Preprints and Peer Review

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Trends in Peer Review,
STM Annual Conference, DC, April 26, 2017

What is a preprint?

Preprint (*n)*:

- a complete but unpublished manuscript yet to be certified by peer review, distributed by its author before or at submission to a journal

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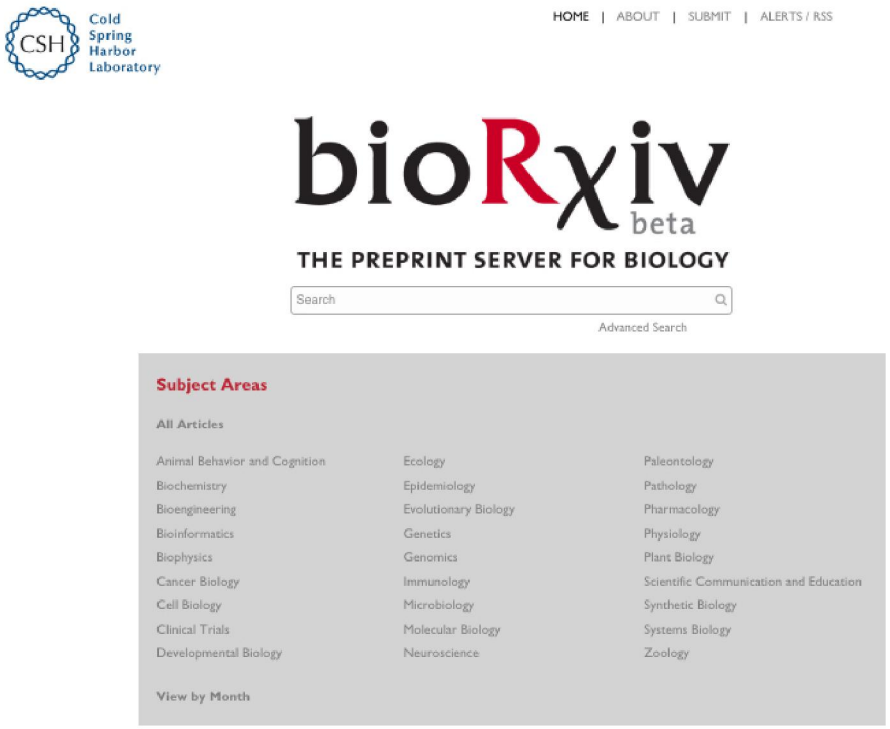
Is this a preprint?

- a complete manuscript submitted to a journal and distributed before public peer review (eg *F1000Research)*

- a complete manuscript submitted to journal and distributed during private peer review (eg Cell Press “sneak peeks”)

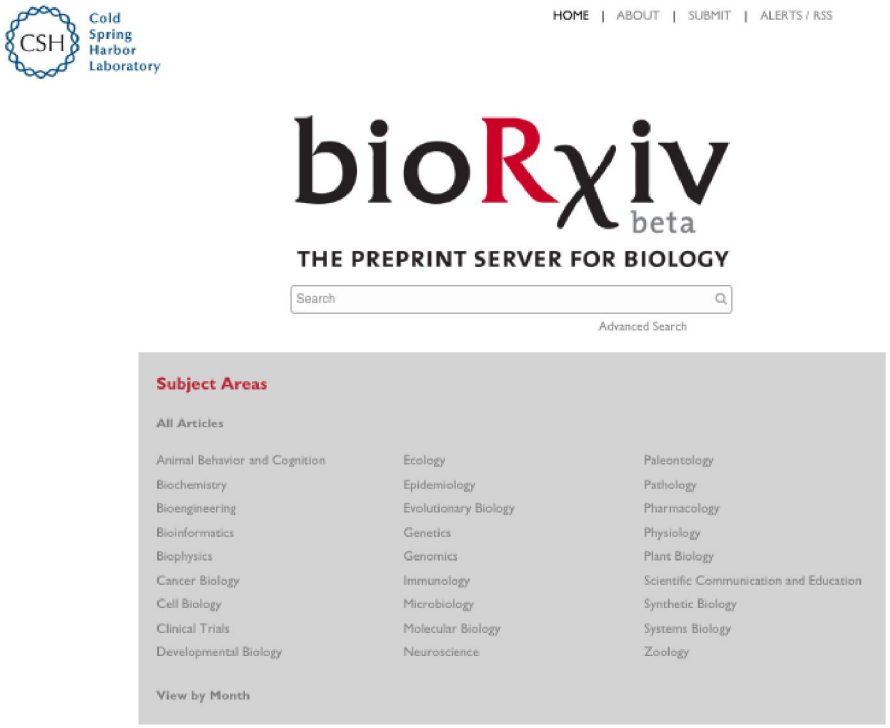
A plethora of preprints

bioRxiv: a service for the distribution of life science preprints



- Launched November 2013
- Operated by Cold Spring Harbor Laboratory
- Covers all life sciences, clinical trials, epidemiology, and science communication and education

