroj Kumar Nandi *et al.*

doi:10.1038/s41589-020-0576-z

A synthetic phase separation system consisting of two protein components with tunable parameters was developed to visualize and characterize phase diagrams in living cells, revealing that increasing the interaction affinity enhances phase separation and the viscosity of condensates in vivo.

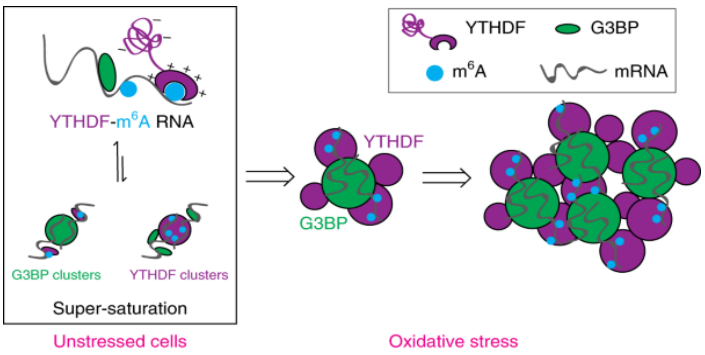


m^{6}A-binding YTHDF proteins promote stress granule formation pp955 - 963

Ye Fu & Xiaowei Zhuang

doi:10.1038/s41589-020-0524-y

Imaging studies revealed that m^{6}A-binding YTHDF proteins promoted phase separation of core proteins of stress granules by reducing the critical size and activation energy barrier, thus promoting the formation of stress granules in cells.



Jang S, Xuan Z, Lagoy RC, Jawerth LM, Gonzalez IJ, Singh M, Prashad S, Kim HS, Patel A, Albrecht DR, Hyman AA, ColÃ³n-Ramos DA.
Phosphofructokinase Relocalizes into Subcellular Compartments with Liquid-like Properties InÂ Vivo.
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Identification and Characterization of the Small Heat Shock Protein Hsp20 from Oenococcus oeni SD-2a.
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Mechanisms of sensing and response to proteotoxic stress.
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Nitric Oxide Cooperates With Auxin to Mitigate the Alterations in the Root System Caused by Cadmium and Arsenic.
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Plant Physiol Biochem. 2020 Aug 13;155:523-534. [Epub ahead of print]
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ELIFE
BIOCHEMISTRY AND CHEMICAL BIOLOGY
How to measure and evaluate binding affinities
Inga Jarmoskaite, Ishraq AlSadhan ... Daniel Herschlag
Simple guidelines and a checklist are provided for performing high-quality equilibrium binding measurements.
BIOCHEMISTRY AND CHEMICAL BIOLOGY, CELL BIOLOGY
Transient intracellular acidification regulates the core transcriptional heat shock response
Catherine G Triandafillou, Christopher D Katanski ... D Allan Drummond
When translation stops, cells require intracellular acidification to turn on the conserved heat shock response during stress, and stress-triggered acidification (common in eukaryotes) is adaptive, promoting cell and population fitness.
CHROMOSOMES AND GENE EXPRESSION
The transcriptional elongation rate regulates alternative polyadenylation in yeast
Joseph V Geisberg, Zarmik Moqtaderi, Kevin Struhl
BIOCHEMISTRY AND CHEMICAL BIOLOGY, STRUCTURAL BIOLOGY AND MOLECULAR BIOPHYSICS
The complex story of plant respiration
A high-resolution structure of the proteins responsible for respiration in plants could help to better understand this complex process.

