

EMBO journal.
v. 33, no. 22 (Nov. 18 2014)
General Collection
W1 EM369D
2015-01-21 08:35:15

THE EMBO JOURNAL

Volume 33 Number 22 | 18 November 2014

Bacteriophage T4 head
(fold along edges)

Shigella reprograms host
histone code

Arf1 moonlighting
morphs mitochondria

Cohesion needs splicing



PROPERTY OF THE
NATIONAL
LIBRARY OF
MEDICINE

Genome & Co. v. Univ. of Chicago
PGR2019-00002
UNIV. CHICAGO EX. 2075

DOCKET
A L A R M

Find authenticated court documents without watermarks at docketalarm.com.

ISSN 0261-4189 (print)
ISSN 1460-2075 (online)

Printed on acid-free paper

© 2014 EMBO

Embo Journal is published by WILEY-VCH Verlag GmbH & Co. KGaA, Boschstraße 12, D-69469 Weinheim, Germany, telephone 49-(0) 6201 606-0.

Typesetting: Scientific Publishing Services (P) Ltd, India

Printed in the UK by Page Bros Ltd.

Correspondence concerning advertisements should be addressed to WILEY-VCH Verlag GmbH & Co. KGaA, Boschstraße 12, D-69469 Weinheim, Telephone 49-(0) 62 01 606-385, Telefax 49-(0) 6201 606-91205, embopressproduction@wiley.com

USA (www.copyright.com), provided the appropriate fee is paid directly to the RRO. This consent does not extend to other kinds of copying such as copying for general distribution, for advertising or promotional purposes, for creating new collective works or for resale. Special requests should be addressed to: permissionsuk@wiley.com

Embo Journal (0261-4189), is published semi-monthly. US mailing agent: SPP, Po Box 437, Emigsville, PA 17318. Periodicals postage paid at Emigsville PA. Postmaster: Send all address changes to Embo Journal, John Wiley & Sons Inc., C/O The Sheridan Press, PO Box 465, Hanover, PA 17331.

Journal Customer Services: For ordering information, claims and any enquiry concerning your journal subscription please go to www.wileycustomerhelp.com/ask or contact your nearest office.

America: Email: cs-journals@wiley.com; Tel: +1 781 388 8598 or +1 800 835 6770 (toll free in the USA & Canada).

Europe, Middle East and Africa: Email: csjournals@wiley.com; Tel: +44 (0) 1865 778315.

Asia Pacific: Email: cs-journals@wiley.com; Tel: +65 6511 8000.

Japan: For Japanese speaking support, Email: cs-japan@wiley.com; Tel: +65 6511 8010 or Tel (toll-free): 005 316 50 480.

Visit our Online Customer Get-Help available in 6 languages at www.wileycustomerhelp.com.

Information for Subscribers

Embo Journal is published 24 issues per year. Institutional subscription prices for year 2015 are:

Customer Type*	THE EMBO Journal and EMBO reports Package		
	small	medium	large
FTE Academic Customer	≤10000	≤40000	40000+
FTE Corporate/Government Customer	≤1000	≤10000	10000+
Subscription Rate (print & electronic / print only/ electronic only)			
Europe €	3395/2829/2829	4965/2829/4137	6294/2829/5245
UK £	2748/2320/2320	4069/2320/3391	5160/2320/4300
Switzerland SFr	4109/3424/3424	6007/3424/5006	7618/3424/6348
Rest of World US \$	4386/3655/3655	6413/3655/5344	8131/3655/6776

* Rates for hospitals upon request.

These prices are for customers who have not previously subscribed to EMBO titles.

EMBO customers, please contact cs-agency@wiley.com

Prices are exclusive of tax. Postage and handling charges included.

Asia-Pacific GST, Canadian GST and European VAT will be applied at the appropriate rates. For more information on current tax rates, please go to www.wileyonlinelibrary.com/taxvat. The price includes online access to the current and all online back files to January 1st 2010, where available. For other pricing options, including access information and terms and conditions, please visit www.wileyonlinelibrary.com/access.