The bioRxiv preprint distribution service



- Modeled conceptually on arXiv but with different tech, features, and functions
- Not-for-profit
- Free for authors and readers
- The largest repository of life science preprints

Submission to bioRxiv

1. Authors choose
   - “New”, “confirmatory”, or “contradictory”
   - One of 26 subject categories
   - A CC license (BY, BY-NC, BY-ND, BY-NC-ND) or reserve all rights

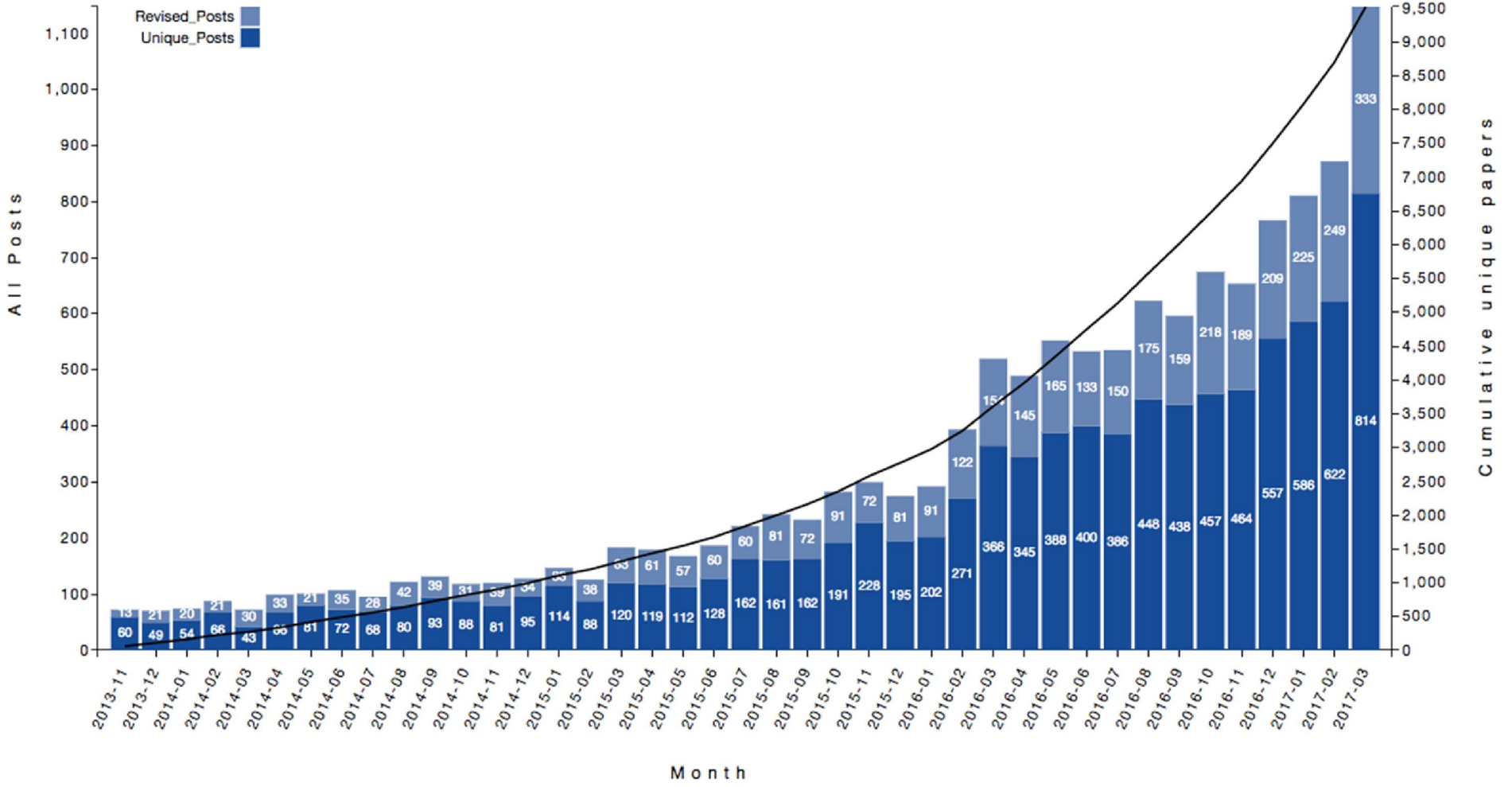
2. bioRxiv screens
   - In-house: Appropriate scope and format? Plagiarism? Images of human subjects?
   - 60+ affiliate scientists and physicians: Science? A research paper? Human health implications?

