



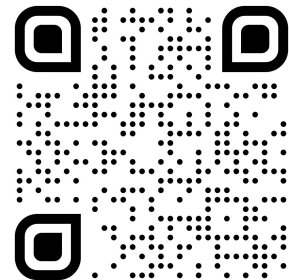
Preprints and the changing landscape of biomedical publishing

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These slides:
<https://bit.ly/open-sc-hol-proj-JAC>



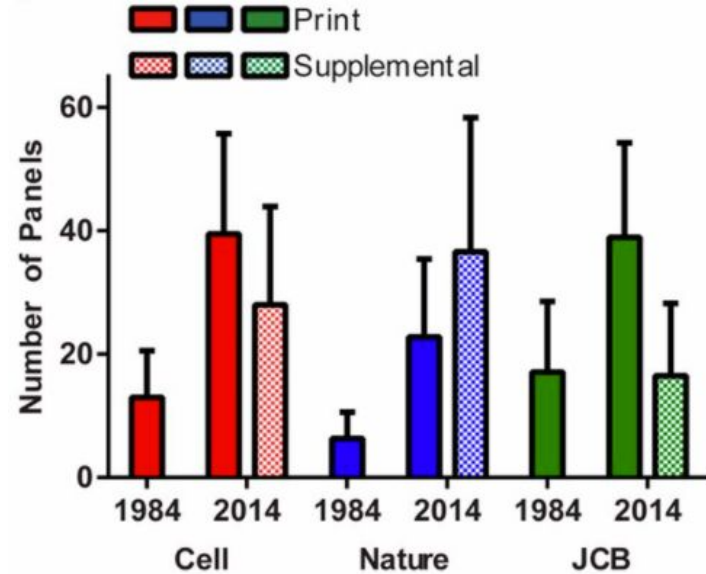
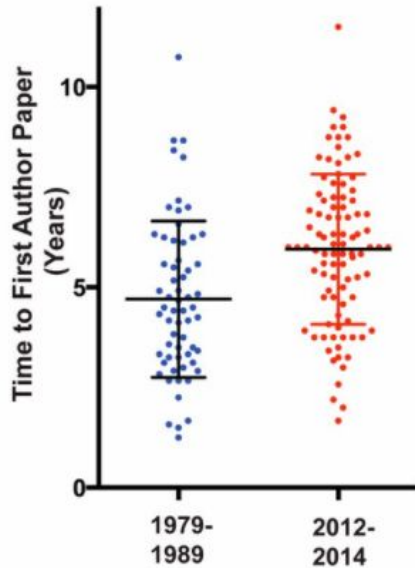
ASAPbio is a researcher-driven 501(c)(3) promoting the productive use of preprints & open peer review through community building, convenings, resource-building, and advocacy

hhmi
Howard Hughes
Medical Institute

ASAPbio



Despite technological advances, journal publication is taking longer than ever



Accelerating scientific publication in biology, Ronald D. Vale
Proceedings of the National Academy of Sciences Nov 2015, 112 (44)
13439-13446; DOI: 10.1073/pnas.1511912112

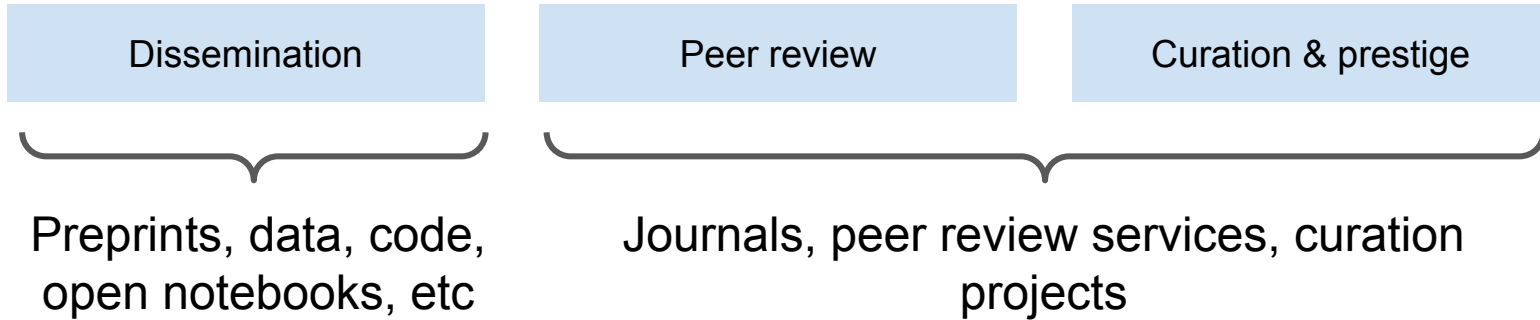
See also
[Life Science's Average Publishable Unit \(APU\) Has Increased over the Past Two Decades](#)
Cordero RJB et al 2016

Untangling “publishing”



Motivates delaying sharing for the creation of a complete “story” that will enable a scientist to be competitive for jobs & funding

Publish, then review



Stern BM, O'Shea EK (2019) A proposal for the future of scientific publishing in the life sciences. PLOS Biology 17(2): e3000116. <https://doi.org/10.1371/journal.pbio.3000116>

<https://elifesciences.org/collections/d72819a9/executable-research-articles>

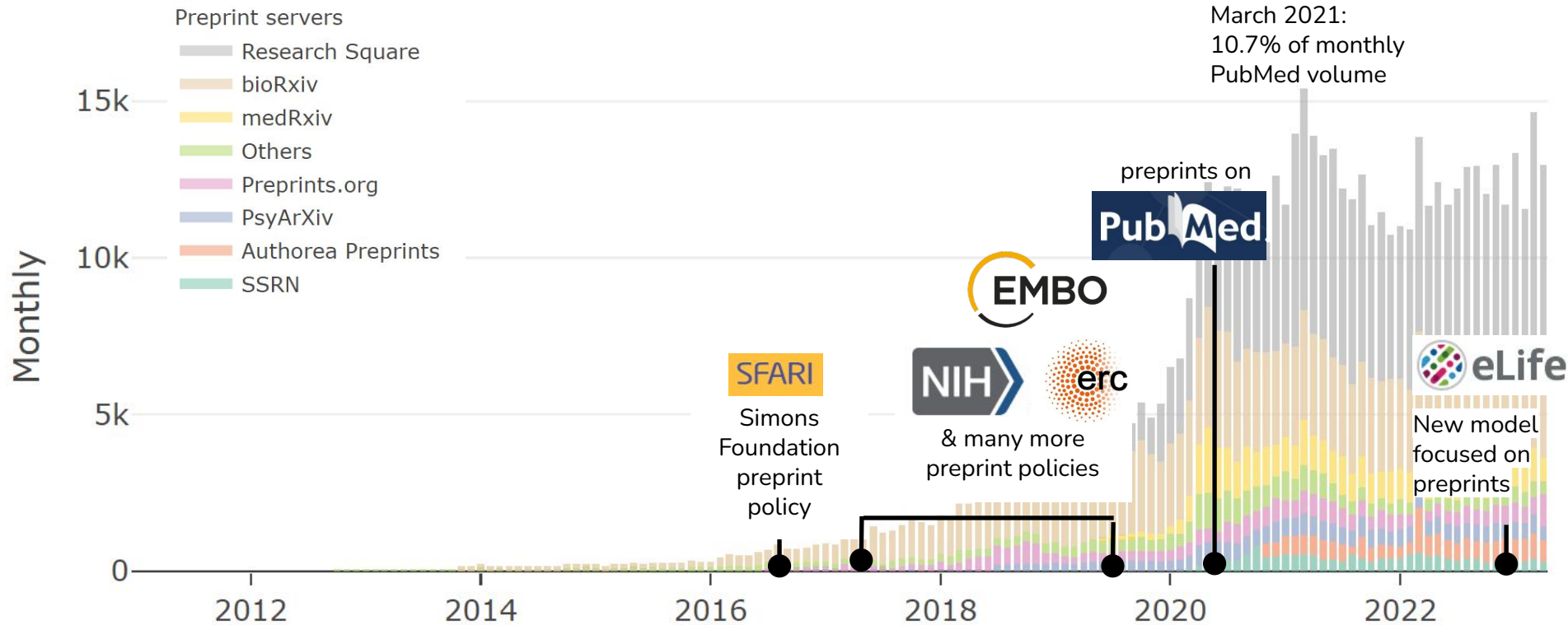
Preprints enable rapid dissemination



Preprints are...

