Data sharing, credit and re-use: who's accountable?

Data Management & Open Data;
Open Science & Reproducibility Series, Lausanne 2017

Catriona MacCallum, Advocacy Director, PLOS
Member of the Boards OASPA, OpenAire
& Royal Society (Publishing);
Member of the RCUK OA Practitioner's Group
& UUUK Working Group on OA Efficiencies

May 2017

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@PLOS, @catmacOA

PLOS Mission

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PLOS – a publisher since 2003

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	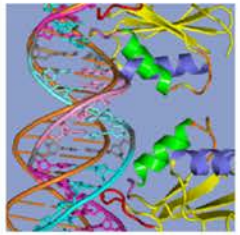		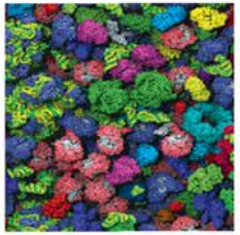	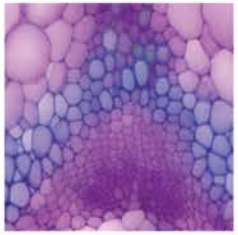		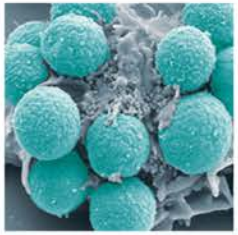
SCOPE All areas of science.	**SCOPE** All areas of biological science, from molecules to ecosystems.	**SCOPE** All areas of medical science, clinical practice and health policy.	**SCOPE** Computational methods applied to all aspects of living systems.	**SCOPE** Genetics and genomics of all organisms.	**SCOPE** Neglected tropical diseases; scientific, medical and public health research.	**SCOPE** Pathogens and interactions with host organisms.
FEATURES All technically sound research, regardless of its anticipated impact.	**FEATURES** Exceptional research that impacts thinking in each field and beyond.	**FEATURES** Exceptional research on challenges to human health worldwide.	**FEATURES** Leading computational research across biology, including methods and software articles.	**FEATURES** Leading research in all areas of biology using the approaches of genetics and genomics.	**FEATURES** Leading research in all areas of neglected tropical diseases, including health policy.	**FEATURES** Leading research on pathogenesis of infectious diseases.
PEER-REVIEWED	**PEER-REVIEWED**	**PEER-REVIEWED**	**PEER-REVIEWED**	**PEER-REVIEWED**	**PEER-REVIEWED**	**PEER-REVIEWED**
ARTICLES PUBLISHED IN 2013 31,524	**ARTICLES PUBLISHED IN 2013** 292	**ARTICLES PUBLISHED IN 2013** 219	**ARTICLES PUBLISHED IN 2013** 553	**ARTICLES PUBLISHED IN 2013** 874	**ARTICLES PUBLISHED IN 2013** 623	**ARTICLES PUBLISHED IN 2013** 739
PUBLICATION FEE $1,350 USD	**PUBLICATION FEE** $2,900 USD	**PUBLICATION FEE** $2,900 USD	**PUBLICATION FEE** $2,250 USD	**PUBLICATION FEE** $2,250 USD	**PUBLICATION FEE** $2,250 USD	**PUBLICATION FEE** $2,250 USD
URL plosone.org	**URL** plosbiology.org	**URL** plosmedicine.org	**URL** ploscompbiol.org	**URL** plosgenetics.org	**URL** plosntds.org	**URL** plospathogens.org

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Free Availability and Unrestricted Use

- ✓ Free access – *no charge to access*
- ✓ No embargos – *immediately available*
- ✓ Reuse – *Creative Commons Attribution License (CC BY) - use with proper attribution*

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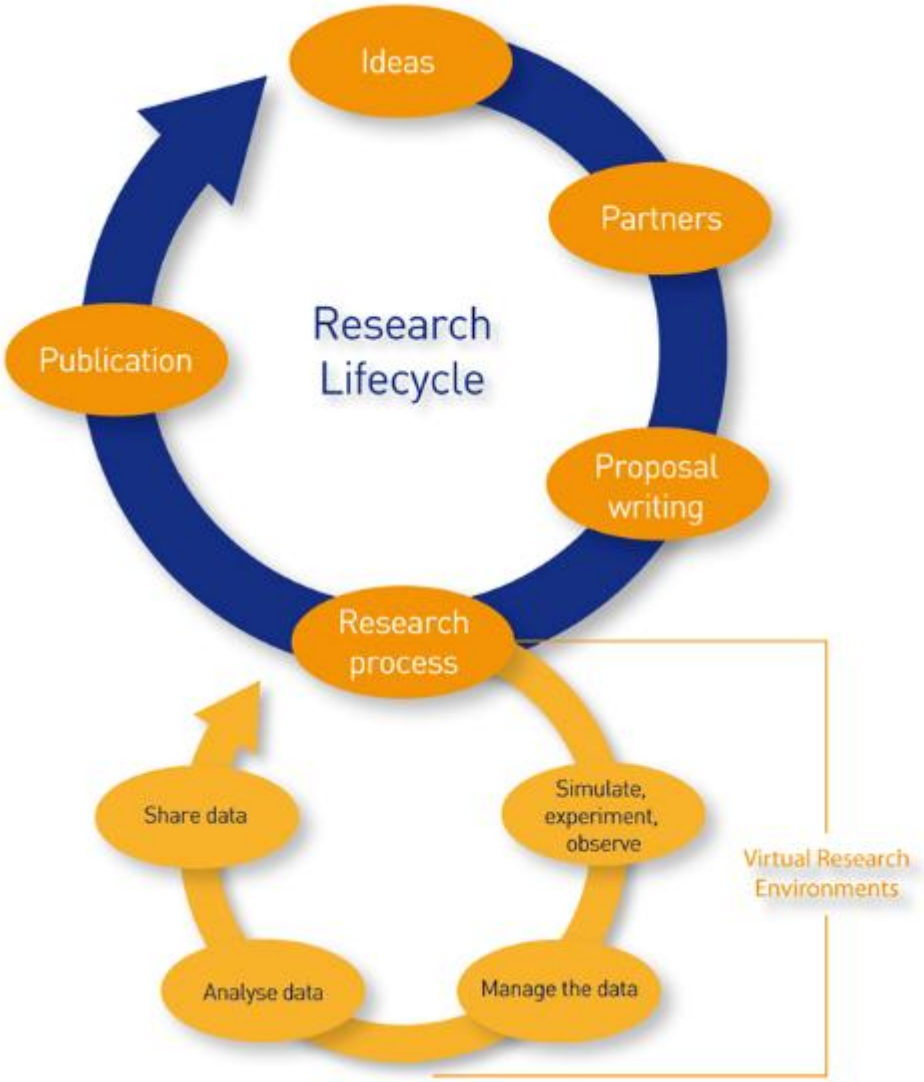

What is publishing?

http://www.webarchive.org.uk/wayback/archive/20140615113149/http://www.jisc.ac.uk/whatwedo/campaigns/res3/jischelp.aspx

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It’s no longer just about journals or books

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It’s not a cycle…

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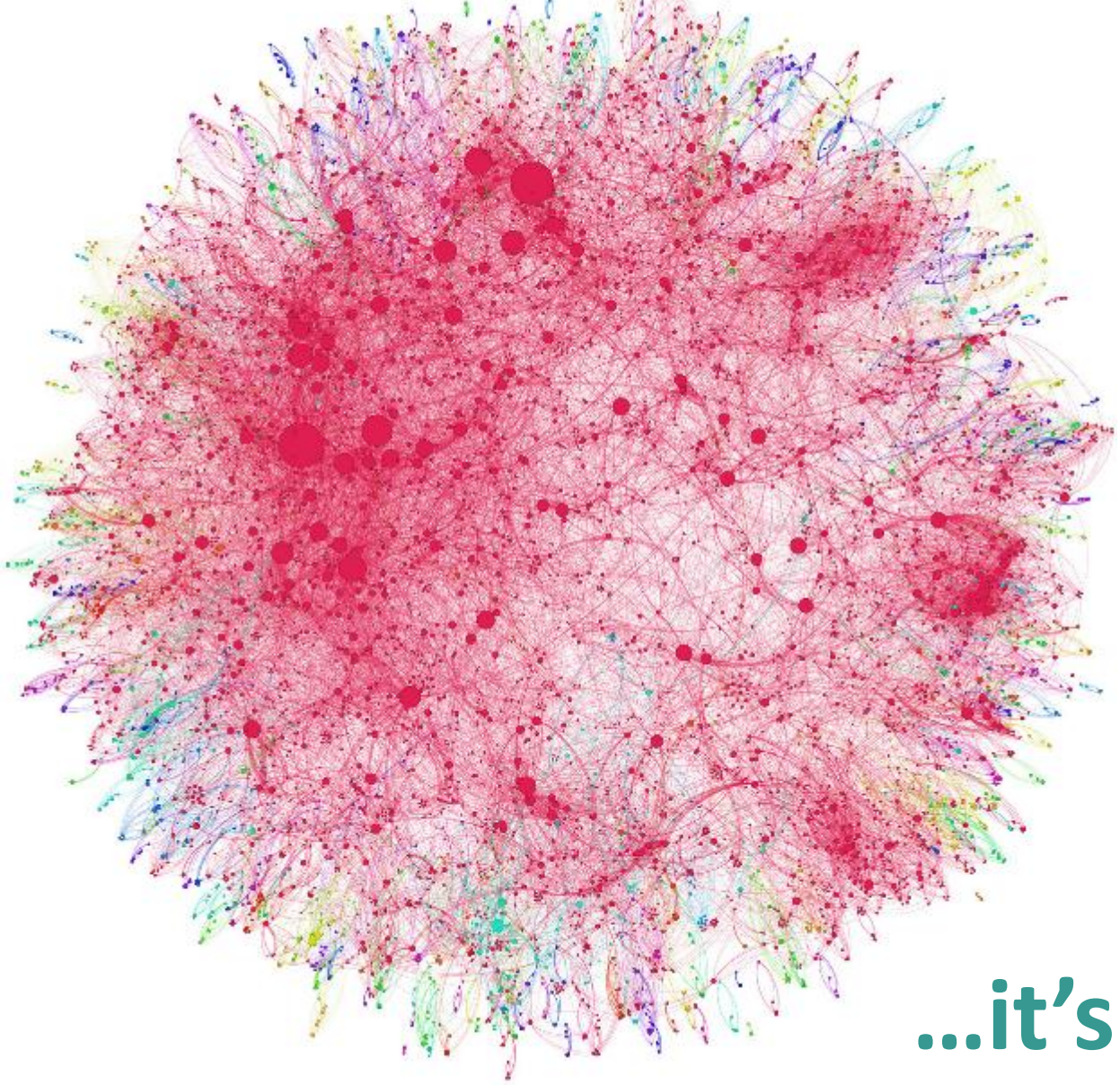

…it's a Network

Image: Andy Lamb, CC BY https://www.flickr.com/photos/speedoflife/8273922515/in/photostream/

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it's about connections...