Books for review: Uninvited copies not chosen for review will not be returned.

Copyright © 2014 EMBO. All rights reserved. No part of this publication may be reproduced, stored or transmitted in any form or by any means without the prior permission in writing from the copyright holder. Authorization to copy items for internal and personal use is granted by the copyright holder for libraries and other users registered with their local Reproduction Rights Organisation (RRO), e.g. Copyright Clearance Center (CCC), 222 Rosewood Drive, Danvers, MA 01923,

Delivery Terms and Legal Title: Where the subscription price includes print issues and delivery is to the recipient's address, delivery terms are Delivered at Place (DAP); the recipient is responsible for paying any import duty or taxes. Title to all issues transfers FOB our shipping point, freight prepaid. We will endeavour to fulfil claims for missing or damaged copies within six months of publication, within our reasonable discretion and subject to availability.

Back issues: Single issues from current and volumes are available at the current single issue price from cs-journals@wiley.com. Earlier issues may be obtained from Periodicals Service Company, 11 Main Street, Germantown, NY 12526, USA. Tel: +1 518 537 4700, Fax: +1 518 537 5899, Email: psc@periodicals.com

EMBJ accepts articles for Open Access publication. Please visit <http://olabout.wiley.com/WileyCDA/Section/id-406241.html> for further information about OnlineOpen.

View this journal online at wileyonlinelibrary.com and highwire.stanford.edu

Disclaimer

The Publisher, Society and Editors cannot be held responsible for errors or any consequences arising from the use of information contained in this journal; the views and opinions expressed do not necessarily reflect those of the Publisher, Society and Editors, neither does the publication of advertisements constitute any endorsement by the Publisher, Society and Editors of the products advertised.

Wiley's Corporate Citizenship initiative seeks to address the environmental, social, economic, and ethical challenges faced in our business and which are important to our diverse stakeholder groups. Since launching the initiative, we have focused on sharing our content with those in need, enhancing community philanthropy, reducing our carbon impact, creating global guidelines and best practices for paper use, establishing a vendor code of ethics, and engaging our colleagues and other stakeholders in our efforts. Follow our progress at www.wiley.com/go/citizenship.

Home Page

emboj.embopress.org

Editorial Office:

contact@embojournal.org

Marketing

L. Miller (email: lmiller@wiley.com)

Production, Reprints

Andrea Riesenköning
(email: embopressproduction@wiley.com)

Copyright Permissions

rights@wiley-vch.de

Table of contents

Editorial

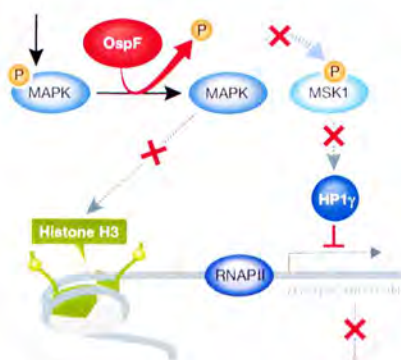
- 2597 Transparent, Reproducible Data**
Bernd Pulverer

Have you seen?

- 2598 *Shigella* hacks host immune responses by reprogramming the host epigenome**
Hiroshi Ashida & Chihito Sasakawa
- 2601 Splicing together sister chromatids**
Juan Valcárcel & Marcos Malumbres
- 2604 Old dog, new tricks: Arf1 required for mitochondria homeostasis**
Catherine Rabouille