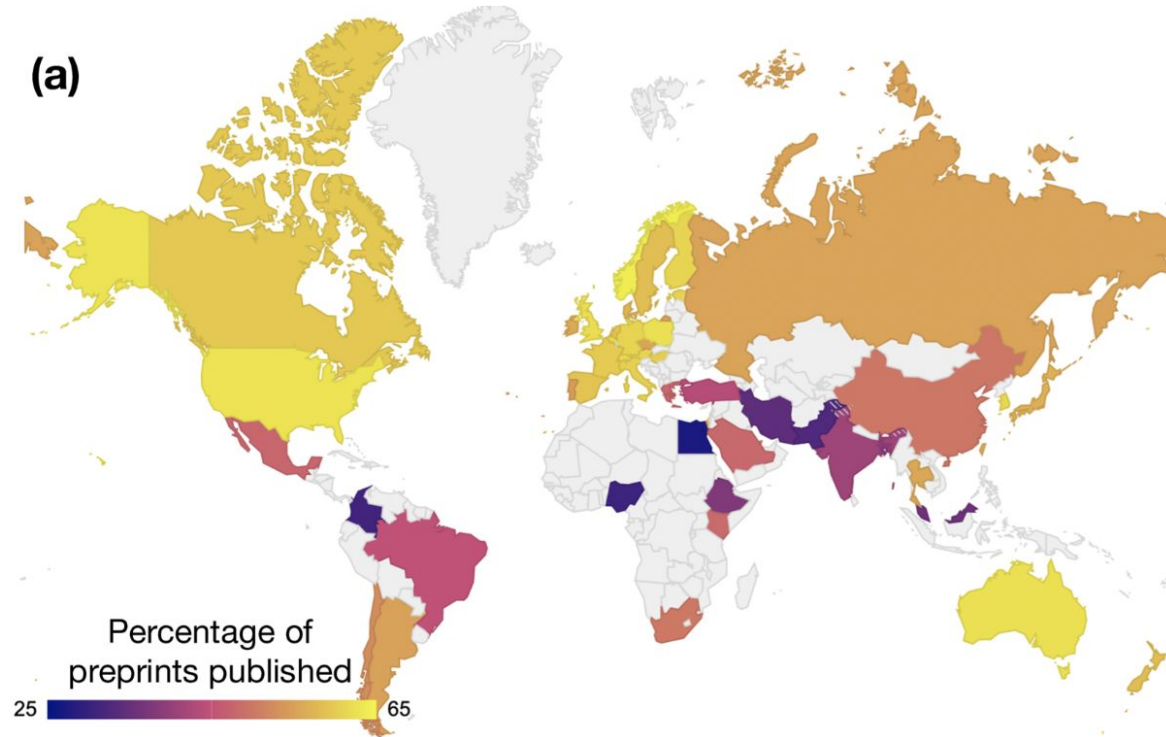
- Not peer reviewed by the server before posting
 - Posted rapidly
- Versioned
 - Easily updated or corrected
- Compatible with journals
 - Check SHERPA/ROMEO & journal website
- Citable
 - Receive a DOI
 - Some search tools pool citations to preprints & its journal article (eg Google Scholar)
 - Many funders consider preprints evidence of productivity in grant apps & reports

Nearly 600,000 life sciences preprints + millions more in other disciplines & other repositories



Preprints reduce
barriers to sharing

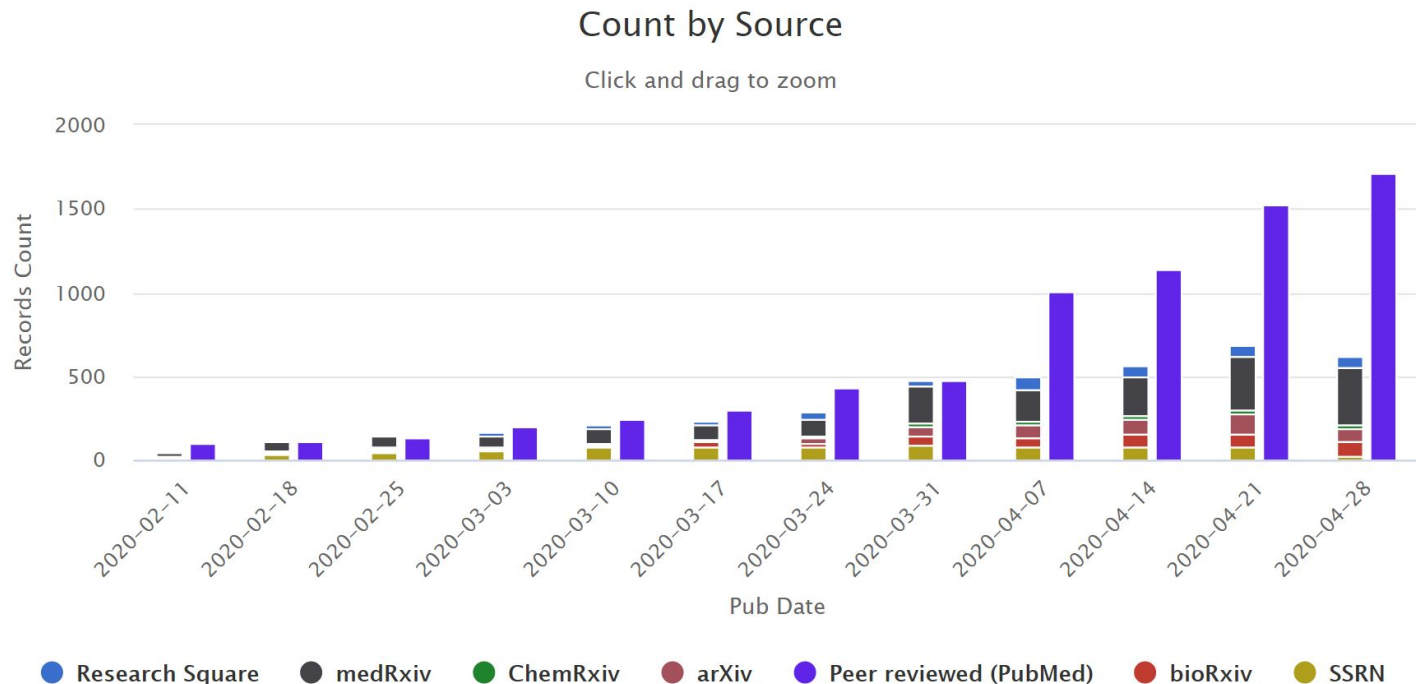
Preprints are more accessible than journal publication