Ingy the Wingy CC BY https://www.flickr.com/photos/ingythewingy/4793928695/in/photostream/

People

Organisations

Objects, facts, ideas

Events

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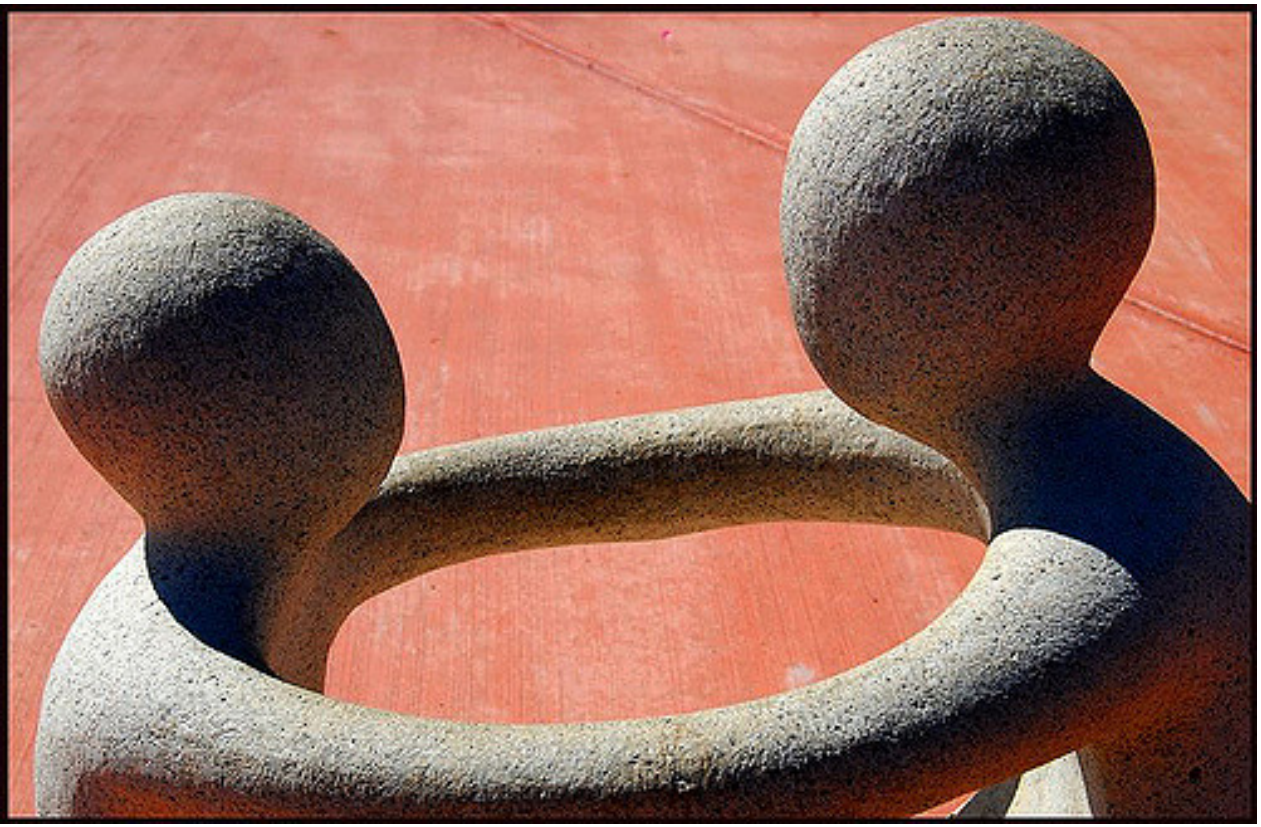
and relationships...



jurek d. Connection CC BY-NC 2.0 https://flic.kr/p/4x8LrS

People

Organisations

Objects, facts, ideas

Events

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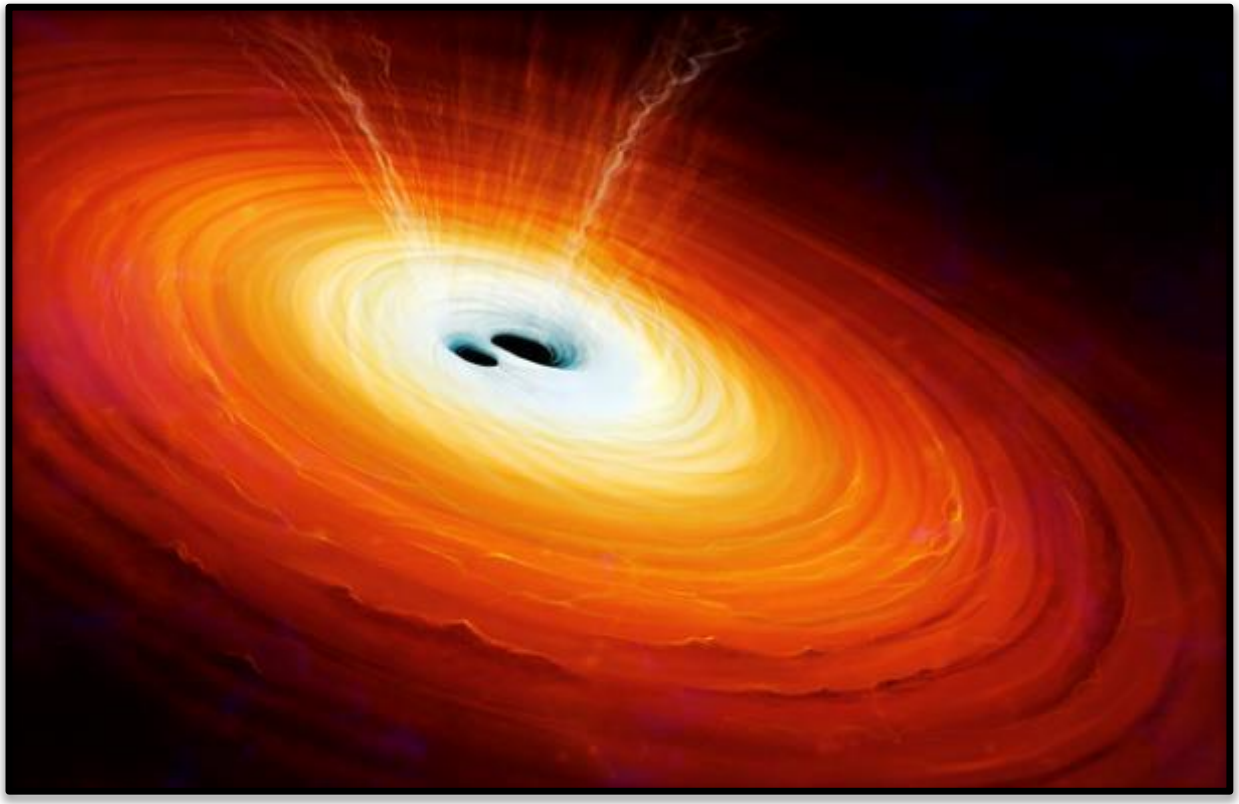
and discovery...



Lwp Kommunikáció, Discovery Science CC BY 2.0 https://flic.kr/p/dyurmR

People

Organisations

Objects, facts, ideas

Events

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“Open science is about the way researchers work, collaborate, interact, share resources and disseminate results.

….will bring huge benefits for science itself, as well as for its connection with society. “

Amsterdam Call For Action April 2016
https://english.eu2016.nl/latest/news/2016/04/05/eu-action-plan-for-open-science

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Research INTEGRITY

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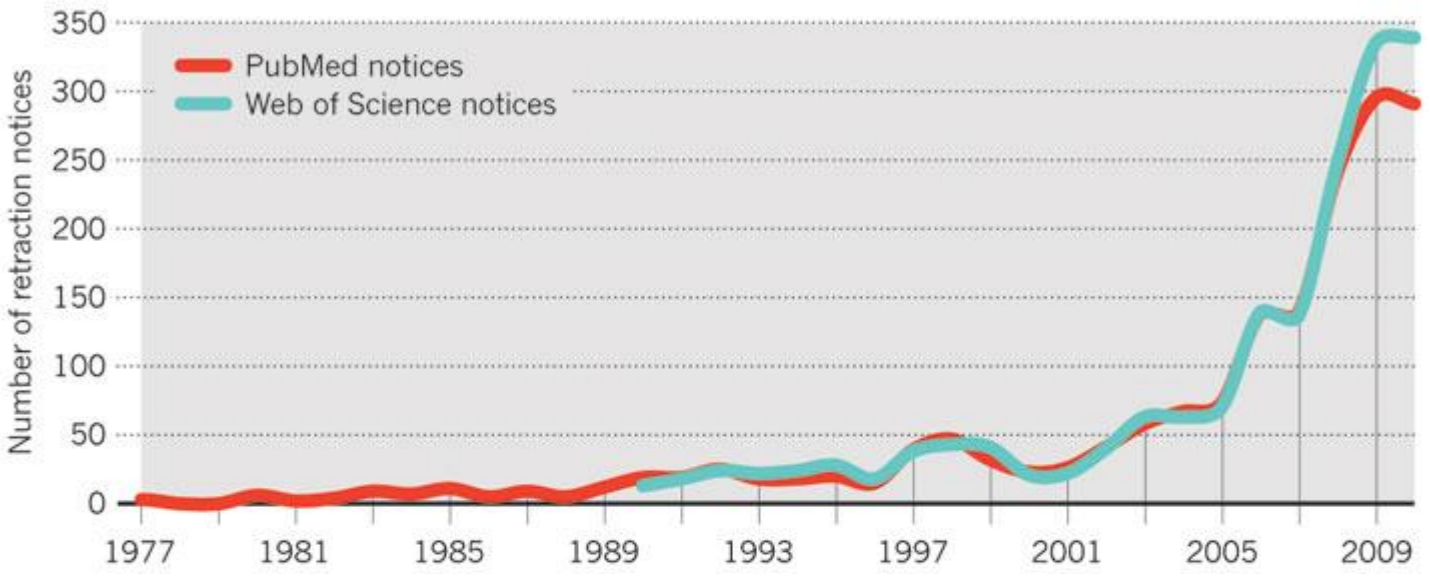
Public Trust & accountability

Retraction trends



In same period,
volume of papers increased by 44%

Van Noorden, Nature 478, 26-28 (2011)

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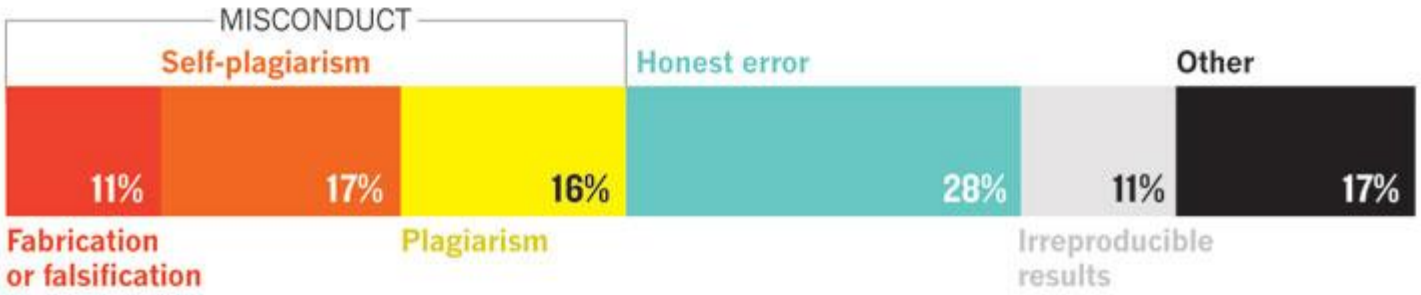
Why are papers retracted?



Van Noorden, Nature 478, 26-28 (2011)

PNAS

Misconduct accounts for the majority of retracted scientific publications

Ferric C. Fang[a,b,1], R. Grant Steen[c,1], and Arturo Casadevall[d,1,2]

Departments of [a]Laboratory Medicine and [b]Microbiology, University of Washington School of Medicine, Seattle, WA 98195; [c]MediCC! Medical Communications Consultants, Chapel Hill, NC 27517; and [d]Department of Microbiology and Immunology, Albert Einstein College of Medicine, Bronx, NY 10461

Edited by Thomas Shenk, Princeton University, Princeton, NJ, and approved September 6, 2012 (received for review July 18, 2012)

A detailed review of all 2,047 biomedical and life-science research articles indexed by PubMed as retracted on May 3, 2012 revealed that only 21.3% of retractions were attributable to error. In contrast,

published by the authors of a manuscript in the *Journal of Cell Biology* stated that "In follow-up experiments . . . we have shown that the lack of FOXO1a expression reported in figure 1 is not

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Is science reliable ?

- Poorly Designed studies
  - small sample sizes, lack of randomisation, blinding and controls
- 'p-hacking' (selective analyses) widespread[1]
- Poorly reported methods & results[2]
- Negative/inconclusive results are not published
- Data not available to scrutinise/replicate

Science Communication

[1]Head ML, Holman L, Lanfear R, Kahn AT, Jennions MD (2015) The Extent and Consequences of P-Hacking in Science. PLoS Biol 13(3): e1002106. doi:10.1371/journal.pbio.1002106
[2]Landis SC, et al. (2012) A call for transparent reporting to optimize the predictive value of preclinical research. Nature 490(7419): 187–191.