Nature Protocols September 2020
A quantitative thiol reactivity profiling platform to analyze redox and electrophile reactive cysteine proteomes **pp2891 - 2919**
Ling Fu, Zongmin Li, Keke Liu, Caiping Tian, Jixiang He *et al.*
doi:10.1038/s41596-020-0352-2

Proteomic cysteines can undergo redox reactions and electrophile-derived modifications. In QTRP, a thiol-reactive probe is used to covalently label, enrich and quantify the reactive cysteinome in cultured cells and tissue samples.
Plant, Cell & Environment
Nitric oxide is essential for cadmium-induced peroxule formation and peroxisome proliferation
Laura C. Terrón-Camero, María Rodríguez-Serrano, Luisa M. Sandalio, María C. Romero-Puertas

A tight regulation of NO is required for optimal peroxisomal function and dependent signalling. NO is essential for peroxule production and peroxisome proliferation occurring in plant response to Cd. Additionally, peroxisome number and distribution as well as the oxidative metabolism of the organelle are altered by different levels of NO under control and stress conditions.

The Plant Journal

Functional characterization of Arabidopsis ARGONAUTE 3 in reproductive tissues

Pauline E. Jullien… Olivier Voinnet Pages: 1796-1809 | First Published: 07 June 2020

The regulation of gene expression by small RNAs is key for proper plant development and defense. Here, we characterize the expression pattern and biochemical properties of Arabidopsis AGO3 during sexual reproduction.

Nature

Published: 26 August 2020 *Nature* (2020)

A prion-like domain in ELF3 functions as a thermosensor in *Arabidopsis*

Jae-Hoon Jung, ..Philip A. Wigge

The plant response to heat requires phase separation

Temperature determines the geographical distribution of plants and their rate of growth and development, but how they sense high temperatures to mount a response was unclear. Now a process underlying this responsiveness is known.

Simon Alberti

New Guinea has the world's richest island flora

A catalogue of the vascular flora of New Guinea indicates that this island is the most floristically diverse in the world, and that 68% of the species identified are endemic to New Guinea.

Rodrigo Cámara-Leret, David G. Frodin, Frits Adema *et al.*

An intramembrane chaperone complex facilitates membrane protein biogenesis

The PAT complex, an intramembrane chaperone complex comprising the ER-resident membrane proteins CCDC47 and Asterix, directly interacts with nascent transmembrane domains to facilitate the biogenesis of multi-spanning membrane

BIoRXIV

Hydration-dependent phase separation of a prion-like protein regulates seed germination during water stress

doi: https://doi.org/10.1101/2020.08.07.242172

CELL

A Defense Pathway Linking Plasma Membrane and Chloroplasts and Co-opted by Pathogens

Pages 1109-1124.e25

Laura Medina-Puche, Huang Tan, Vivek Dogra, Mengshi Wu, Tabata Rosas-Diaz, Liping Wang, Xue Ding, Dan Zhang, Xing Fu, Chanhong Kim, Rosa Lozano-Duran

- Published: 02 September 2020

Crop genomes and beyond

Nature Genetics **volume 52**, page865(2020)Cite this article

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Mitochondrial [4Fe-4S] protein assembly involves reductive [2Fe-2S] cluster fusion on ISCA1-ISCA2 by electron flow from ferredoxin FDX2.
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Plant, Cell & Environment

The seed-specific heat shock factor A9 regulates the depth of dormancy in *Medicago truncatula* seeds via ABA signalling
Julia Zinsmeister …Julia Buitink
First published: 19 July 2020
https://doi-org.silk.library.umass.edu/10.1111/pce.13853

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J Exp Bot. 2020 Sep 2;. [Epub ahead of print]
PMID: 32877919 [PubMed - as supplied by publisher]

The Plant Journal
Review Article

Dae Kwan Ko, Federica Brandizzi

Significance Statement

Understanding gene function is a critical requirement to advance knowledge of the principles underpinning fundamental and applied plant biology. In this review, we describe predictive analyses, their strengths and pitfalls that are fast-forwarding our understanding of gene regulation and function in plants.

Differential submergence tolerance between juvenile and adult Arabidopsis plants involves the ANAC017 transcription factor Liem T. Bui, … Francesco Licausi, Beatrice Giuntoli

First Published: 29 August 2020

Trends In plant Science

Emerging Plant Thermosensors: From RNA to Protein

Available Online 06 September 2020

Jingya Lin, Yang Xu, Ziqiang Zhu