Articles

- 2606 *Shigella flexneri* targets the HP1 γ subcode through the phosphothreonine lyase OspF**
Habiba Harouz, Christophe Rachez, Benoit M Meijer, Benoit Marteyn, Françoise Donnadieu, Florence Cammas, Christian Muchardt, Philippe Sansonetti & Laurence Arbibe
- 2623 Functional genomics identifies a requirement of pre-mRNA splicing factors for sister chromatid cohesion**
Sriramkumar Sundaramoorthy, María Dolores Vázquez-Novelle, Sergey Lekontsev, Michael Howell & Mark Petronczki
- 2643 SNW1 enables sister chromatid cohesion by mediating the splicing of sororin and APC2 pre-mRNAs**
Petra van der Lelij, Roman R Stocsits, Rene Ladurner, Georg Petzold, Emanuel Kreidl, Birgit Koch, Julia Schmitz, Beate Neumann, Jan Ellenberg & Jan-Michael Peters
- 2659 The small GTPase Arf1 modulates mitochondrial morphology and function**
Karin B Ackema, Jürgen Hench, Stefan Böckler, Shyi Chyi Wang, Ursula Sauder, Heidi Mergentaler, Benedikt Westermann, Frédéric Bard, Stephan Frank & Anne Spang
- 2676 OPA1-dependent cristae modulation is essential for cellular adaptation to metabolic demand**
David A Patten, Jacob Wong, Mireille Khacho, Vincent Soubannier, Ryan J Mailloux, Karine Pilon-Larose, Jason G MacLaurin, David S Park, Heidi M McBride, Laura Trinkle-Mulcahy, Mary-Ellen Harper, Marc Germain & Ruth S Slack



Have you seen? 2598

Chromatin, Epigenetics, Genomics & Functional Genomics; Microbiology, Virology & Host Pathogen Interaction

DNA Replication, Repair & Recombination; RNA Biology

DNA Replication, Repair & Recombination; RNA Biology

Membrane & Intracellular Transport

Membrane & Intracellular Transport; Metabolism

2692 Crystal structure of a c-di-AMP riboswitch reveals an internally pseudo-dimeric RNA



Christopher P Jones & Adrian R Ferré-D'Amaré

RNA Biology; Structural Biology

2704 Inhibitor-3 ensures bipolar mitotic spindle attachment by limiting association of SDS22 with kinetochore-bound protein phosphatase-1



Annika Eiteneuer, Jonas Seiler, Matthias Weith, Monique Beullens, Bart Lesage, Veronica Krenn, Andrea Musacchio, Mathieu Bollen & Hemmo Meyer

Cell Cycle; Post-translational Modifications, Proteolysis & Proteomics

2721 Peripheral natural killer cell maturation depends on the transcription factor Aiolos



Melissa L Holmes, Nicholas D Huntington, Rebecca PL Thong, Jason Brady, Yoshihiro Hayakawa, Christopher E Andoniou, Peter Fleming, Wei Shi, Gordon K Smyth, Mariapia A Degli-Esposti, Gabrielle T Belz, Axel Kallies, Sebastian Carotta, Mark J Smyth & Stephen L Nutt

Immunology; Transcription

Corrigendum

2735 Tubulin glycyllases are required for primary cilia, control of cell proliferation and tumor development in colon

Cecilia Rocha, Laura Papon, Wulfran Cacheux, Patricia Marques Sousa, Valeria Lascano, Olivia Tort, Tiziana Giordano, Sophie Vacher, Benedicte Lemmers, Pascale Mariani, Didier Meseure, Jan Paul Medema, Ivan Bièche, Michael Hahne & Carsten Janke



Open-access article distributed under the terms of a Creative Commons Attribution License



Source Data: figures are complemented by primary data



Transparent Process: anonymous referee reports and editorial/author correspondence are published alongside the research article

Cover: The Mechanics of Bacteriophage T4 – The artist, Janice Wong, is a medical/scientific illustrator and animator (steampunk_medical@hotmail.com). Her passions include combining creativity, imagination, and science to create engaging images. Janice writes about this image, "Initially when I started composing this piece in 3D, I wanted a more 'natural' environment that is more typical of medical art. However, I was so captivated by the 'mechanical' nature of the bacteriophage T4 that I just ran with the idea and created something more original with a steampunk look and feel. I wanted it to look as if someone sat at his/her desk and worked meticulously in constructing an actual bacteriophage, fashioned from bits and pieces of scraps salvaged from all different sources. Despite the steampunk look, I took care in ensuring that the bacteriophage is accurately represented, eg, its head is icosahedral with all the surface proteins

Editorial

Transparent, Reproducible Data

Bernd Pulverer

New guidelines for the reporting of research and source data enhance the interpretation and reproducibility of published research.