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ESSAY

Why Most Published Research Findings Are False

John P. A. Ioannidis

Published: August 30, 2005 • DOI: 10.1371/journal.pmed.0020124

Abstract

Summary

There is increasing concern that most current published research findings are false. The probability that a research claim is true may depend on study power and bias, the number of other studies on the same question, and, importantly, the ratio of true to no relationships among the relationships probed in each scientific field. In this framework, a research finding is less likely to be true when the studies conducted in a field are smaller; when effect sizes are smaller; when there is a greater number and lesser preselection of tested relationships; where there is greater flexibility in designs, definitions, outcomes, and analytical modes; when there is greater financial and other interest and prejudice; and when more teams are involved in a scientific field in chase of statistical significance. Simulations show that for most study designs and settings, it is more likely for a research claim to be false than true. Moreover, for many current scientific fields, claimed research findings may often be simply accurate measures of the prevailing bias. In this essay, I discuss the implications of these problems for the conduct

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- Large, independent editorial board
- Manuscripts assessed only on the rigour of the science, not the novelty/scope of the topic

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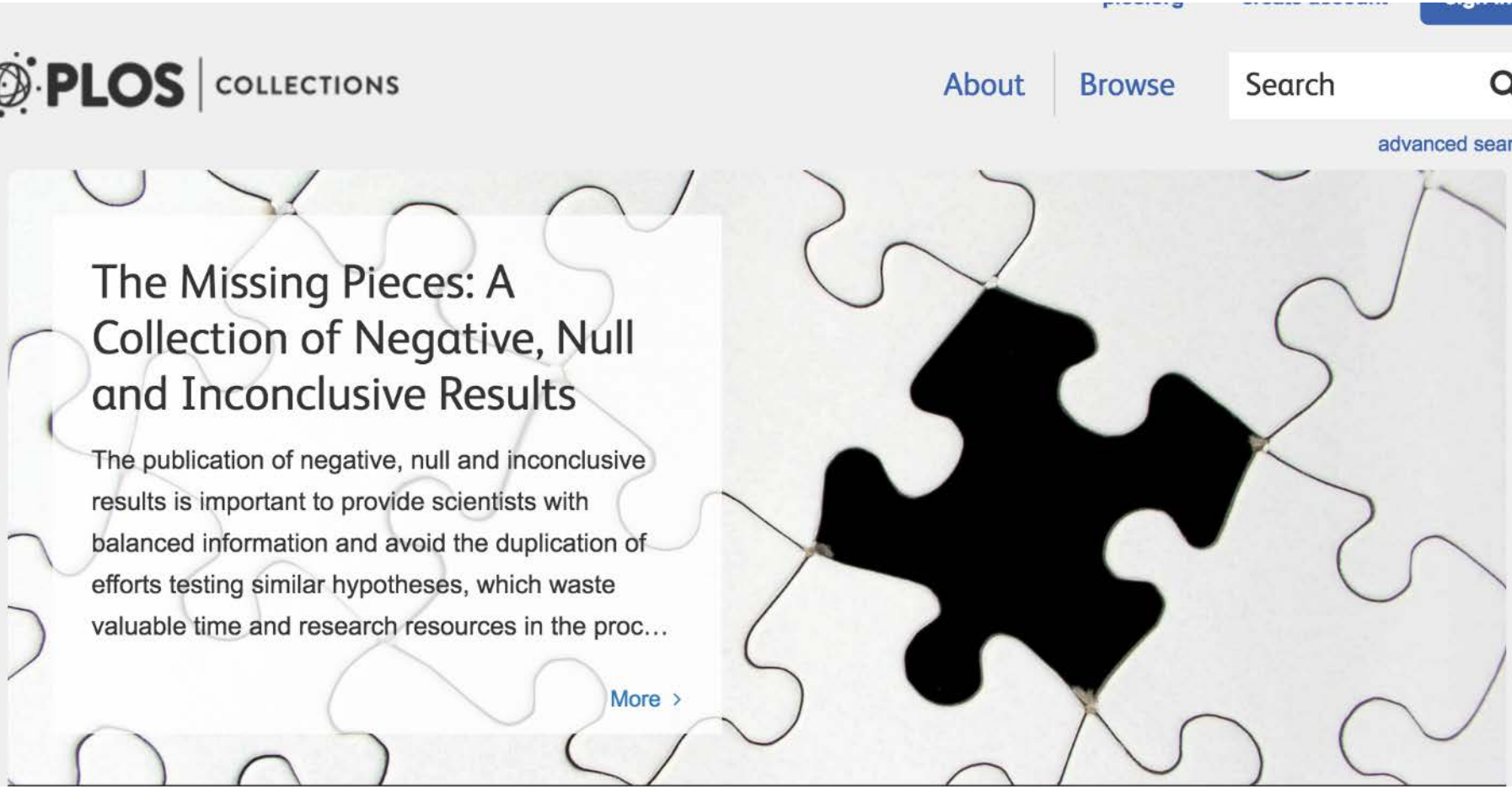
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The Missing Pieces: A Collection of Negative, Null and Inconclusive Results
The publication of negative, null and inconclusive results is important to provide scientists with balanced information and avoid the duplication of efforts testing similar hypotheses, which waste valuable time and research resources in the proc…
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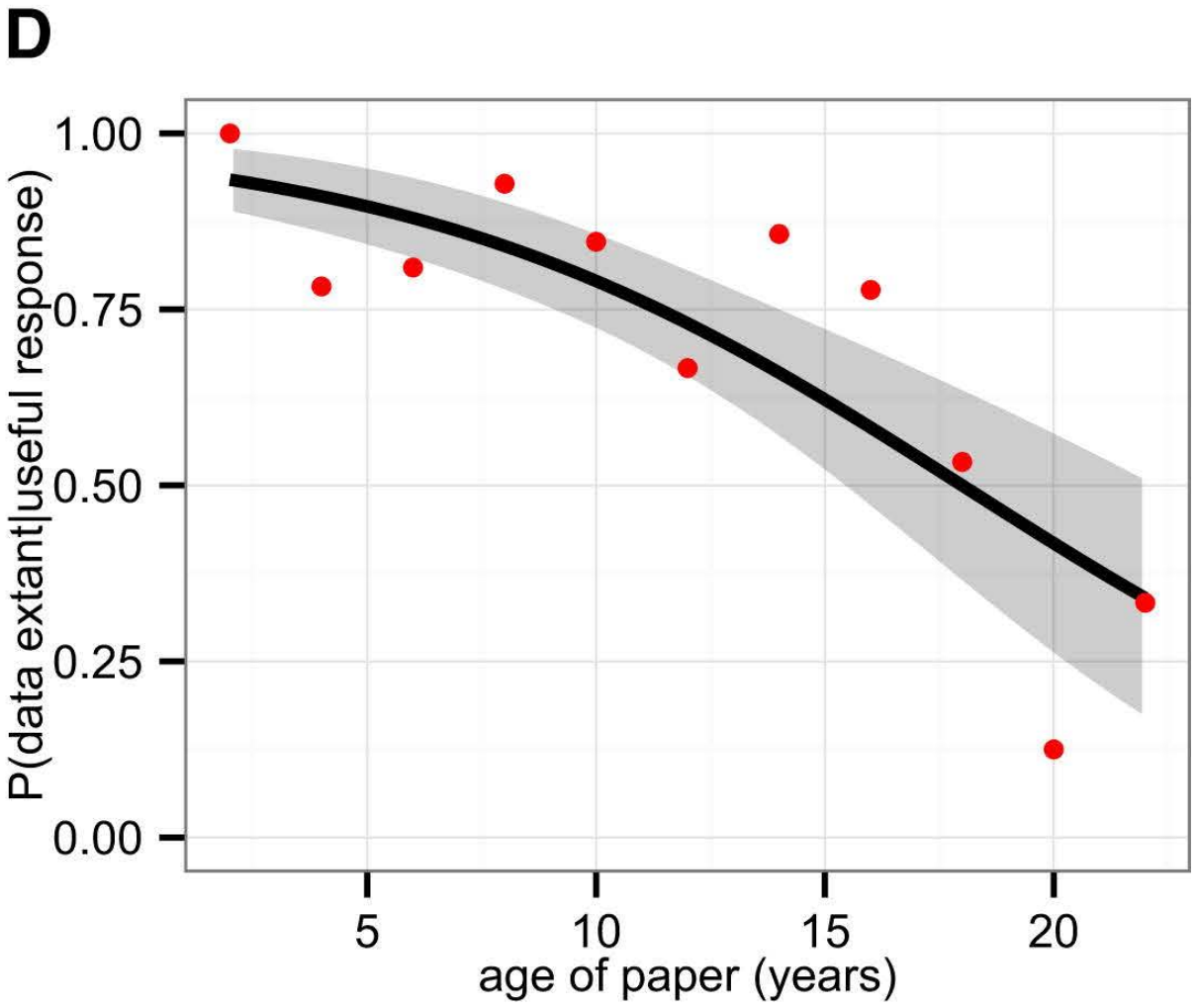
Data

Data Availability



Probability of finding the data associated with a paper declined by 17% every year

Vines, Timothy et al. “The Availability of Research Data Declines Rapidly with Article Age.” Current Biology 24, no. 1 (June 1, 2014): 94–97. doi:10.1016/j.cub.2013.11.014.

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PLOS Data Policy

- PLOS journals require authors to make all data underlying the findings described in their manuscript fully available without restriction, with rare exception.

- When submitting a manuscript online, authors must provide a *Data Availability Statement* describing compliance with PLOS's policy.

Since March 2014

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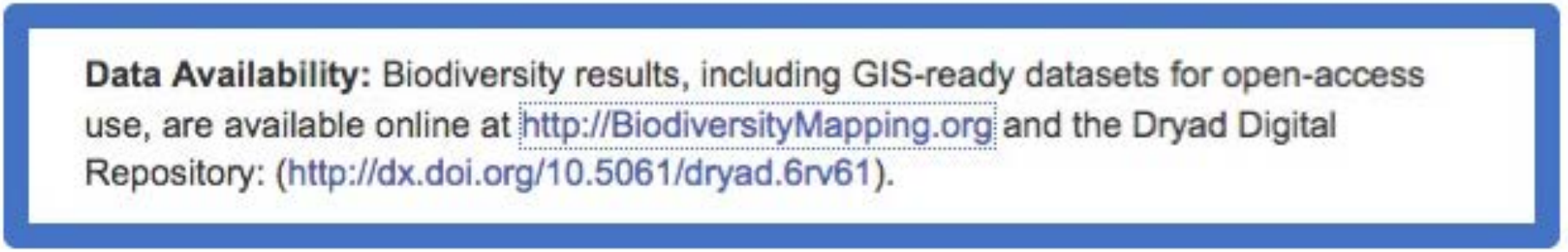
Making Progress Toward Open Data: Reflections on Data Sharing at PLOS ONE



Example Data Availability Statement from Jenkins CN, et al. PLoS ONE. https://doi.org/10.1371/journal.pone.0145064.

Meg Byrne EveryONE May 8 2017: Making Progress Toward open Data
http://blogs.plos.org/everyone/2017/05/08/making-progress-toward-open-data/

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External Data Advisory Group

- Academic Chair: Phil Bourne
- 40 experts across the world with representatives from all PLOS journals

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Guidance for Contributors

- FAQs consistently updated

  http://journals.plos.org/plosone/s/data-availability#loc-faqs-for-data-policy

- Recommended repositories

  http://journals.plos.org/plosone/s/data-availability#loc-recommended-repositories

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What data are required and what is meant by minimal data set?

- PLOS defines the "minimal data set" as the data set used to reach the conclusions drawn in the manuscript with related metadata and methods, and any additional data required to replicate the reported study findings in their entirety:
  - The values behind the means, standard deviations and other measures reported;
  - The values used to build graphs;
  - The points extracted from images for analysis.
- Authors do not need to submit their entire data set, or the raw data collected during an investigation.
  - Just those relevant to the analyses in the paper.

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Unacceptable Data Access Restrictions

- Authors will not share data because of personal interest (e.g. patents or potential future publications).
- Conclusions depend on proprietary data.
  - data owned by commercial interests
  - copyrighted data that the owners will not share, e.g., data from a pharmaceutical company that will share the data only with regulatory agencies for purposes of drug approval, but not with researchers.

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Internal Checks: PLOS ONE

- At submission: check for unacceptable restrictions to access
- During review: Editors & Reviewers assess underlying data
- At accept: check statements & ensure clinical datasets have no potentially identifying information
- Post-publication: work with authors as needed

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Possible exceptions to making data publicly available include

- Data cannot be made publicly available for ethical or legal reasons, e.g., public availability would compromise patient confidentiality or participant privacy.
  - Adherence to the PLOS data policy must never breach patient confidentiality.
- Data deposition could present some other threat, such as revealing the locations of fossil deposits, endangered species, or farms/other animal enclosures etc.