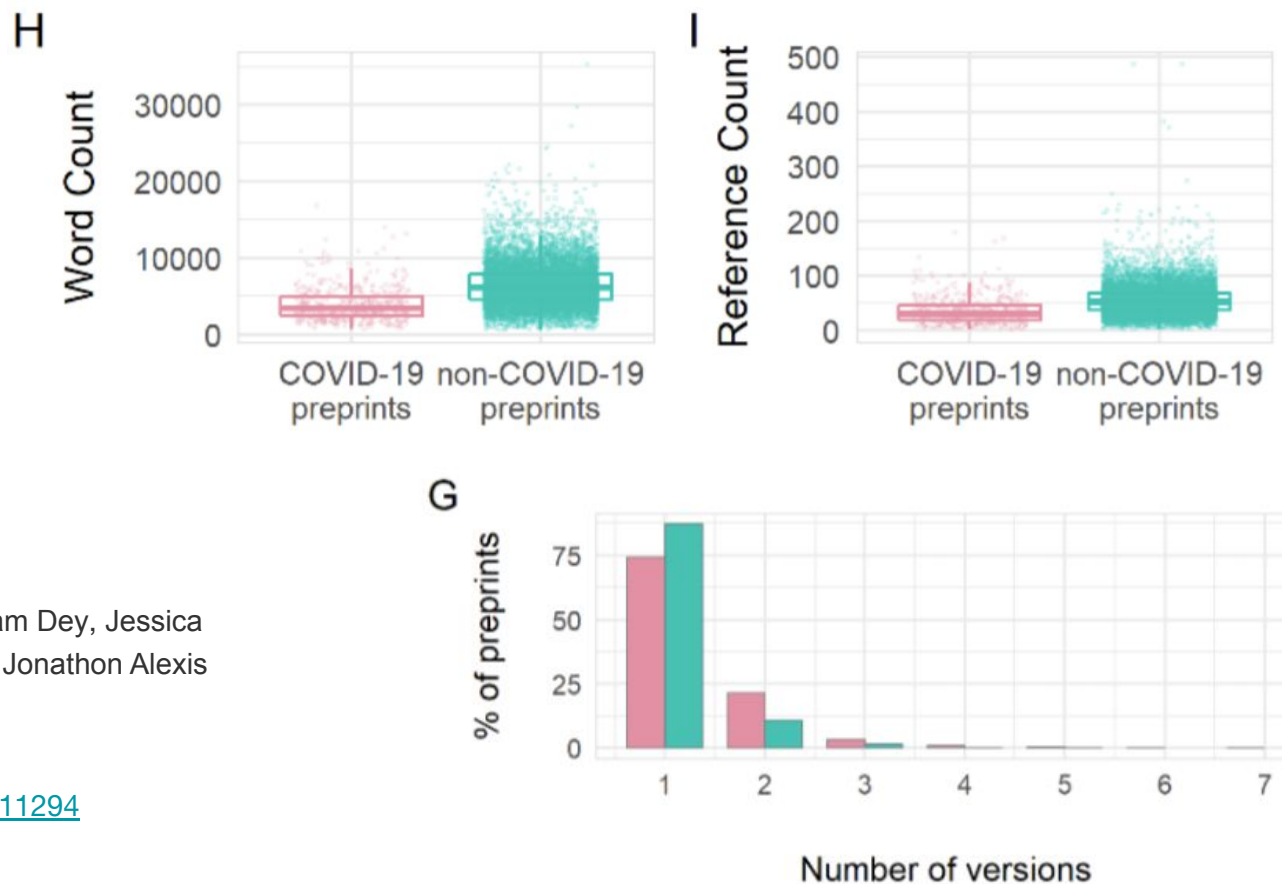
65% of preprints published in high income countries vs 25% in low-income countries

Eckmann P, Bandrowski A (2023) PreprintMatch: A tool for preprint to publication detection shows global inequities in scientific publication. PLoS ONE 18(3): e0281659.
<https://doi.org/10.1371/journal.pone.0281659>

A significant fraction of COVID-19 research was released as preprints



COVID-19 preprints are short and frequently updated



Preprinting the COVID-19 pandemic

Nicholas Fraser, Liam Brierley, Gautam Dey, Jessica K Polka, Máté Pálffy, Federico Nanni, Jonathon Alexis Coates

bioRxiv 2020.05.22.111294; doi:

<https://doi.org/10.1101/2020.05.22.111294>

(Reviewed by RR:C19)

Preprints are shaping policy

[Home](#) > [Coronavirus \(COVID-19\) action plan](#)



Department
of Health &
Social Care

Policy paper

Coronavirus action plan: a guide to what you can expect across the UK

Published 3 March 2020

Contents

1. Introduction
2. What we know about the virus and the diseases it causes
3. How the UK prepares for infectious disease outbreaks
4. Our response to the current coronavirus outbreak

1. Introduction

The current novel coronavirus (COVID-19) outbreak, which began in December 2019, presents a significant challenge for the entire world.

The UK government and the devolved administrations, including the health and social care systems, have planned extensively over the years for an event like this, and the UK is therefore well prepared to respond in a way that offers substantial protection to the public.

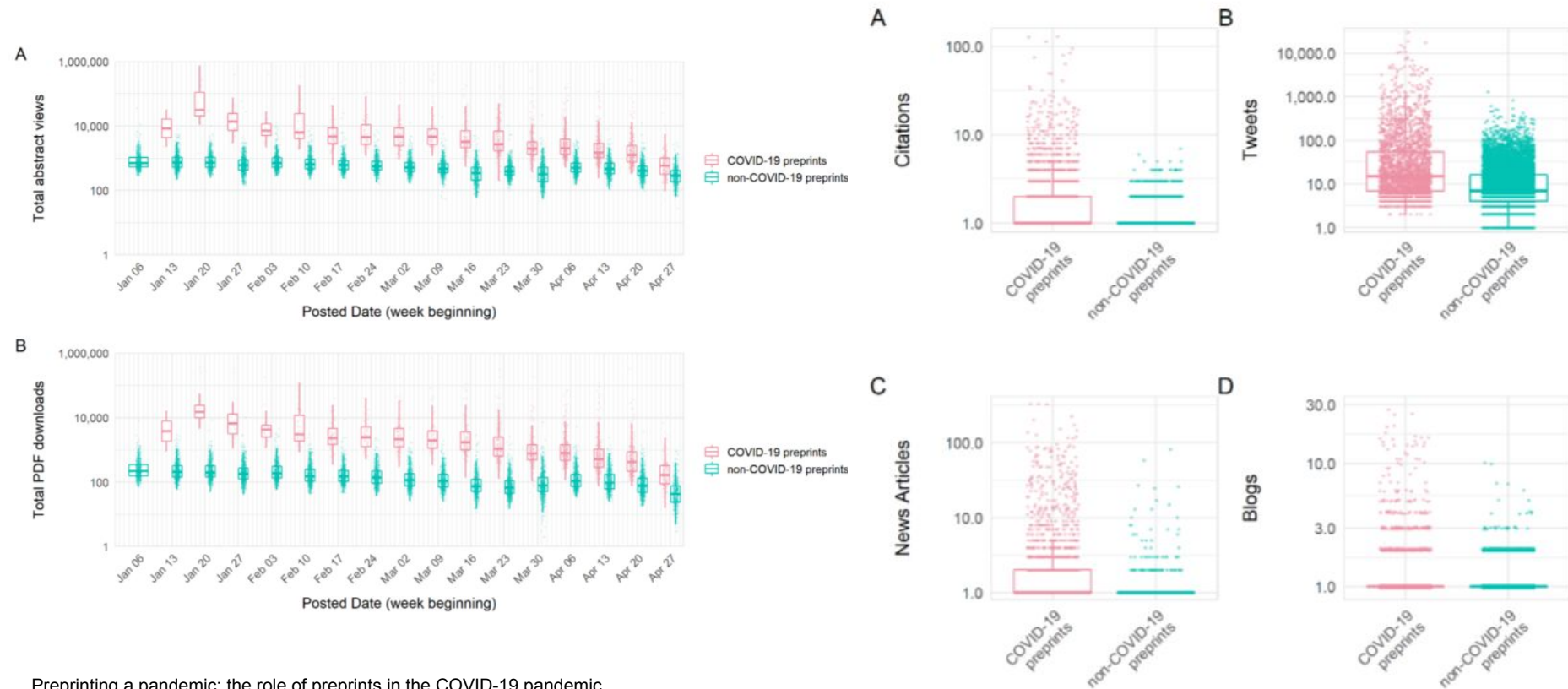
Of course, this is a new virus, and new technology and the increasing connectivity of our