Source Data—a new dimension for research papers

The scientific research paper remains the main mode of sharing scientific information. Two key aspects contribute to the unabated success of this format, despite the myriad possibilities for new ways to share research in an online world: Independent validation by peer review and the juxtaposition of research results—presented in figures, tables, and videos—with the authors' textual interpretation of these results. For many years, publishers have focused largely on rendering text for publication and search engines are limited to indexing the title, abstract, introduction, results, methods and discussion sections of a paper. Yet, the claims made in a paper rely on data selected by the authors and synthesized into figures that illustrate the findings for the human reader. Figures are the heart of the paper and should open a vista on the research data. Unfortunately, that view is currently often limited to data visualizations and illustrations. As we have reported previously (Lemberger, 2010; Pulverer, 2014a,b), we encourage the presentation of Source Data, and indeed links to Source Data are already available in many figures in the journal. Source Data provides access to minimally processed versions of the data underlying figures such as data files used to plot graphs and experimental replicates or less cropped versions of representative data shown in a figure panel. Source Data can also include higher resolution renderings of data compressed in figures for efficient downloading.

Source Data provides a foundation to a paper that affords a much richer view of the findings discussed and enables reanalysis and reuse by the interested reader, as well as computational access. (The data are published under a CC-0 license.) It also provides an efficient means to archive data in close juxtaposition with the paper that discusses the findings.

A central tenet of publishing is to ensure reproducibility. This requires the transparent and detailed reporting and sharing not only of the data, but also the underlying methods and reagents. Our goal is to develop method sections that satisfy these conditions, including detailed experimental protocols and reagents that can be identified unambiguously, and which link directly to the relevant figure panels and data. We are conscious that these enhancements will need to tie into the development of digital laboratory management tools that allow submission of this information without unreasonably burdening the authors.

Checklist for reporting life sciences research

This journal and its three EMBO Press siblings have introduced a **Checklist for Authors** in order to enhance and standardize the reporting of key information in research papers and to support reanalysis and repetition of experiments by the community. Reporting standards are well established in clinical research; the aim of this checklist is to consistently capture essential information in preclinical research and to ensure that authors, editors, and referees can cross-check efficiently whether these basic requirements for reporting reliable research have been met. While completion of the list at initial submission is welcome, we only require completion upon revision of a manuscript—a stage when publication is highly

likely at *The EMBO Journal* (Pulverer, 2014a). The checklist highlights requirements from the journal's guide to authors that are often overlooked, including key information for figure panels and captions, appropriate statistical treatment for data, the reporting of reagents, animal models and human subject-derived data, as well as guidance to optimize data accessibility. The focus is on the molecular and cell biological research typically reported in *The EMBO Journal*.

The checklist is similar to guidance issued by a number of other journals, including *Nature* and *Science*. It is consistent with the **Principles and Guidelines for Reporting Preclinical Research** published this month by a group of journals including the four EMBO Press journals. The principles were agreed at a workshop held under the auspices of the NIH earlier this summer, where it was agreed that journals have a responsibility to act as gatekeepers for a reliable literature.

Please review the checklist even if you are not preparing a manuscript for publication at this time—the points highlighted will help inform the planning of a successful research project wherever you plan to submit your results. Please also regard this as a living document—we hope to obtain your feedback to add to and revise the information periodically. The list is intended to help our authors publish transparent and reproducible research papers; it is emphatically not to make the publication process more cumbersome.

References

- Lemberger T (2010) From bench to website. *Mol Syst Biol* 6: 410
- Pulverer B (2014a) EMBO Press—a new way to publish. *EMBO J* 33: 1–2
- Pulverer B (2014b) STAP dance. *EMBO J* 33: 1285–1286