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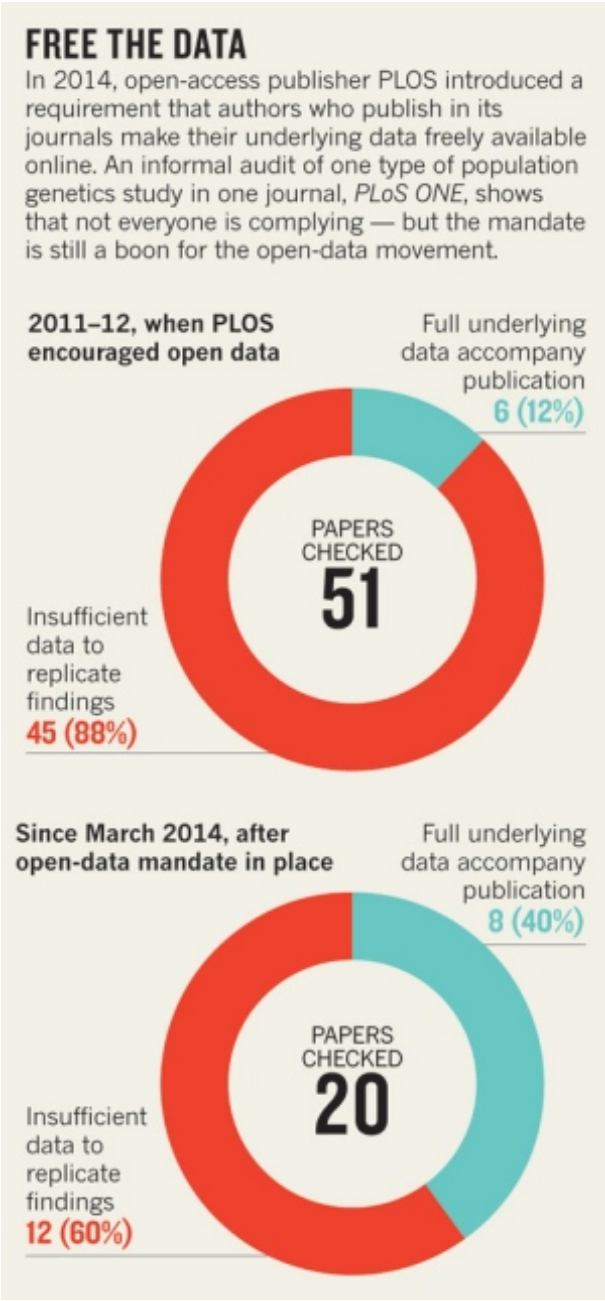
>65,000

papers published with a data statement at PLOS



Data Availability: Is it working?

2014: An increase in data sharing[1]:
- from 12% before the policy to 40%
- even up to as much as 76%

2016: Same study[2]
- compliance now 67%

Not seeing full compliance but we are seeing a MASSIVE improvement

Source:
*'1.*Confusion over publisher's pioneering open-data rules' *Nature* **515,** 478 (27 November 2014) doi:10.1038/515478a
2. Tim Vines, *pers commun (to Meg Byrne, PLOS).*

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Where are the Data (*PLOS ONE*)?

In 2016 ~4,000 datasets associated with PLOS articles were deposited in open repositories.

Time	Papers with DAS	Data in Submission Files (#)	Data in Submission Files (%)	Data in Repositories (Estimate)	Data upon Request (Estimate)
Q2-Q4 2014	9491	7918	74%	11%	10%
Q2-Q4 2015	22142	15382	69%	14%	12%

	Dryad	Figshare	NCBI	Github	
Q2-Q4 2014	152	210	551	37	
Q2-Q4 2015	551	753	1229	174	

DAS = Data availability statement

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Data sharing at PLOS ONE

- Very few submissions rejected because of authors' unwillingness or inability to share data (<0.1%)
- Steady growth in publicly available datasets via public data repositories such as the NCBI databases, Figshare or Dryad.
  - ~20% in 2016 – low but the growth is encouraging
- 60% of articles include data in the main text and supplementary information
  - supporting information also deposited to Figshare (each item has its own DOI).
- 20% have data available upon request
  - restrictions acceptable under our policy
- Editor & reviewer comments on data availability more frequent
  - from18% of submissions in 2014 to 24% in 2016 —
  - this is in addition to the yes/no question in the review form asking reviewers to indicate whether the paper complies with the data policy.

Research about data sharing

- PLOS Open Data Collection highlights papers that address issues of data sharing in various scientific disciplines and research showing a correlation between publicly available data and increased impact (for example, citation rates).
- *PLOS ONE* 10-year Anniversary Datasets Collection highlights specific examples of well-reported or widely used datasets.

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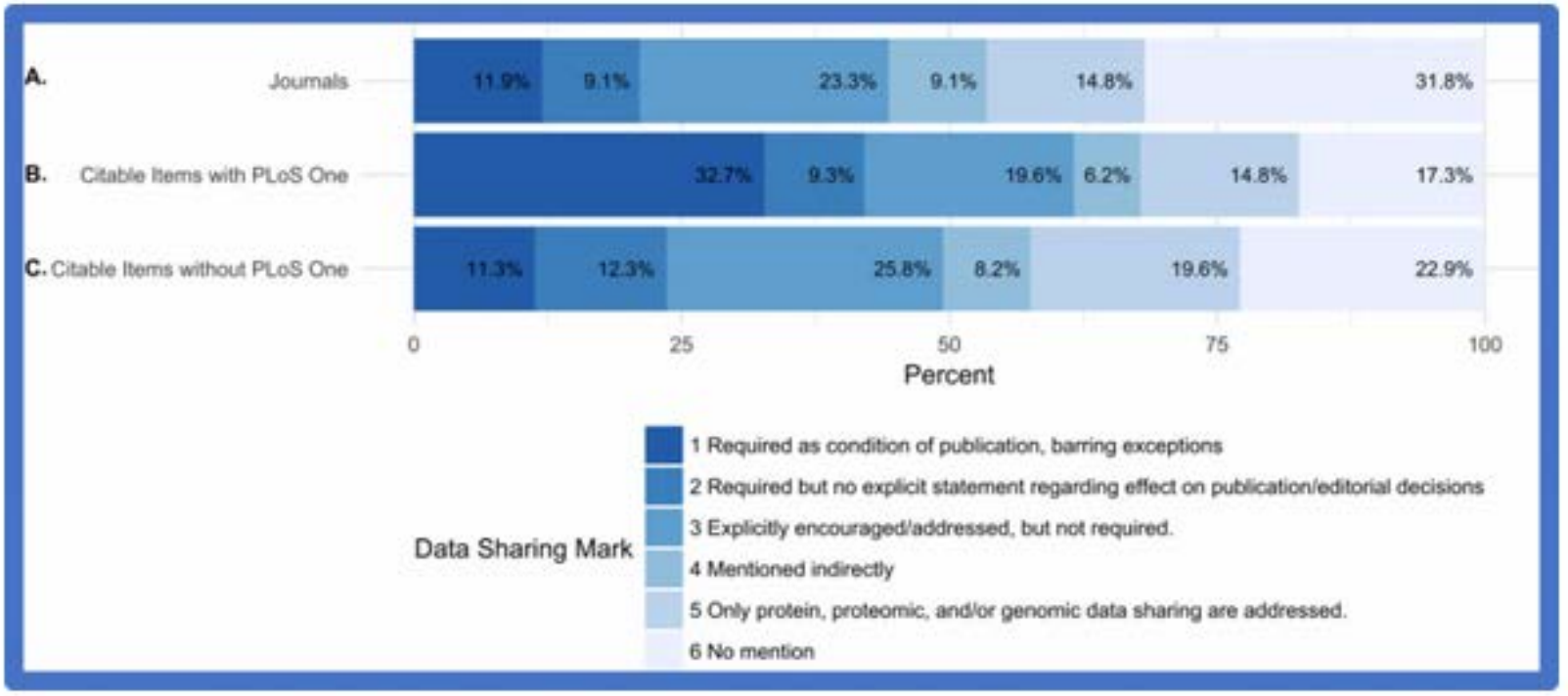
PLOS ONE effect

- A citable item that is open access is much more likely to be published in a journal with a data sharing requirement.
- The proportion of open access journals that require data sharing is much larger than the proportion of subscription journals (64.3% vs 11.3%).
- PLOS ONE significantly increases the proportion of research articles published with a data sharing requirement in biomedical journals



Vasilevsky, Nicole A., Jessica Minnier, Melissa A. Haendel, and Robin E. Champieux. "Reproducible and Reusable Research: Are Journal Data Sharing Policies Meeting the Mark?" PeerJ 5 (April 25, 2017): e3208. doi:10.7717/peerj.3208.

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Challenges

QUESTIONS WE DON'T KNOW ANSWERS TO YET

- Treatment of software/code
- How should materials sharing differ
- What to do with big data?
- Do we need better/more aligned consenting for patient studies?
- Best practices for data access committees?
- How to fund data access committees?
- Preservation of obsolete formats?
- How to cite data & credit data reuse?

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Michael Carroll. PLOS Biology 2015. Sharing Research Data and Intellectual Property Law: A Primer http://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.1002235

The Culture of Evaluation

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TABLE 1. GROWING PERVERSE INCENTIVES IN ACADEMIA

Incentive	*Intended effect*	*Actual effect*
"Researchers rewarded for increased number of publications."	"Improve research productivity," provide a means of evaluating performance.	"Avalanche of" substandard, "incremental papers"; poor methods and increase in false discovery rates leading to a "natural selection of bad science" (Smaldino and Mcelreath, 2016); reduced quality of peer review
"Researchers rewarded for increased number of citations."	Reward quality work that influences others.	Extended reference lists to inflate citations; reviewers request citation of their work through peer review
"Researchers rewarded for increased grant funding."	"Ensure that research programs are funded, promote growth, generate overhead."	Increased time writing proposals and less time gathering and thinking about data. Overselling positive results and downplay of negative results.
Increase PhD student productivity	Higher school ranking and more prestige of program.	Lower standards and create oversupply of PhDs. Postdocs often required for entry-level academic positions, and PhDs hired for work MS students used to do.
Reduced teaching load for research-active faculty	Necessary to pursue additional competitive grants.	Increased demand for untenured, adjunct faculty to teach classes.
"Teachers rewarded for increased student evaluation scores."	"Improved accountability; ensure customer satisfaction."	Reduced course work, grade inflation.
"Teachers rewarded for increased student test scores."	"Improve teacher effectiveness."	"Teaching to the tests; emphasis on short-term learning."
"Departments rewarded for increasing U.S. News ranking."	"Stronger departments."	Extensive efforts to reverse engineer, game, and cheat rankings.
"Departments rewarded for increasing numbers of BS, MS, and PhD degrees granted."	"Promote efficiency; stop students from being trapped in degree programs; impress the state legislature."	"Class sizes increase; entrance requirements" decrease; reduce graduation requirements.
"Departments rewarded for increasing student credit/contact hours (SCH)."	"The university's teaching mission is fulfilled."	"SCH-maximization games are played": duplication of classes, competition for service courses.

Modified from Regehr (pers. comm., 2015) with permission.

"As competition for jobs and promotions increases, the inflated value given to publishing in a small number of so-called "high impact" journals has put pressure on authors to rush into print, cut corners, exaggerate their findings, and overstate the significance of their work.

Such publication practices, abetted by the hypercompetitive grant system and job market, are changing the atmosphere in many laboratories in disturbing ways."

Rescuing US biomedical research from its systemic flaws
Bruce Alberts , Marc W. Kirschner , Shirley Tilghman, and Harold Varmus
PNAS | April 22, 2014 | vol. 111 | no. 16 | 5773–5777
doi: 10.1073/pnas.1404402111

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“Career decisions for Early Career Researchers are essentially arbitrary as they are based on so few publications and a hit or miss review process”

‘Scholarly publishing: a perspective from an early career academic’, COASP 2015, Derek Groen (University College London)

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Isabelle M Côté

@redlipblenny

Now properly co
editor who trans
bring civility back

Dear Dr xxxxx,

I am writing regarding the reviews received for MS xxxxx. I
anger at the comments provided by Reviewer #2. The tone used by this
aggressive and accusatory. The reviewer assigns us dark
motives when we omit to cite one favoured paper and when we don't p
opinion) enough information about the study site. The
conclusions drawn by the reviewer about our study site, based on wat
os (!), are frankly simply ignorant. I've highlighted in red below the
passages that I believe did not have to be written in such a confronta
ewers #1 and 3 make many of the same points, but in a much more
constructive fashion.

