Advocating Open Science at PLOS

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Who We Are: Public Library of Science

PLOS is a nonprofit publisher and advocacy organization with a mission to accelerate progress in science and medicine by leading a transformation in research communication.

PLOS

Open Access allows everyone to access research. Open Science allows everyone to do research

All aspects of published research need to be open in order to replicate, reproduce and build upon. Licenses such as CC-BY allow free reuse with attribution.

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How publishers can support open science

1. Open Data
2. Detailed, open methods and protocols
3. Early publication, community review (preprints)
4. Author credit based on individual contributions, not journal brands

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Open Data

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What is the value of open research data?

Data needs to be shared according to the FAIR principles for findable, accessible, interoperable and re-usable data. This allows:

- Replication/Validation
- New analysis
- Better interpretation
- Inclusion in meta studies
- Facilitate reproducibility
- Scrutiny post-publication
- Better financial and intellectual return on research investment

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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

PLOS

At PLOS only, since 2014:

>65,000

Articles published with a data availability statement at PLOS

<0.1%

of submissions rejected due to authors' unwillingness or inability to share data

~20%

of submissions use data repositories

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Methods/Protocols

PLOS partnership with protocols.io

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OPEN ACCESS PEER-REVIEWED

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

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.

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Preprints

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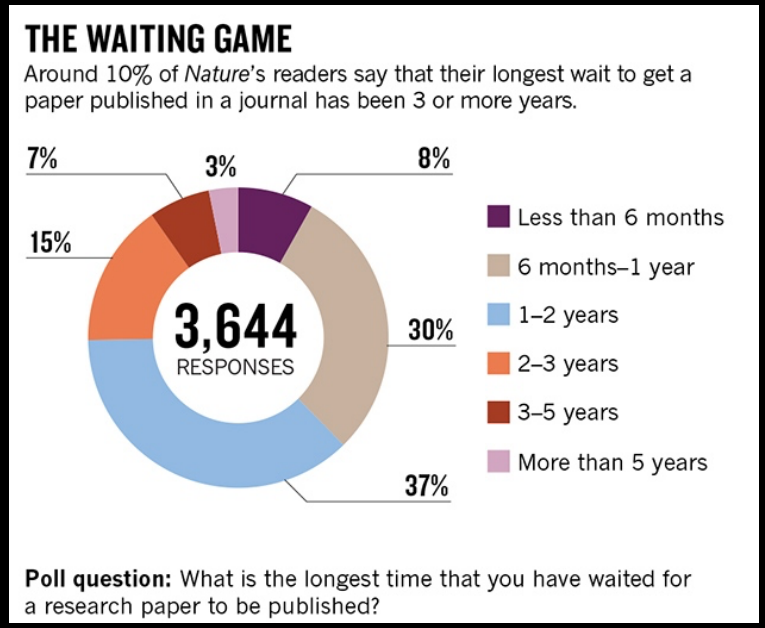
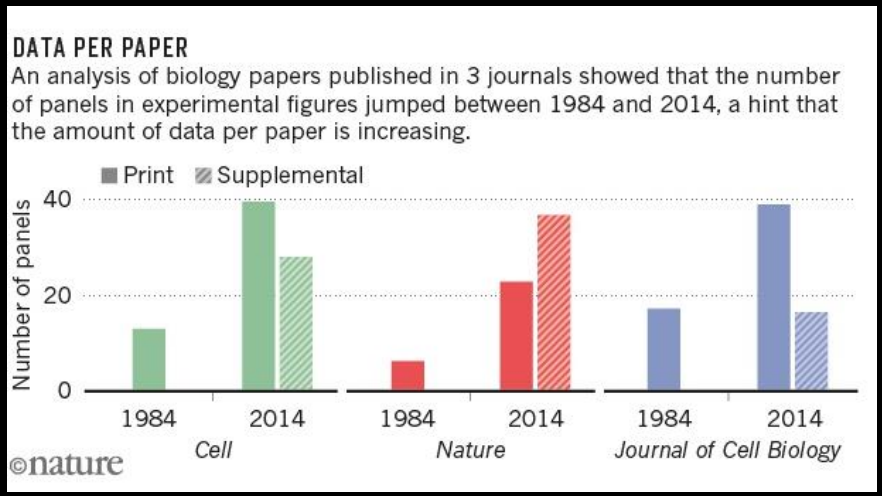
Responding to a need





:10.1038/530148a

Disruptive potential of preprints

- Decouples the publication of research from
  other considerations such as importance
- Establishes priority
- Accelerates research communication
- Allows the possibility of credit before journal publication
- Combats publication bias

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PLOS allows and encourages the use of preprint servers

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Author Credit

Incentives

The growing number of research output makes it difficult to assess individual contributions to research. Sharing of research contributions as part of Open Science requires mechanisms to credit individual researchers.