8. Li J, Li S, Cai Y, Liu Q, Li X, Zeng Z, Chu Y, Zhu F, Zeng F. Epidemiological and Clinical Characteristics of 17 Hospitalized Patients with 2019 Novel Coronavirus Infections Outside Wuhan, China. **medRxiv**. 2020 Jan 1 ↩

<https://www.gov.uk/government/publications/coronavirus-action-plan/coronavirus-action-plan-a-guide-to-what-you-can-expect-across-the-uk>

<https://www.medrxiv.org/content/10.1101/2020.02.11.20022053v1>

Unprecedented attention on COVID-19 preprints



Preprinting a pandemic: the role of preprints in the COVID-19 pandemic

Nicholas Fraser, Liam Brierley, Gautam Dey, Jessica K Polka, Mate Palfy, Jonathon Alexis Coates

bioRxiv 2020.05.22.111294; doi: <https://doi.org/10.1101/2020.05.22.111294>

Not peer reviewed $\neq$ low quality

Nelson L, Ye H, Schwenn A, Lee S, Arabi S, Hutchins BI. Robustness of evidence reported in preprints during peer review. *Lancet Glob Health*. 2022 Nov;10(11):e1684-e1687. doi: 10.1016/S2214-109X(22)00368-0

100 papers

Uncertainty was reduced during peer review, with CIs reducing by 7% on average.

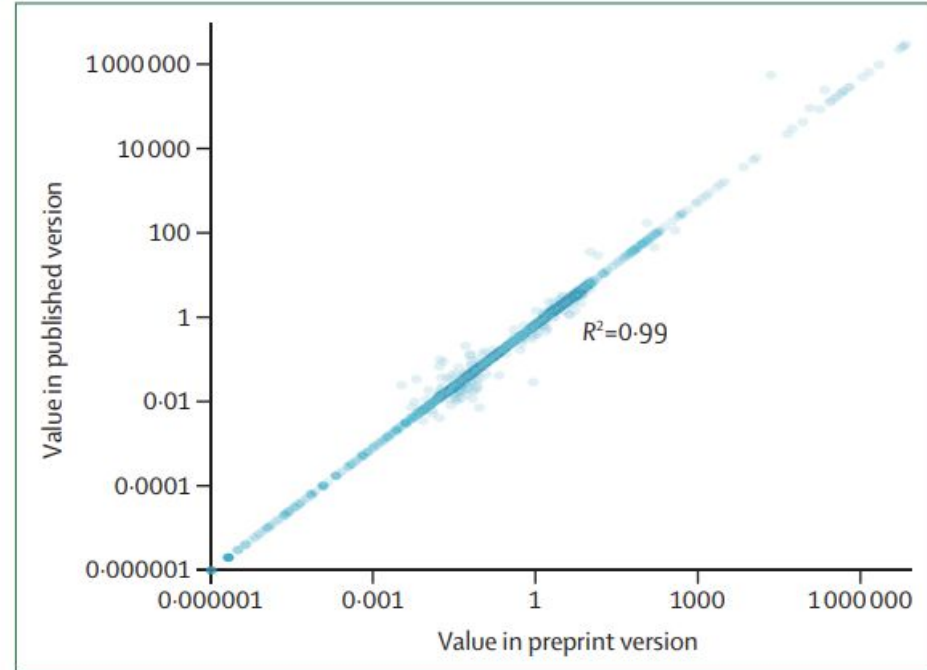


Figure 1: Robustness of preprint data during review

Log scale comparison of epidemiological estimate values reported in preprints vs their matched values reported in peer-reviewed publications ($R^2>0.99$).

Not peer reviewed $\neq$ low quality

Nelson L, Ye H, Schwenn A, Lee S, Arabi S, Hutchins BI. Robustness of evidence reported in preprints during peer review. *Lancet Glob Health*. 2022 Nov;10(11):e1684-e1687. doi: 10.1016/S2214-109X(22)00368-0

67 articles in the Rapid Reviews:
COVID-19 database

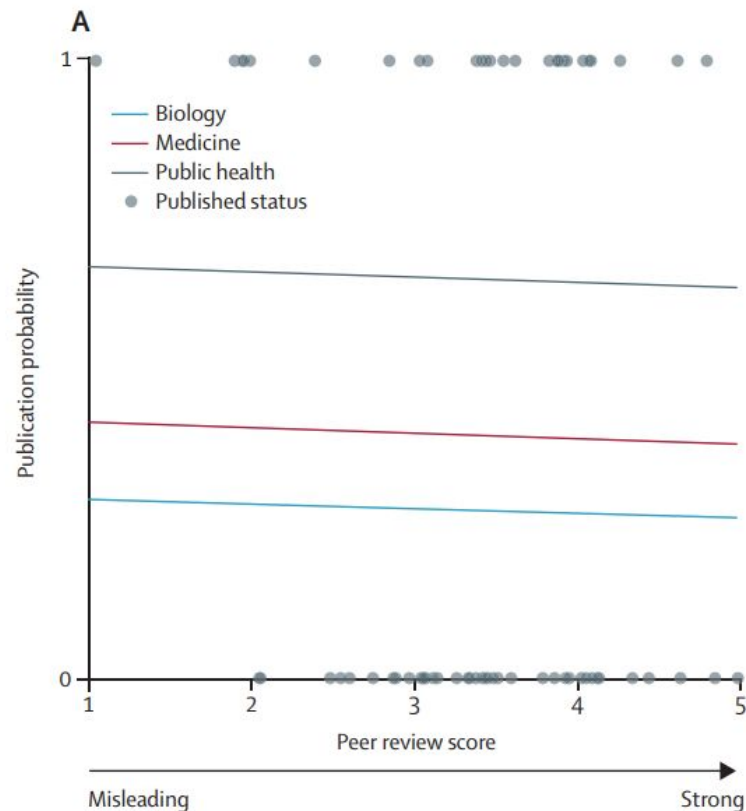
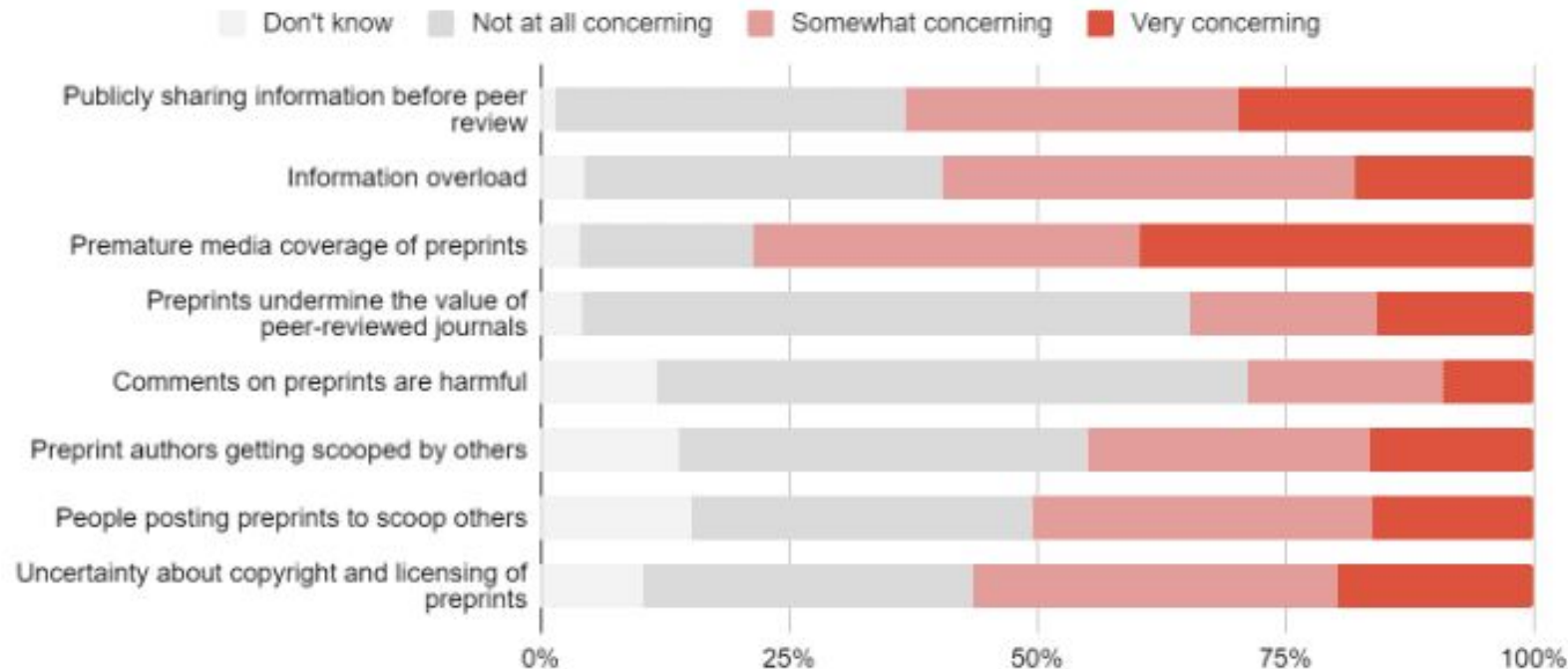