If I were the first author on this MS, I probably would not be writin
email. I have received similarly savage reviews before, have read them, been angry,
and moved on. However, the first author of this MS is a gradua
student, at the start of her career and her publishing experience, and a review such as this
one is incredibly discouraging. I would therefore ask you either not to use this reviewer again (and certainly not for papers by graduate students) or exercise
your own editorial control and paraphrase when you next transmit this reviewer's comments. I would also really like you to forward this email to the offending
reviewer so that he/she realises how their reviews are perceived.

Thank you for your consideration.

RETWEETS 458 LIKES 1,313

9:40 AM - 13 Dec 2016

72 458 1.3K

The tone used by this reviewer is unacceptably aggressive and accusatory. The reviewer assigns us dark motives when we omit to cite one favoured paper and when we don't provide (in the reviewer's opinion) enough information about the study site. The conclusions drawn by the reviewer about our study site, based on watching youtube videos are frankly ignorant! […]

If I were the first author of this MS, I probably would not be writing this email. […] However, the first author of this MS is a graduate student, at the start of her career and her publishing experience, and a review such as this one is incredibly discouraging.

J.J. Schmitter-Soto @jjschmittersoto · 13 Dec 2016

Replying to @redlipblenny @donaldorth

Isabelle, I agree with you.

However:
Is it possible/desirable to shield students from savage reviewers/reality?

8

Isabelle M Côté @redlipblenny · 13 Dec 2016

.@jjschmittersoto @donaldorth Possible? Maybe not, unless journals start to enforce a code of conduct for reviewers. Desirable? Absolutely.

1 2 21

J.J. Schmitter-Soto @jjschmittersoto · 13 Dec 2016

but it is a (sad) part of (present) academia. They'll need to deal with that. How can they fight back, otherwise?

4

Savita Dhanvantari @sdhanvan · 13 Dec 2016

Such hostility is NEVER OK and should not be normalized. Editors should be alerted to +

1

J.J. Schmitter-Soto @jjschmittersoto · 13 Dec 2016

just for the record: I totally agree reviewer's (and advisor's, etc.) brutality should never be "normal"

1

Current culture embeds status quo

- Researchers gain from publishing in ‘designer’ journals
- Journals gain financially from their brand/ Journal Impact factor
- Institutions gain financially by hiring and firing based on where researchers publish, not on what they publish (or the mission of the University)
- Research assessment by funders often based on very few publications and brand/impact factor (some are changing)

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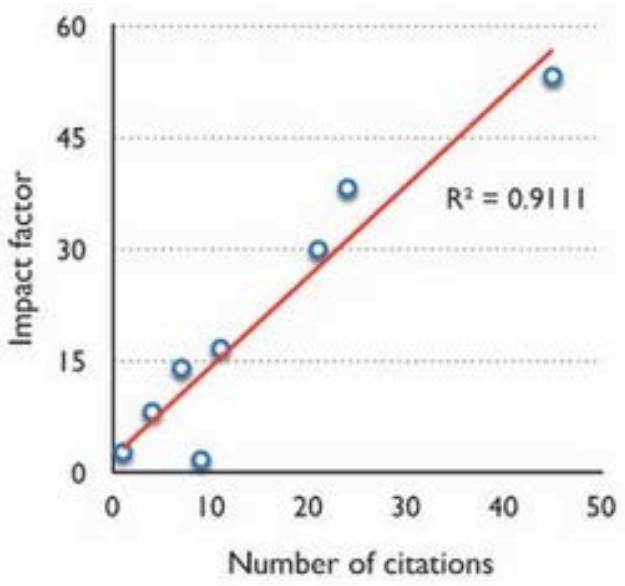
Imperfect Impact

Clinical trial registration: Looking back and moving ahead

(Published mid 2007)

New Eng. J. Med.	45	(53.298)
Lancet	24	(38.278)
J. Am. Med. Assoc.	21	(30.026)
Annals Int. Med.	11	(16.733)
Brit. Med. J.	7	(14.093)
Can. Med. Assoc. J.	4	(8.217)
Med. J. Aust.	1	(2.813)
Croat. Med. J.	9	(1.796)

Total citations until the end of 2011
(2011 Impact Factor)



Stuart Cantrill January 23, 2016 Imperfect impact Chemical connections
https://stuartcantrill.com/2016/01/23/imperfect-impact/

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Impact factors mask huge variation in citations - if you use it you are dishonest and statistically illiterate @Stephen_Curry #COASP

COASP7 ‘Research and researcher evaluation’ (2015), Stephen Curry (Imperial College London) – available soon from OASPA website

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New Results

A simple proposal for the publication of journal citation distributions

Vincent Lariviere, Veronique Kiermer, Catriona J MacCallum, Marcia McNutt, Mark Patterson, Bernd Pulverer, Sowmya Swaminathan, Stuart Taylor, Stephen Curry

doi: http://dx.doi.org/10.1101/062109

ARTICLE USAGE

Show by month	Abstract	PDF
Total	22,495	11,381

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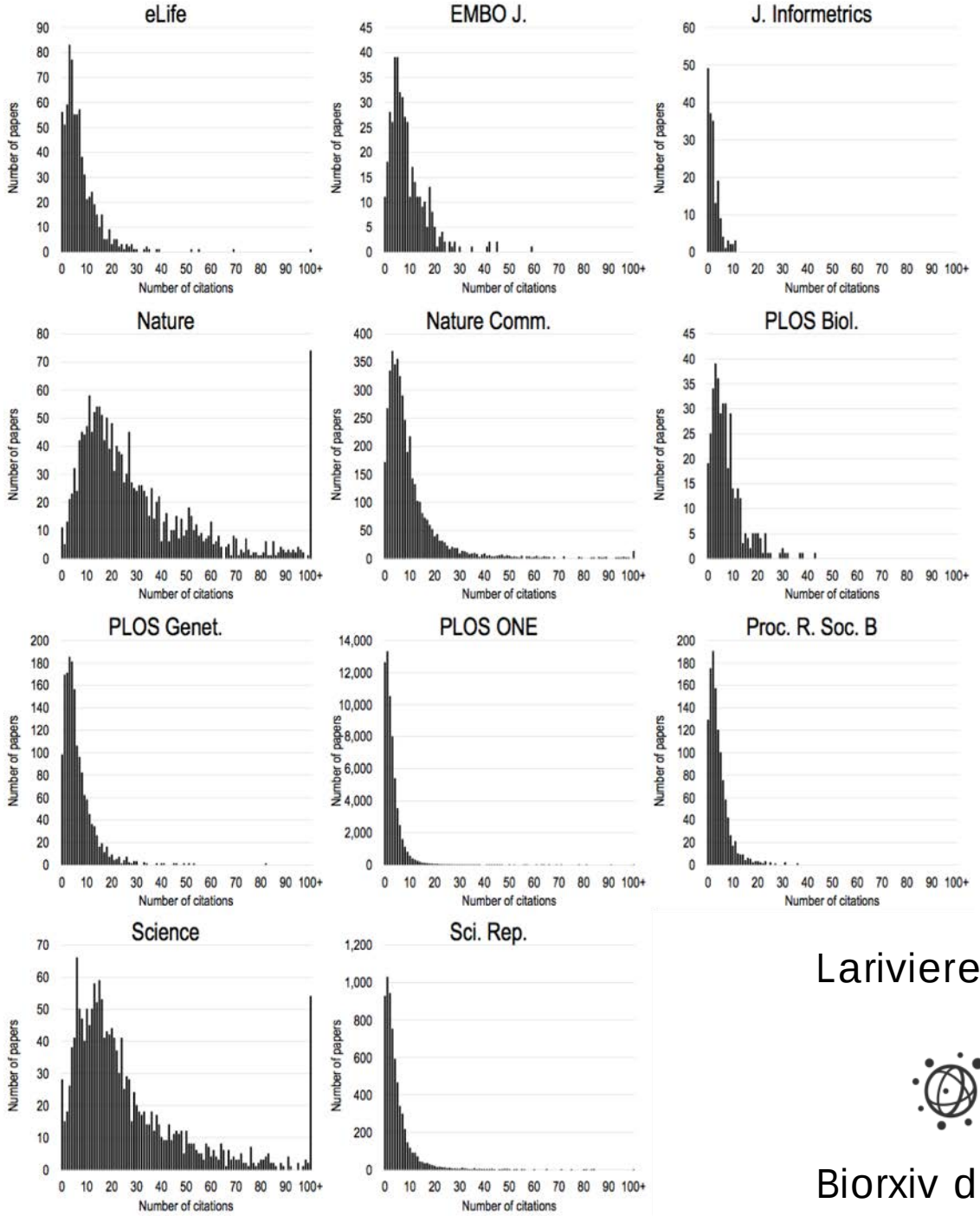
Picked up by **7** news outlets
Blogged by **19**
Tweeted by **554**
Mentioned by **1** peer review sites
On **10** Facebook pages
Mentioned in **1** Google+ posts

88 readers on Mendeley
5 readers on CiteULike



Lariviere et al., 2016

PLOS

Biorxiv doi:10.1101/062109

Cultural Change

EU COUNCIL CONCLUSIONS ON THE TRANSITION TOWARDS AN OPEN SCIENCE SYSTEM

Removing barriers and fostering incentives (7)

- scientific quality should be based on the work itself
- develop better quality assurance in review and evaluation systems.
- incentives to reward researchers (and research stakeholders) for sharing the results of their research for reuse;
- explore mechanisms to change the ways of doing science.
- collaborate in particular on incentives for an internationally accepted system for data citation

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27th May 2016

Change the Incentives

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San Francisco DORA
Declaration on Research Assessment

Declaration on Research Assessment

- A worldwide initiative, spearheaded by the ASCB (American Society for Cell Biology), together with scholarly journals and funders
- Focuses on the need to improve the way in which the outputs of scientific research are evaluated:
  - the need to eliminate the use of journal-based metrics, such as Journal Impact Factors, in funding, appointment, and promotion considerations;
  - "need to assess research on its own merits rather than on the basis of the journal in which the research is published"

SPARC
wellcome trust
FWF
cnrs dépasser les frontières
PNAS
EMBO
Lund University
Science AAAS
PLOS

Credit:
Persistent identifiers and metadata

- Inability to link data to papers & papers to data & papers & data to people
- No separate identifiers for figures, tables, supplementary material etc
- Low adoption of persistent identifiers among Researchers, publishers and data repositories
- Persistent identifiers for Funders & Institutions in flux
  - but being developed

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Next-generation metrics:
Responsible metrics and evaluation for open science

Report of the European Commission Expert Group on Altmetrics
March 2017

RECOMMENDATION #8:
The European research system and Open Science Cloud should adopt ORCID as its preferred system of unique identifiers, and an ORCID iD should be mandatory for all applicants and participants in FP9. Unique identifiers for individuals and research works will gradually improve the robustness of metrics and reduce administrative burden. ORCID provides researchers with a unique ID and associates this ID with a regularly updated list of publications. It is already backed by a growing number of funders across Europe (http://about.orcid.org/). The EC and ERC should utilise ORCID IDs for grant applications, management and reporting platforms, and the benefits of ORCID need to be better communicated to researchers and other stakeholders (Galsworthy & McKee, 2013).