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A credit framework

Only open standards are can achieve a fair and transparent credit for individual contributions.

ORCID
Connecting Research and Researchers

Crossref

COS
CENTER FOR OPEN SCIENCE

DataCite
FIND, ACCESS, AND REUSE DATA

Looking ahead

Moving further towards open science means:

- Ongoing work with early posting (preprints)
- Open review + community review
- Registered reports ensure best practice without bias
- Ongoing work on open data, protocols, code
- Providing article-level credit for all research objects for publishing participants – authors, editors, reviewers, etc.

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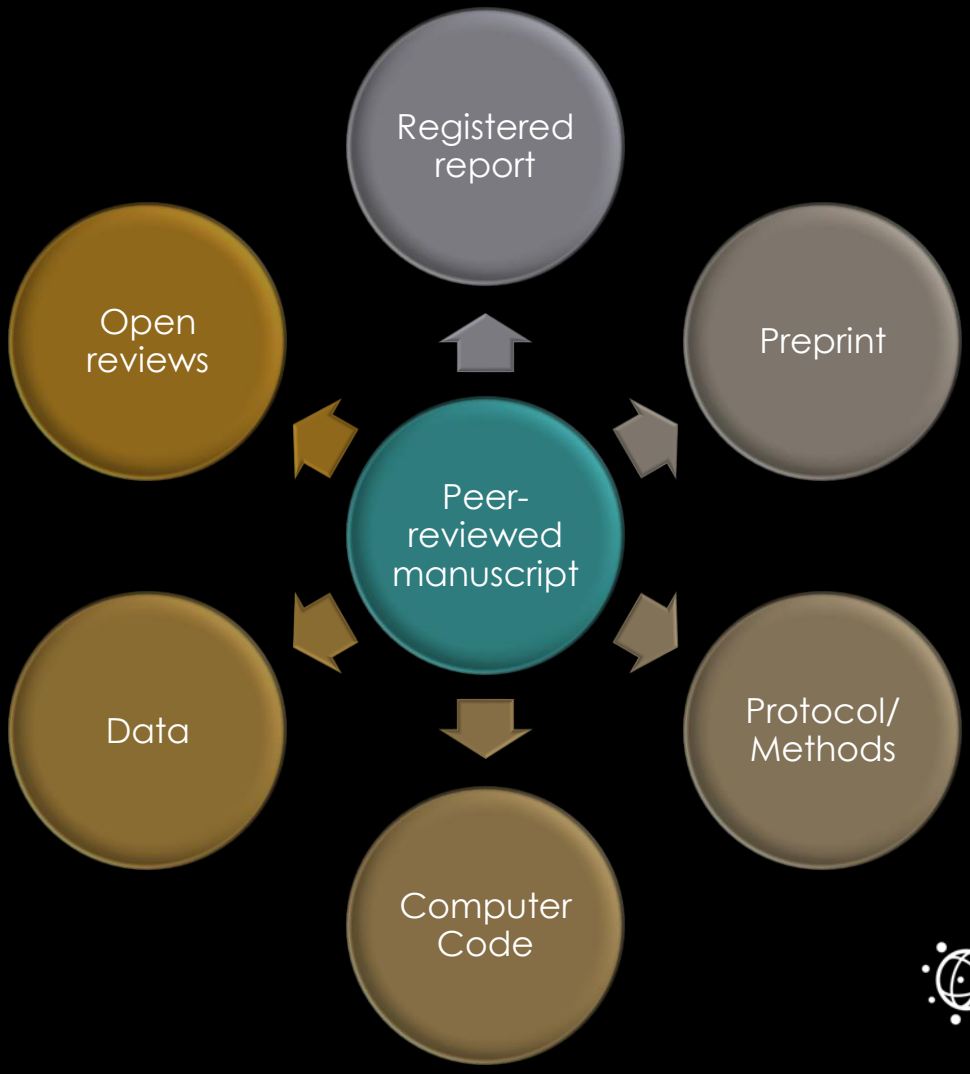
Open science in publishing



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Thank you!