Figure 2: Correlates of peer review

(A) Rug plot and line plot of fitted logistic regression controlling for area of research. 10% jitter was added to the x-axis rug plot data points to facilitate visualisation of otherwise overlapping points. (B) Sorted ratios of the peer-

Benefits and concerns about preprints

Concerns about preprinting



Public feedback is an important remedy for misinformation

CSH Cold Spring Harbor Laboratory **bioRxiv** THE PREPRINT SERVER FOR BIOLOGY

bioRxiv posts many COVID19-related papers. A reminder: they have not been formally peer-reviewed and should not guide health-related behavior or be reported in the press as conclusive.

New Results **This article has been withdrawn. Click here for details** Follow this preprint

Uncanny similarity of unique inserts in the 2019-nCoV spike protein to HIV-1 gp120 and Gag

Prashant Pradhan, Ashutosh Kumar Pandey, Akhilesh Mishra, Parul Gupta, Praveen Kumar Tripathi, Manoj Balakrishnan Menon, James Gomes, Perumal Vivekanandan, Bishwajit Kundu
doi: <https://doi.org/10.1101/2020.01.30.927871>

This article is a preprint and has not been certified by peer review [what does this mean?].

135 0 1 0 143 0 15640

Abstract Full Text Info/History Metrics Preview PDF

Abstract

We are currently witnessing a major epidemic caused by the 2019 novel coronavirus (2019-nCoV). The evolution of 2019-nCoV remains elusive. We found 4 insertions in the spike glycoprotein (S) which are unique to the 2019-nCoV and are not present in other coronaviruses. Importantly, amino acid residues in all the 4 inserts have identity or similarity to those in the HIV-1 gp120 or HIV-1 Gag. Interestingly, despite the inserts being discontinuous on the primary amino acid sequence, 3D-modelling of the 2019-nCoV suggests that they converge to constitute the receptor binding site. The

“[T]he reaction from the scientific community to the bioRxiv paper was swift. In a nutshell, **commenters on bioRxiv and Twitter** said, the author’s methods seemed rushed, and the findings were at most a coincidence. By Saturday morning, bioRxiv had placed a [special warning](#) on all papers about coronavirus. Later Saturday, the authors commented on their paper, saying they were withdrawing it. And on Sunday, a [more formal retraction](#) appeared.”

<https://www.statnews.com/2020/02/03/retraction-faulty-coronavirus-paper-good-moment-for-science/>



Preprints promote
conversations

BioRxiv integrates with feedback providers



THE PREPRINT SERVER FOR BIOLOGY

bioRxiv posts many COVID19-related papers. A reminder: they have not been formally peer-reviewed and should not guide health-related behavior or be reported in the press as conclusive.

New Results [Follow this preprint](#)

Eco1-dependent cohesin acetylation anchors chromatin loops and cohesion to define functional meiotic chromosome domains

 Rachael E. Barton,  Lucia F. Massari,  Daniel Robertson,  Adele L. Marston

doi: <https://doi.org/10.1101/2021.09.24.461725>

This article is a preprint and has not been certified by peer review [what does this mean?].

 0  5  0  0  0  35

[Abstract](#) [Full Text](#) [Info/History](#) [Metrics](#) [Preview PDF](#)

Abstract

Cohesin organizes the genome by forming intra-chromosomal loops and inter-sister chromatid linkages. During gamete formation by meiosis, chromosomes are reshaped to support crossover recombination and two consecutive rounds of chromosome segregation. Here we show that Eco1 acetyltransferase positions both chromatin loops and sister chromatid cohesion to organize meiotic chromosomes into functional domains in budding yeast. Eco1 acetylates the Smc3 cohesin subunit in meiotic S phase to establish chromatin boundaries, independently of DNA replication. Boundary formation by Eco1 is critical for prophase exit and for the maintenance of cohesion until meiosis II, but is independent of the ability of Eco1 to antagonize the cohesin-

Evaluation/discussion of this paper

[Comments](#) [TRiP](#) [Community](#) [Automated](#) [Blogs/Media](#) [Video](#) [Tweets](#)

 **TRiP**

bioRxiv partners with journals and review services to enable posting of peer reviews and editorial decisions related to preprints they are evaluating. Reviews are posted with the consent of the authors.

 eLife

Author Response:

Reviewer #2 (Public Review):

This manuscript by Barton and colleagues explores the roles of the conserved Eco1 transacetylase in modulating cohesin function in meiosis in budding yeast. Numerous studies in mitotically dividing cells have shown that the Eco1 family of transacetylases acetylate the Smc3 subunit of cohesin and that this acetylation renders cohesin on

[More](#)

Evaluation Summary:

The cohesin complex is involved in both sister chromatid cohesion (SCC) and intra-chromatid loop formation. Combining molecular genetic and cytological tools with genome-wide calibrated ChIP and HiC analyses in budding yeast, the authors elegantly show that Eco1 and Eco1-mediated Smc3 acetylation promote the boundary formation of chromatin loops by cohesin, which is critical for both meiotic recombination in meiosis I and sister chromatid cohesion in

[More](#)

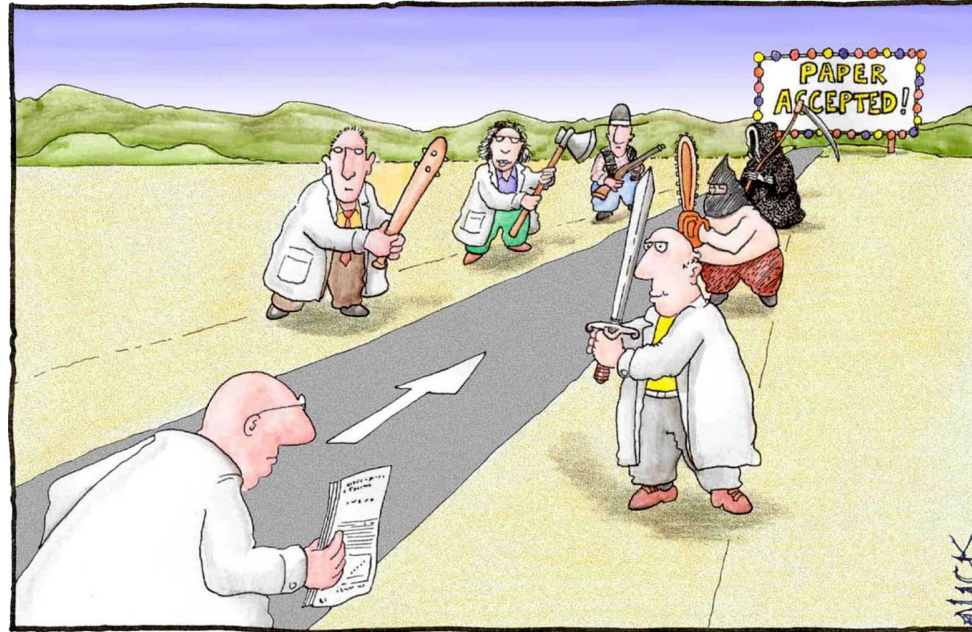
Reviewer #1 (Public Review):