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Integrating ORCID iDs in publishing workflows

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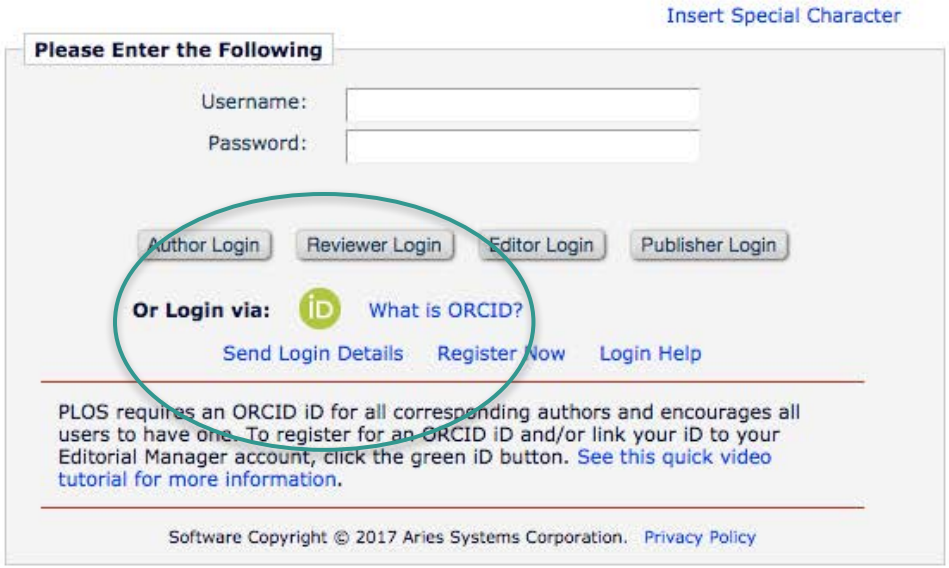
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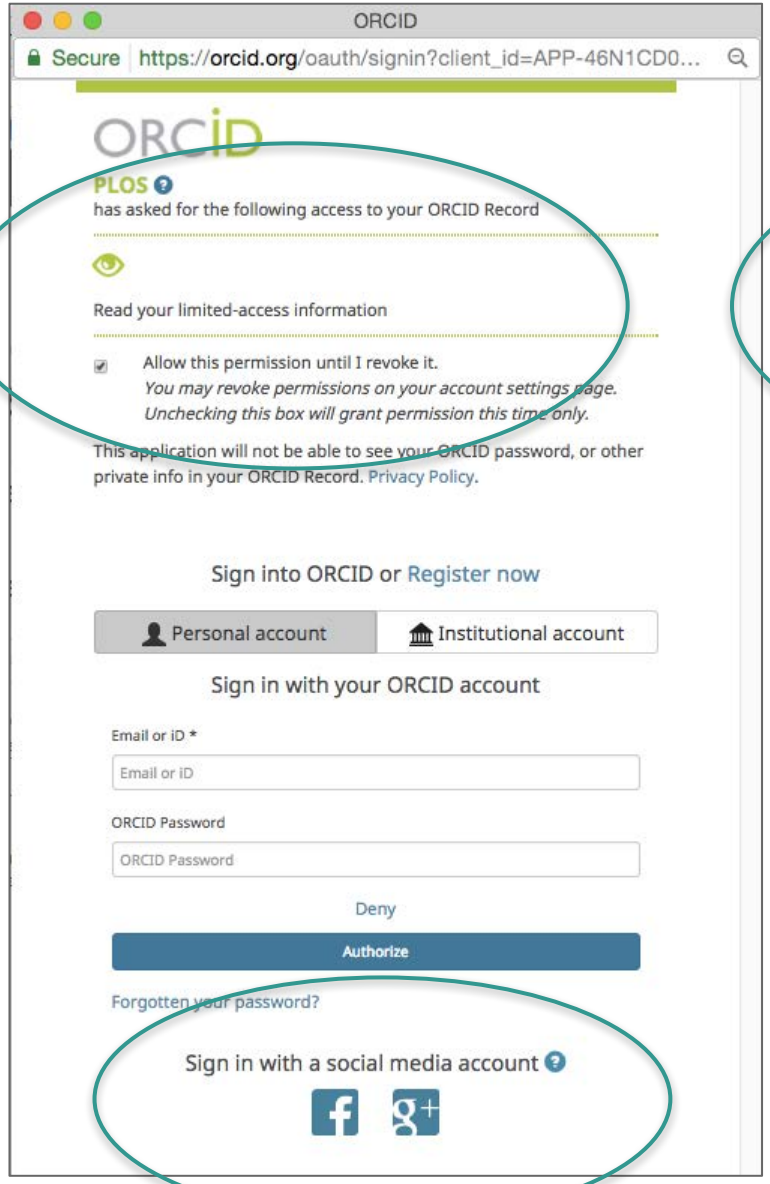
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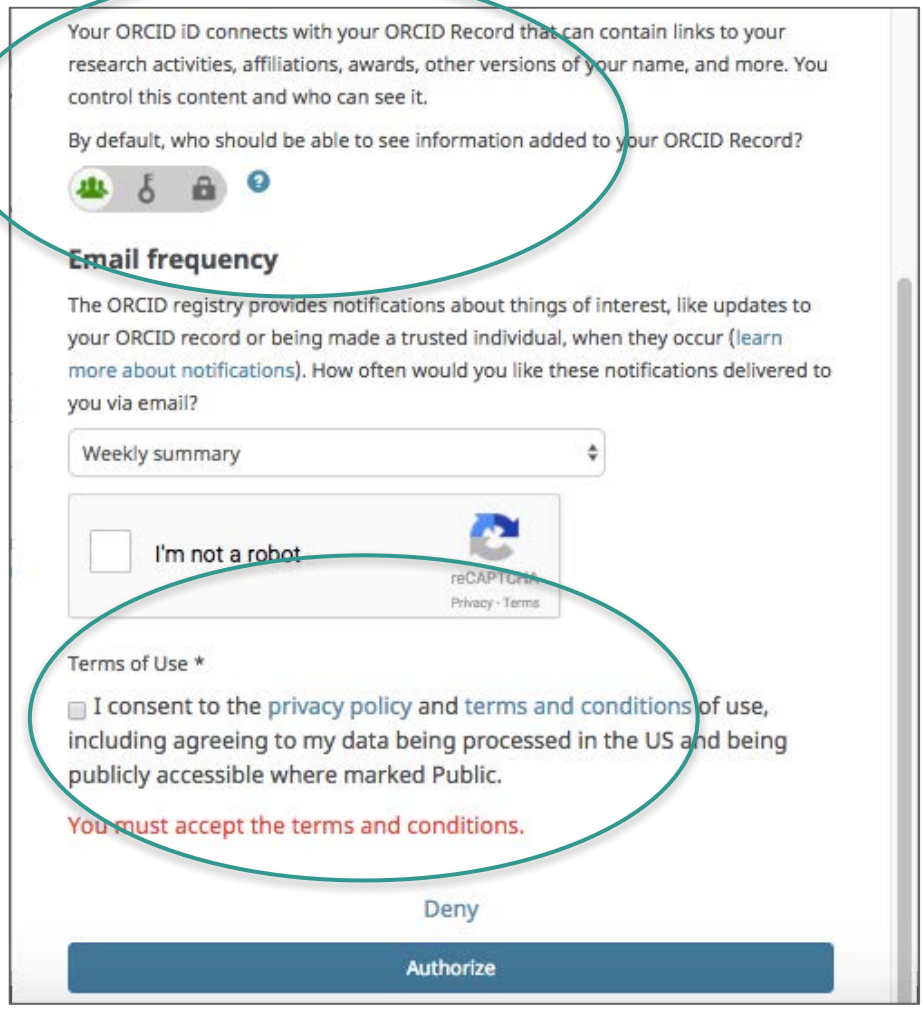
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Authorize

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RESEARCH ARTICLE

Two new ootaxa from the late Jurassic: The oldest record of crocodylomorph eggs, from the Lourinhã Formation, Portugal

João Russo, Octávio Mateus, Marco Marzola, Ausenda Balbino

jpvmrusso@gmail.com

Affiliations: GeoBioTec, Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa, Caparica, Portugal, Museu da Lourinhã, Lourinhã, Portugal

http://orcid.org/0000-0001-7730-1395

The Late Jurassic Lourinhã Formation is known for its abundant remains of dinosaurs, crocodylomorphs and other vertebrates. Among this record are nine localities that have produced either dinosaur embryos, eggs or eggshell fragments. Herein, we describe and

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Publishers “Open Letter”

In January 2016, a coalition of publishers signed an Open Letter committing to start requiring ORCID IDs in 2016.

1. Implement best practices for ORCID collection
2. Commit to auto-update the ORCID records upon publication
3. Require ORCID IDs for corresponding authors and encourage for co-authors

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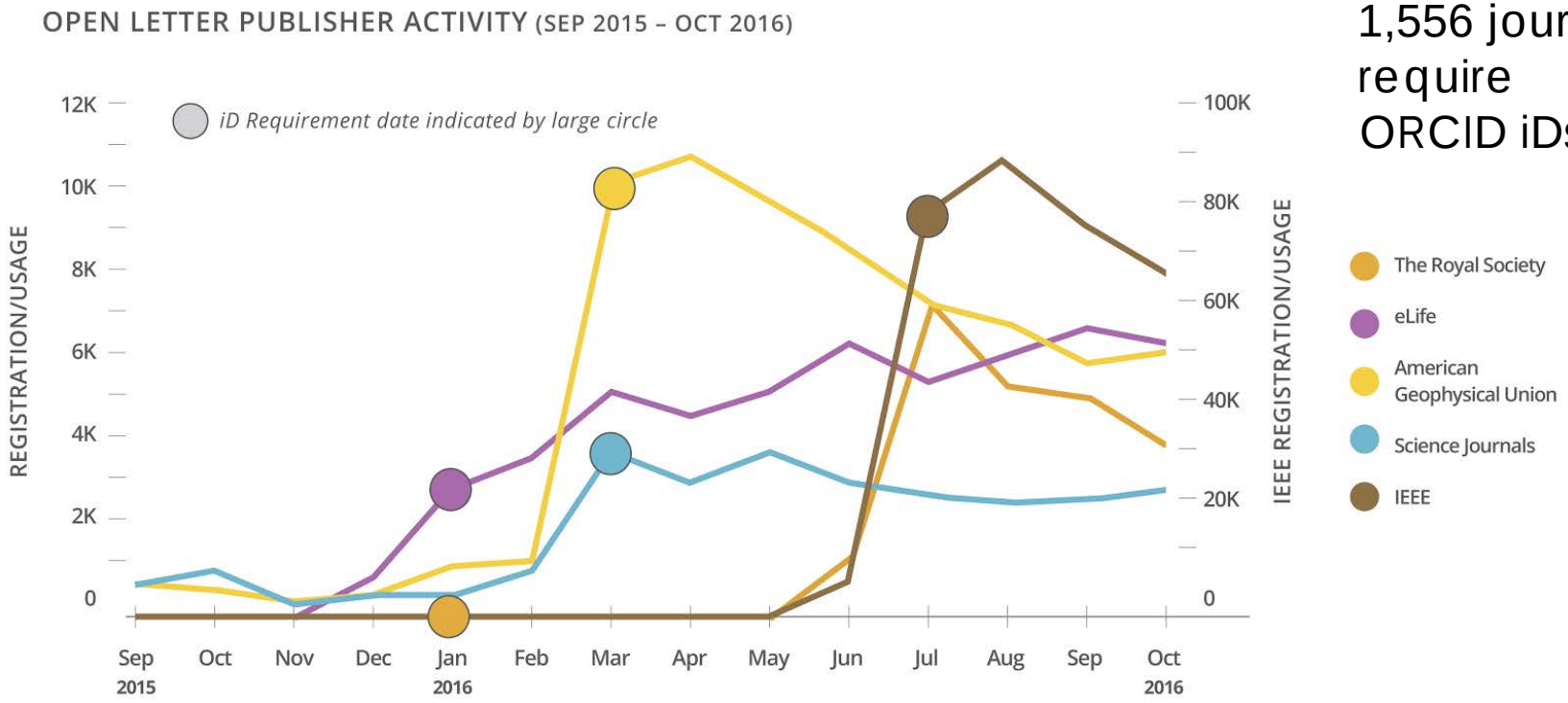
8 original signatories, now 27!

https://orcid.org/content/requiring-orcid-publication-workflows-open-letter

27 Publishers requiring ORCID, and counting

By end 2016:
1,556 journals require ORCID iDs



Since the open letter was published, over 250,000 articles have included ORCID iDs in their Crossref submission