Cohesin complex is involved in both sister chromatid cohesion (SCC) and intra-chromatid loop formation. Combined of molecular genetic and cytological tools with genome-wide calibrated ChIP and HiC analyses, the authors elegantly showed that Eco1, thus, Smc3 acetylation, promotes the boundary formation of the chromatin loop by the cohesin, which is critical for both meiotic recombination in meiosis I and sister chromatid cohesion in

[More](#)

Reviewer #2 (Public Review):

Peer reviewers can act as gatekeepers...



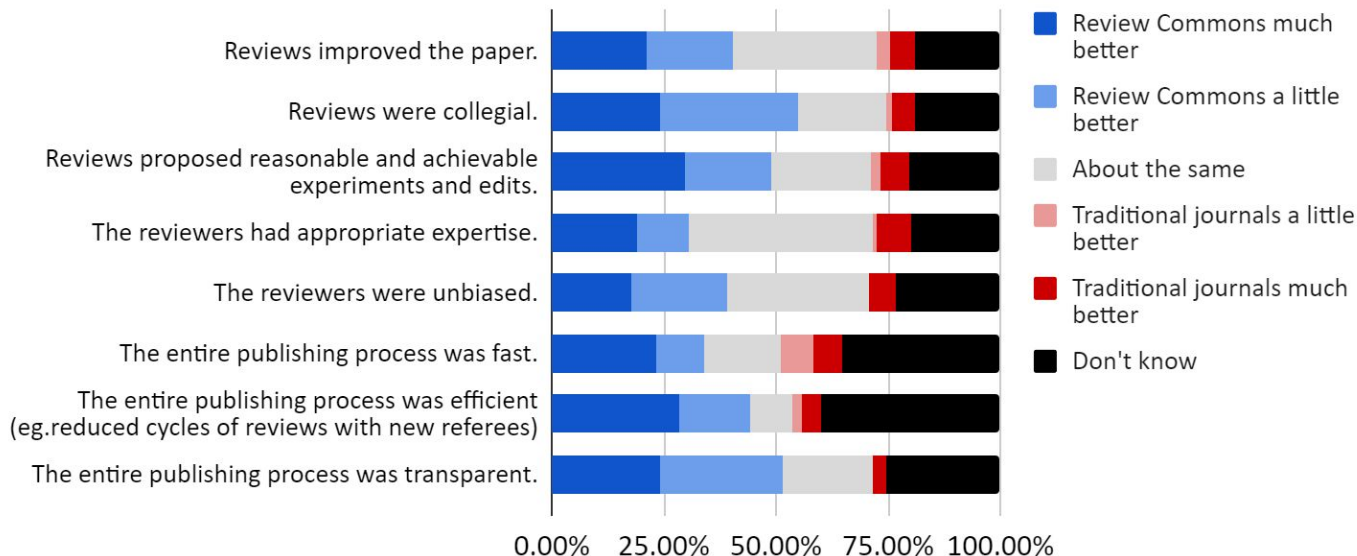
Most scientists regarded the new streamlined peer-review process as 'quite an improvement.'

...Or collaborators



**Review Commons
provides
high-quality peer
review of preprints
before journal
submission.**

Compare your Review Commons experience to your experience as an author at traditional journals over the last year. (n = 95)



<https://asapbio.org/review-commons-9-months>

Public feedback advances science & collaboration

Bayesian alternatives for common null-hypothesis significance tests in psychiatry: A non-technical guide using JASP

Daniel S. Quintana^{1*} and Donald R. Williams²

<https://osf.io/sgpe9/>

Psychological
Methods Discussion
Group

Public Group

Discussion

Daniel's post

Members



Daniel Quintana shared a link.
April 10

Just posted a preprint on Bayesian alternatives for common null-hypothesis significance tests that may be of interest to the group. Our goal was to put together a non-technical walkthrough using JASP for those unfamiliar with Bayesian alternatives. Would appreciate any feedback

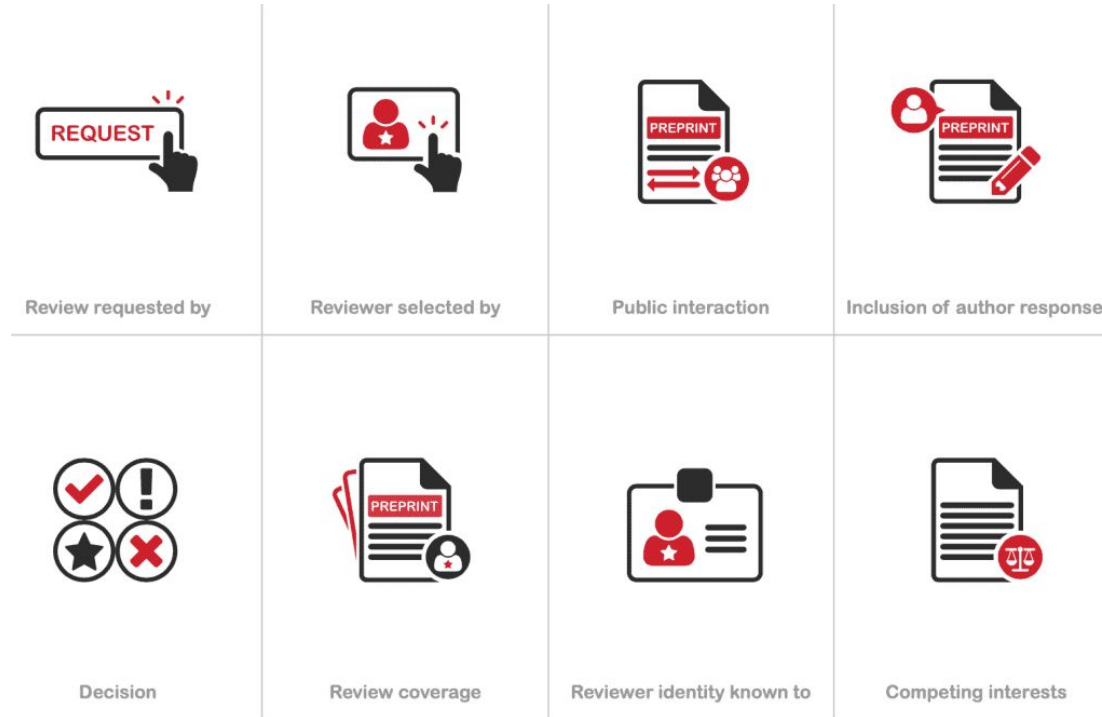
osf.io

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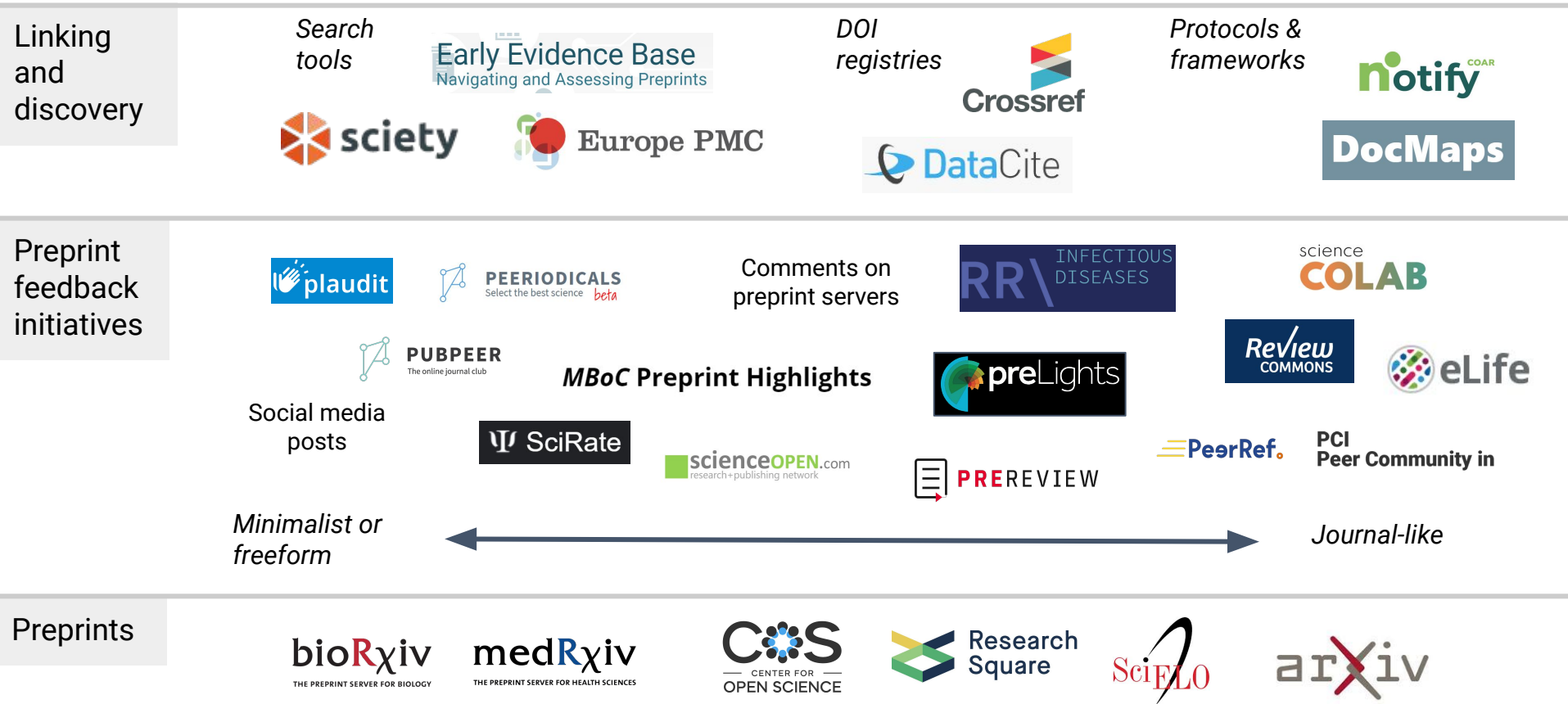
<https://www.facebook.com/groups/853552931365745/permalink/1349684805085886/>



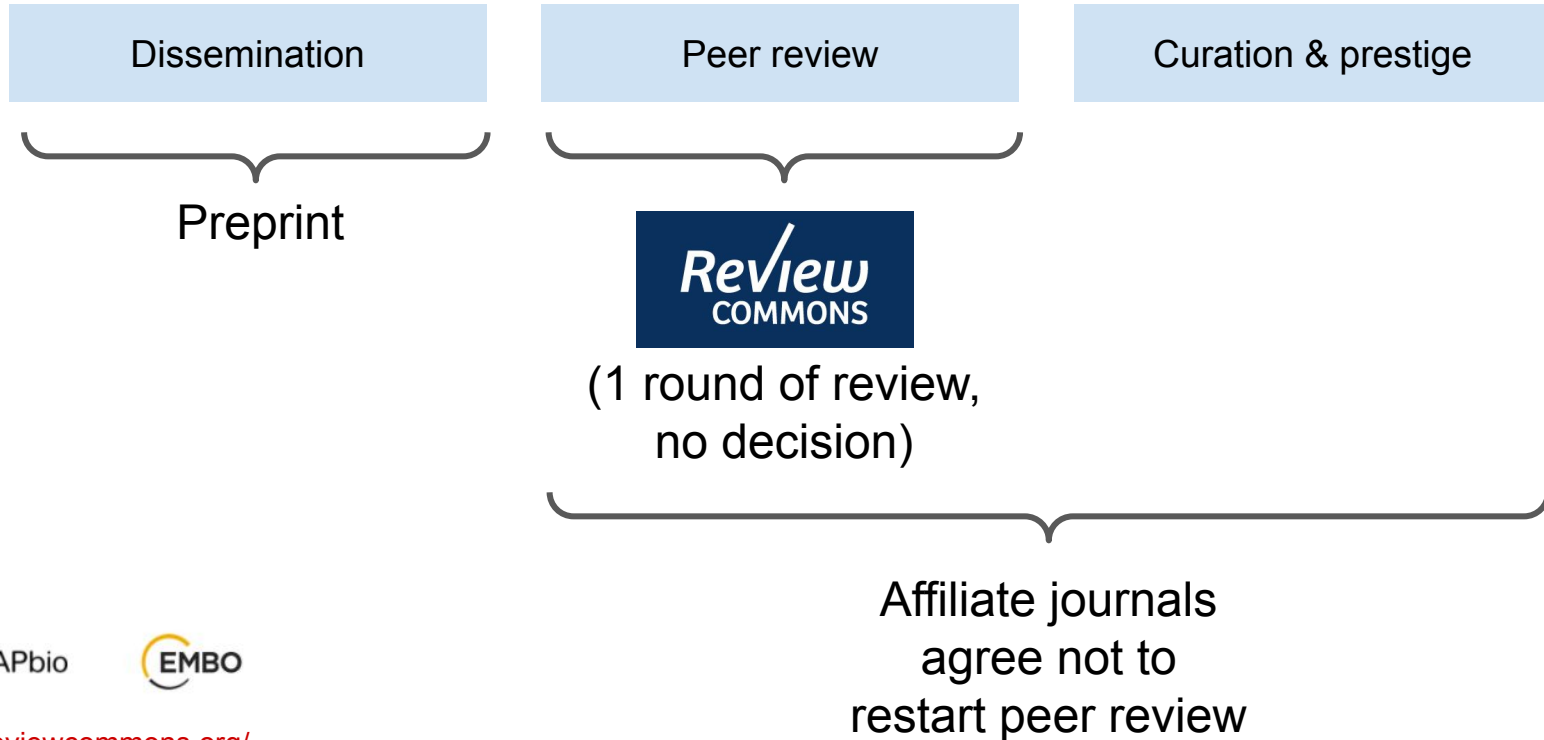
Preprint review opens up a higher-dimensional space for experimenting with peer review