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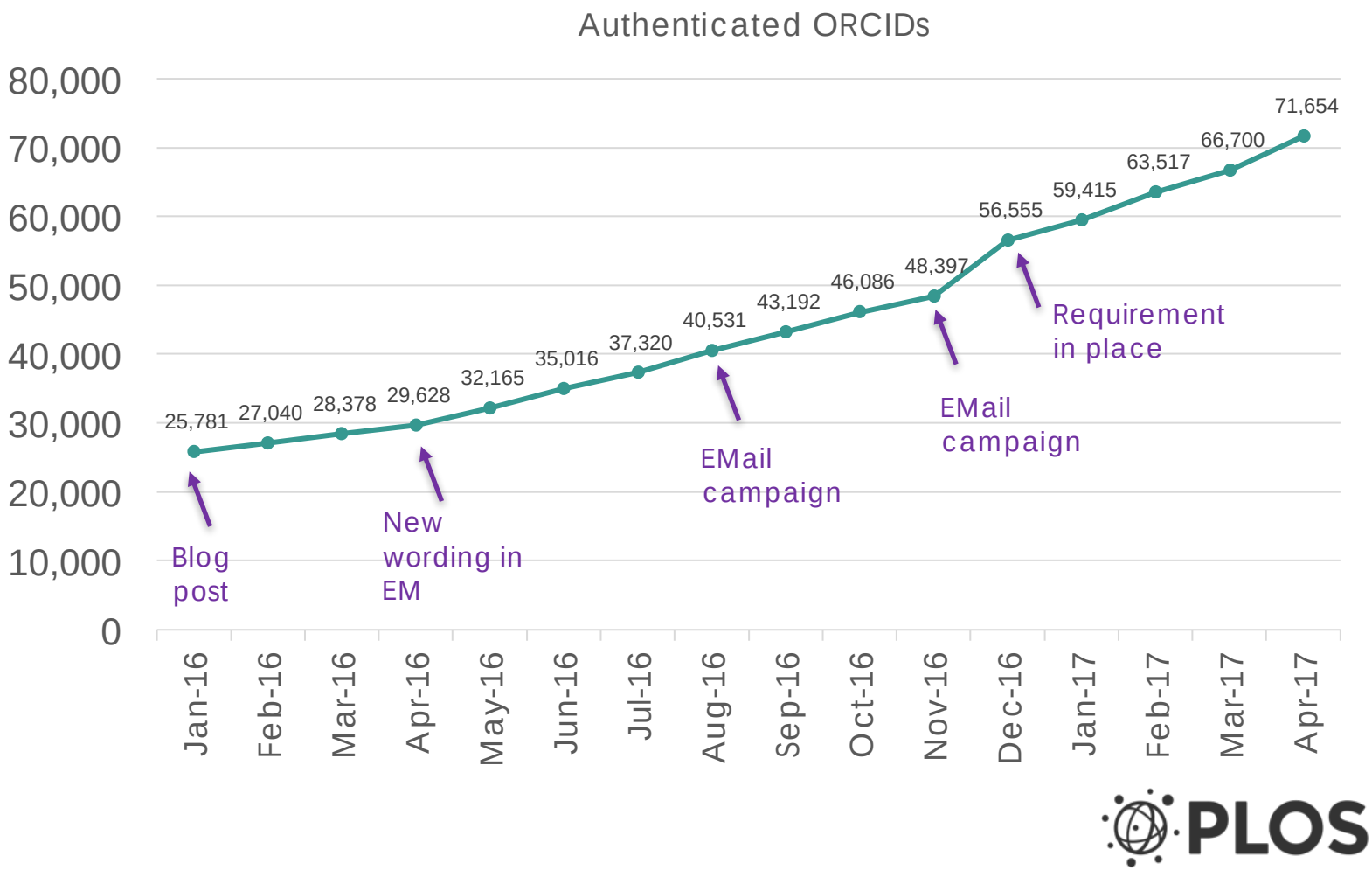
PLOS' sustained campaign



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An open standard for expressing roles intrinsic to research

casrai

NISO

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CRediT: a taxonomy of contributions

Conceptualization
Methodology
Software
Validation
Formal Analysis
Investigation
Resources
Data Curation
Writing – Original Draft Preparation
Writing – Review & Editing
Visualization
Supervision
Project Administration
Funding Acquisition

- Includes but is not limited to traditional author roles
- Not intended to define authorship
- Human- and machine-readable

http://casrai.org/CRediT

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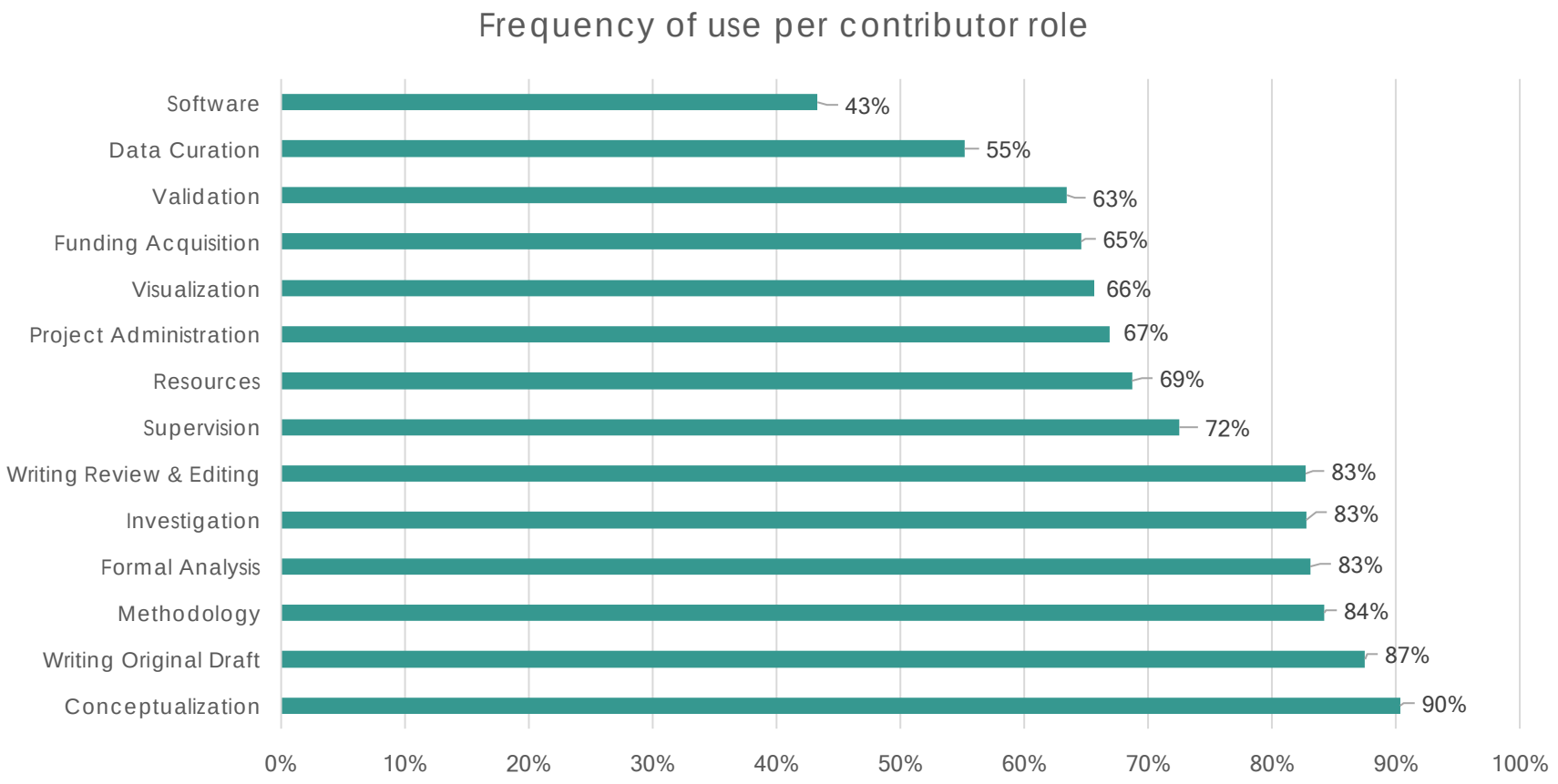
Usage of CRediT taxonomy at PLOS



PLOS ONE submissions (n=3,833) – 92% at least one answer

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RESEARCH ARTICLE

Decoding Spontaneous Emotional States in the Human Brain

Philip A. Kragel, Annchen R. Knodt, Ahmad R. Hariri, Kevin S. LaBar

Published: Sept

Roles: Data curation, Investigation, Project administration, Writing – review & editing

Affiliation: Department of Psychology & Neuroscience, Duke University, Durham, North Carolina, United States of America

Abstract

- PLOS has been using CRediT since summer 2016 and requires ORCID for corresponding authors since Dec 2016.
  - All authors are encouraged to use ORCID

New Results

Previous Next

Transparency In Authors' Contributions And Responsibilities To Promote Integrity In Scientific Publication

Marcia McNutt, Monica Bradford, Jeffrey Drazen, R. Brooks Hanson, Bob Howard, Kathleen Hall Jamieson, Veronique Kiermer, Michael Magoulias, Emilie Marcus, Barbara Kline Pope, Randy Schekman, Sowmya Swaminathan, Peter Stang, Inder Verma

doi: https://doi.org/10.1101/140228

This article is a preprint and has not been peer-reviewed [what does this mean?].

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Posted May 20, 2017.

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Subject Area

Scientific Communication and Education

Abstract

In keeping with the growing movement in scientific publishing toward transparency in data and methods, we argue that the names of authors accompanying journal articles should provide insight into who is responsible for which contributions, a process should exist to confirm that the list is complete, clearly articulated standards should establish whether and when the contributions of an individual justify authorship credit, and those involved in the generation of scientific knowledge should follow these best practices. To accomplish these goals, we recommend that journals adopt common and transparent standards for authorship, outline responsibilities for corresponding authors, adopt the CRediT (Contributor Roles Taxonomy) methodology for attributing contributions, include this information in article metadata, and encourage authors to use the digital persistent identifier ORCID. Furthermore, we suggest that research institutions have regular open conversations on authorship criteria and ethics and that funding agencies adopt ORCID and accept CRediT. Scientific societies should further authorship transparency by promoting these recommendations through their meetings and publications programs.

Subject Areas

All Articles

Animal Behavior and Cognition
Biochemistry
Bioengineering
Bioinformatics
Biophysics
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Developmental Biology
Ecology
Epidemiology
Evolutionary Biology

Data citations

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The Future of Research Communications and e-Scholarship

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FORCE11 » Groups » Joint Declaration of Data Citation Principles - FINAL

JOINT DECLARATION OF DATA CITATION PRINCIPLES - FINAL

When citing please use: Data Citation Synthesis Group: Joint Declaration of Data Citation Principles. Martone M. (ed.) San Diego CA: FORCE11; 2014 [/datacitation].

ENDORSEMENT LIST

PREAMBLE

Sound, reproducible scholarship rests upon a foundation of robust, accessible data. For this to be so in practice as well as theory, data must be accorded due importance in the practice of scholarship and in the enduring scholarly record. In other words, data should be considered legitimate, citable products of research. Data citation, like the citation of other evidence and sources, is good research practice and is part of the scholarly ecosystem supporting data reuse.

DC1
Data Citation Principles

PLOS

DC1
Data Citation Principles

Data Citation:
credit for data producers and collectors

- Force11 Data Citation Principles
- Minimum Requirements
  - author names, repository name, date + persistent unique identifier (such as DOI or URI)
- citation should link to the dataset directly via the persistent identifier
- comprehensive, machine-readable landing pages for deposited data
- guidance to authors to include data in references

FORCE11
The Future of Research Communications and e-Scholarship

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https://www.force11.org/group/joint-declaration-data-citation-principles-final

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To ensure every researcher, at any phase of their career, or at any institution, will have seamless access to Persistent Identifiers (PIDs) for their research artefacts and their work will be uniquely attributed to them.

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Building tools
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Running bootcamps
Providing training
Aligning communities

EVALUATION

Gauging sustainability
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EU-funded project:
Technical Infrastructures for
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RESEARCH ARTICLE

Commensal bacteria and essential amino acids control food choice behavior and reproduction

Ricardo Leitão-Gonçalves, Zita Carvalho-Santos, Ana Patrícia Francisco, Gabriela Tondolo Fioreze, Margarida Anjos, Célia Baltazar, Ana Paula Elias, Pavel M. Itskov, Matthew D. W. Piper, Carlos Ribeiro

Published: April 25, 2017 • https://doi.org/10.1371/journal.pbio.2000862

Abstract

Choosing the right nutrients to consume is essential to health and wellbeing across species. However, the factors that influence these decisions are poorly understood. This is particularly

and reproductive output. This demonstrates how the interaction of specific nutrients with the microbiome can shape behavioral decisions and life history traits.

Materials and methods

Methods and protocols for Drosophila rearing, media preparations, and microbial manipulations are available as a collection in protocols.io dx.doi.org/10.17504/protocols.io.hdtb26n.

PLOS

Methods and protocols from Goncalves et al. (2017) for manipulating the diet and the microbiome of Drosophila

Apr 25, 2017 7 protocols

dx.doi.org/10.17504/protocols.io.hdtb26n

ZITA SANTOS, PATRÍCIA FRANCISCO, RICARDO LEITÃO-GONÇALVES, MARGARIDA ANJOS, CÉLIA BALTAZAR, ANA PAULA ELIAS, GABRIELA TONDOLO FIOREZE, MARGARIDA ANJOS, CÉLIA BALTAZAR, ANA PAULA ELIAS, PAVEL M. ITSKOV, MATTHEW D. W. PIPER, CARLOS RIBEIRO, CHAMPALIMAUD CENTRE FOR THE UNKNOWN, SCHOOL OF BIOLOGICAL SCIENCES

Ribeiro Lab

CONTACT: CARLOS RIBEIRO

Growing Drosophila gut bacteria

ZITA SANTOS, PATRÍCIA FRANCISCO, RICARDO LEITÃO-GONÇALVES, MARGARIDA ANJOS, CÉLIA BALTAZAR, ANA PAULA ELIAS, GABRIELA TONDOLO FIOREZE, MARGARIDA ANJOS, CÉLIA BALTAZAR, ANA PAULA ELIAS, PAVEL M. ITSKOV, MATTHEW D. W. PIPER, CARLOS RIBEIRO, CHAMPALIMAUD CENTRE FOR THE UNKNOWN, SCHOOL OF BIOLOGICAL SCIENCES

Apr 25, 2017 6 steps

dx.doi.org/10.17504/protocols.io.hheb33e

CONTACT: CARLOS RIBEIRO

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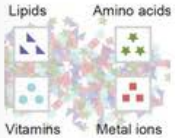

Holidic medium

Holidic media (HM) preparation

Apr 25, 2017 12 steps

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CONTACT: CARLOS RIBEIRO

0/12 STEPS COMPLETED

Second part of the medium preparation

Step 6 ... temperature. Make s... read more

Step 7 While the first part of the medium is being autoclaved prepare the second part of the medium. Mark a Schott flask with a... read more

Step 8 Depending on the nutrient content of the medium add all the following components. At the end, if required, add milliQ fi... read more

Combining both solutions

Step 9 When the first part of the medium has cooled down enough (you should be able to touch the sides of bottle, roughly 60 °C... read more

Step 10 Add 6.5 ml of medium to each vial using a multipipetter while still warm and before it solidifies.

Step 8

Depending on the nutrient content of the medium add all the following components. At the end, if required, add milliQ filtered water until the pen mark.

Referred to as	holidic medium (HUNTaa)	-all Aas (HUNTaa)	-eAAs (HUNTaa)	-neAAs (HUNTaa)	-single eAA (HUNTaa)	-neAAs + 1xTyr (or 2xTyr) (HUNTaa)	-neAAs + 1xPro (HUNTaa)
Essential amino acids	60.51 ml	0 ml	0 ml	140.45 ml(a)	140.45 ml(a,c)	140.45 ml(a)	140.45 ml(a)
Non-essential amino acids	60.51 ml	0 ml	97.52 ml(a)	0 ml	0 ml	0 ml	0.27 g proline(f)
L-Glutamate	15.13 ml	0 ml	24.38 ml(a)	35.11 ml(a)	35.11 ml(a)	35.11 ml(a)	35.11 ml(a)
Nucleic acids & Lipids	8 ml	8 ml	8 ml	8 ml	8 ml	8 ml	8 ml
Vitamins	14 ml	14 ml	14 ml	14 ml	14 ml	14 ml	14 ml
Folic acid	1 ml	1 ml	1 ml	1 ml	1 ml	1 ml	1 ml
Acetic acid buffer	100 ml	100 ml	100 ml	100 ml	100 ml	100 ml	100 ml

Referred to as	-single eAA (h) (HUNTaa)	-folic acid (HUNTaa)	-metals (HUNTaa)	-nc.ac. & lipids (HUNTaa)	-sterol (HUNTaa)	-vitamins (HUNTaa)	holidic medium (FLYAA)
Essential amino acids	60.51 ml(c)	60.51 ml	60.51 ml	60.51 ml	60.51 ml	60.51 ml	60.51 ml(j)
Non-essential amino acids	60.51 ml	60.51 ml	60.51 ml	60.51 ml	60.51 ml	60.51 ml	60.51 ml
L-Glutamate	15.13 ml	15.13 ml	15.13 ml	15.13 ml	15.13 ml	15.13 ml	15.13 ml

Help

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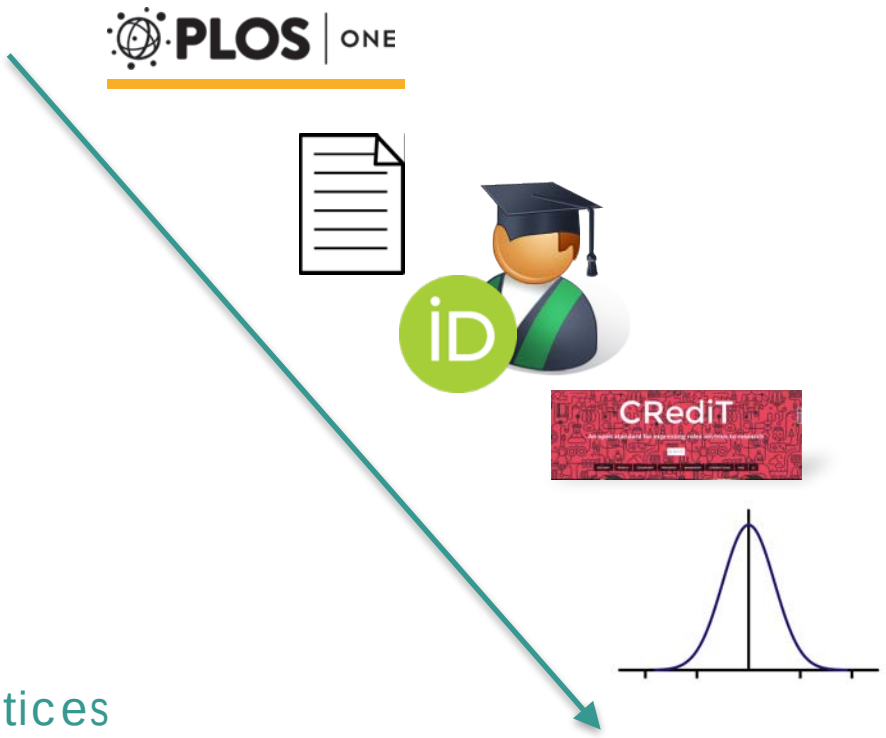
Publishers' tools to facilitate better credit

- ✓ Citations distributions
- ✓ ORCID
- ✓ CRediT taxonomy
- ✓ Data citations
- ✓ Protocols
- ✓ Preprints

Raise awareness

Promote and facilitate better practices

Enable a machine-readable ecosystem



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Who's accountable?

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By the time an author submits to a journal it's too late…

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Data stewardship & sharing is spreading

- Other publishers are updating their data sharing policies and requiring a DAS
  - Nature, Science, Royal Society & Hindawi most recently
- Private funders have implemented policies requiring that data is made openly available.
  - Bill and Melinda Gates Foundation and Wellcome Trust (F1000 platforms)
  - Wellcome, HHMI, and NIH created the Open Science Prize to reward and make public the value of open, shared data.
- Government agencies have implemented or are exploring policies that facilitate data sharing.
  - Data Management plans as standard
  - National Institutes of Health (NIH), European Medical Association, European Commission and Research Council UK (RCUK)
- Academic institutions such as Lausanne, Cambridge University, University college London provide additional infrastructure and support for researchers to share data.
  - EU LEARN Project

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Solutions

- Open Access to articles and data
  - (that enables reuse – CC BY, CC0)
- Separate the process of publication from evaluation
  - Make information openly available sooner (e.g. pre-prints)
  - PLOS-ONE style assessment (rigour first, interest & novelty later)
    - Publish negative and confirmatory studies
- Open, signed, continuous peer review
  - More collective, community based review
- Incentivise openness, collaboration, reliability and sharing
  - Reward Reviewers
  - Reward open behaviour by researchers
  - Reward all types of outputs – not just articles

Open Science

PLOS

- Apply the scientific method to scholarly communication itself
  - Meta-research – research about the research process
  - Publically available data on metrics, indicators, evaluation
  - Independent scrutiny
- Align policies between funders, publishers, institutions
  - Data management as standard (& Data Access Committees)
  - Reduce the burden on researchers
  - Incentivise all players (sticks and carrots)
  - Monitor progress towards common goals
- Create global community standards for open science
  - Community standards for data & metadata sharing
  - NISO, FORCE11, COPE, TOP guidelines, Leiden Manifesto, HEFCE report on metrics, Reporting Standards
- Build the infrastructure to support open science
  - Interoperable publicly available platforms (EU Science Cloud)
  - New submission and reviewing tools that foster openness and collaboration, and do so earlier
  - The means to track and link all types of outputs
    - Persistent identifiers for researchers, funders, institutions, licences etc - ORCID, FundRef, DOIs for data etc

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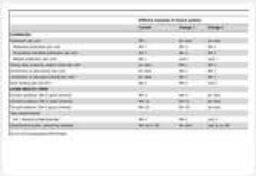
ESSAY

How to Make More Published Research True

John P. A. Ioannidis

Published: October 21, 2014 • DOI: 10.1371/journal.pmed.1001747

Figures



Citation: Ioannidis JPA (2014) How to Make More Published Research True. PLoS Med

Who's accountable?

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...we all are!

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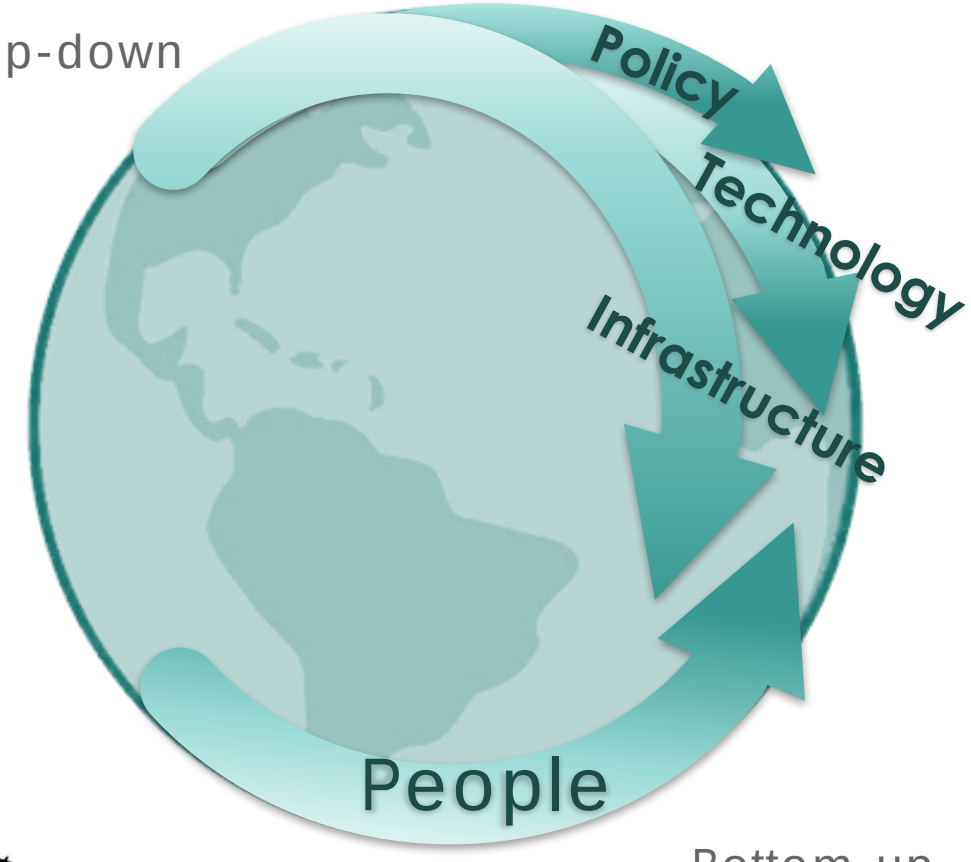
Cultural Change



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Institutions
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Researchers

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Thank you for listening and sharing your data!

cmaccallum@plos.org

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Thanks to:
PLOS:
Meg Byrne
Veronique Kiermer
Emma Ganley
Helen Atkins
Patrick Polischuk

CRediT:
Amy Brand
Liz Allen

"[Why this paper] was chosen for inclusion in our discussion is the fact that the actual data values in spreadsheet format is also available from the PLOS ONE website. You can download this and look at the data yourself... They used a Kruskal-Wallis test which is absolutely correct indeed."

STATISTICS COURSE INSTRUCTOR

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