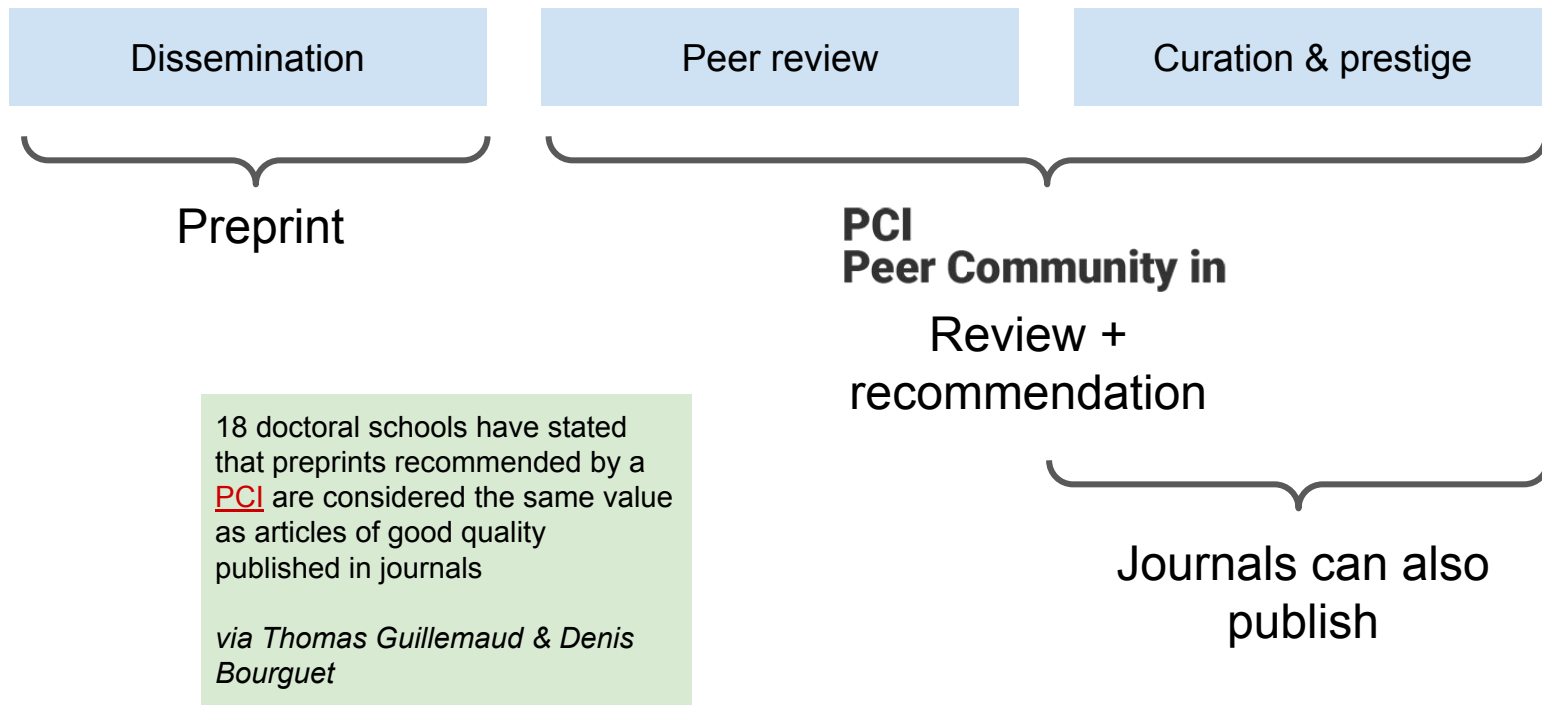
The preprint feedback ecosystem



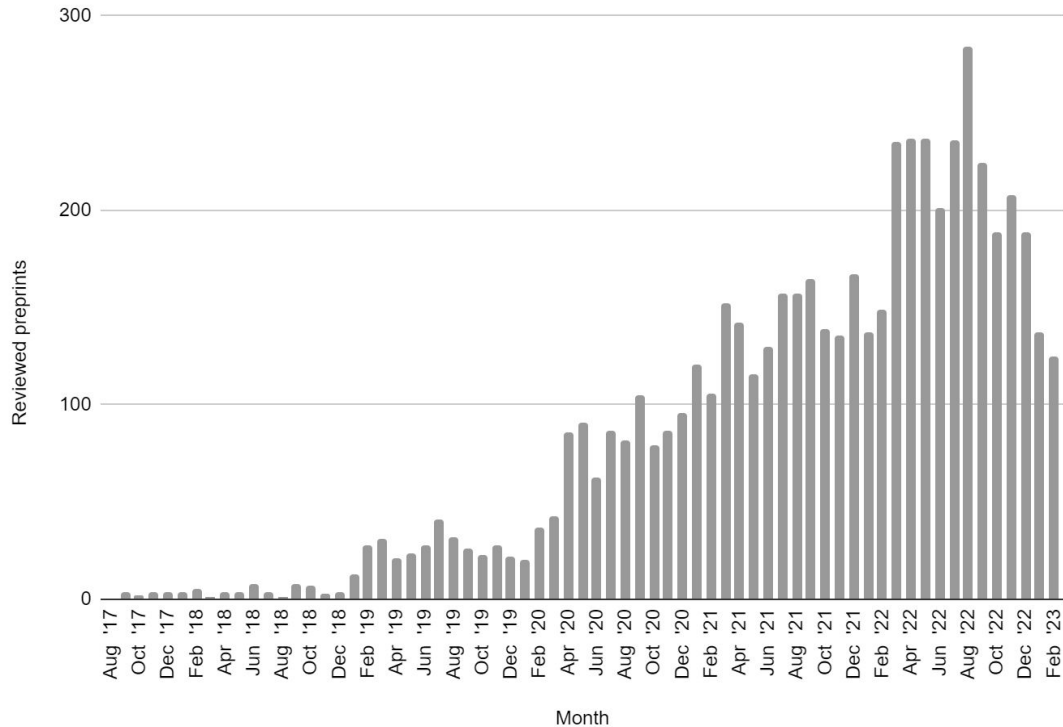
Recognizing preprint review



Recognizing preprint review



Growth of preprint review over time



Preprints reviewed per month on Sciety, excluding reviews conducted by automated tools (ScreenIT) and reviews by journals posted after publication of the journal version. (Source: [10.31219/osf.io/cht8p](https://doi.org/10.31219/osf.io/cht8p))

Formal recognition for preprint peer review

18 doctoral schools have stated that preprints recommended by a PCI are considered the same value as articles of good quality published in journals

via Thomas Guillemaud & Denis Bourguet

FEATURES

Refereed preprints recognized as eligibility criterion for EMBO Postdoctoral Fellowships

EMBO will accept first author refereed preprints in applications for postdoctoral fellowships in a four-month trial

[Read more](#) ►



Papers subjects to a 'journal-independent standard peer review process [...] are considered by most cOAlition S organisations to be of equivalent merit and status as peer-reviewed publications that are published in a recognised journal or on a platform."

[Statement](#) on July 6, 2022

Preprints and open science



● Council of the EU Press release 23 May 2023 10:27

Council calls for transparent, equitable, and open access to scholarly publications

“In its conclusions, the Council calls on the Commission and the member states to support policies towards a **scholarly publishing model that is not-for-profit, open access and multi-format, with no costs for authors or readers.**”

A publish-review-curate system, directly supported by institutions & funders, can achieve this



EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF SCIENCE AND TECHNOLOGY POLICY
WASHINGTON, D.C. 20502

SUBJECT: Ensuring Free, Immediate, and Equitable Access to Federally Funded Research

“all peer-reviewed scholarly publications authored or co-authored by individuals or institutions resulting from federally funded research are made **freely available and publicly accessible by default in agency-designated repositories without any embargo or delay after publication**”

A publish-review-curate system, directly supported by institutions & funders, can achieve this

Thank you

ASAPbio staff

Jessica Polka
Anna Drangowska-Way



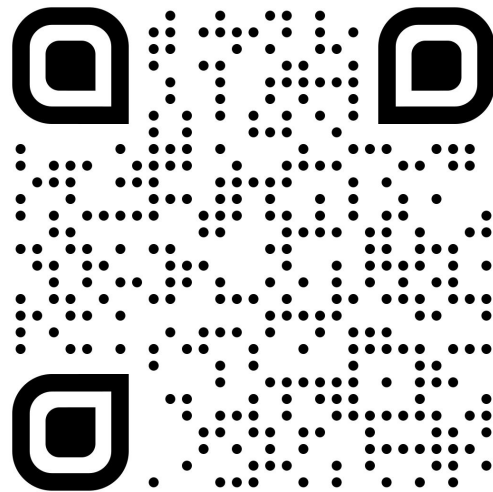
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<https://bit.ly/open-schol-proj-JAC>