3. Manuscripts post
   - Directly to the website
   - Within a day of submission
   - Can be revised at any time

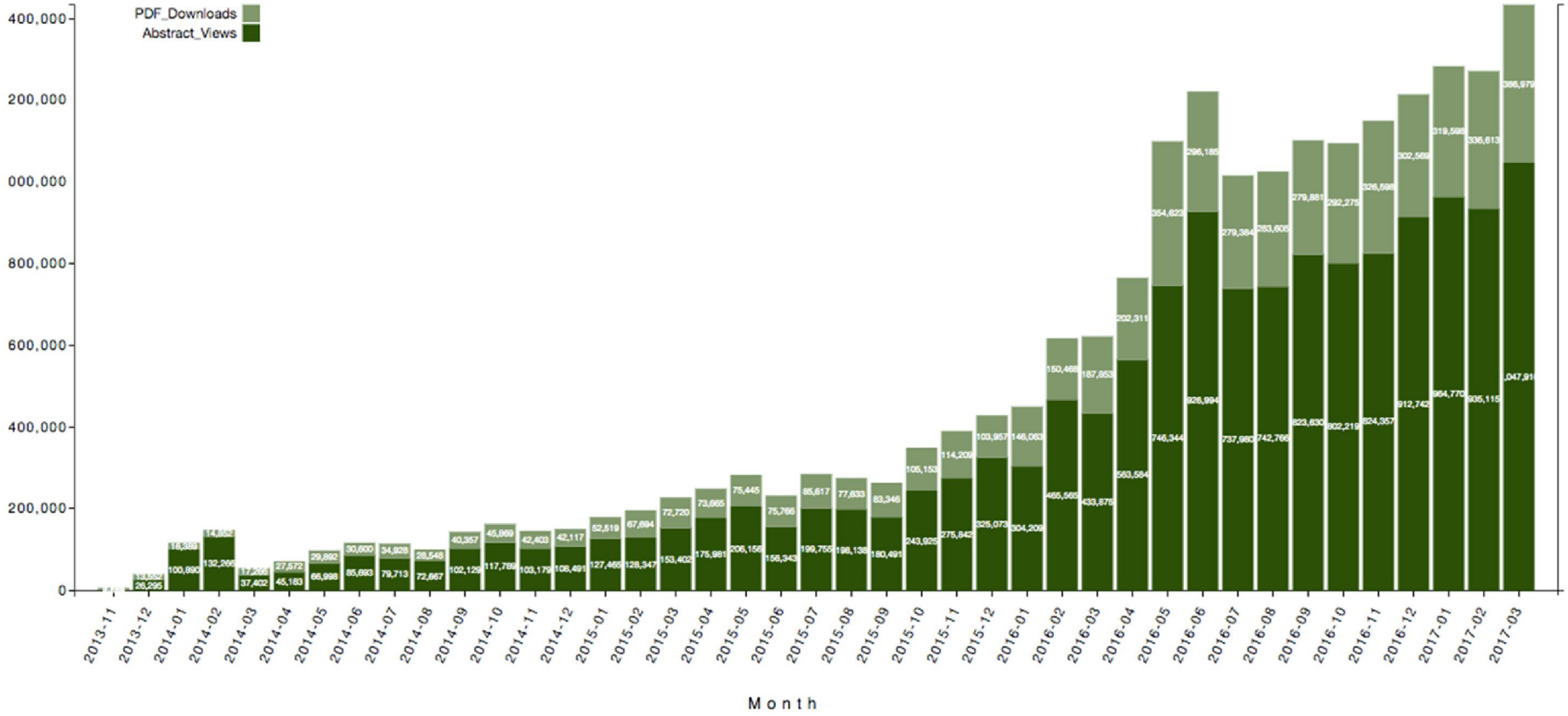
bioRxiv submissions and usage

- >10,000 posted manuscripts
  - 29% revised at least once
  - >55,000 authors
  - >4000 institutions
  - >90 countries
- Rising submission rate, currently >800 monthly
- Increasing usage, currently >1 million downloads and page views monthly

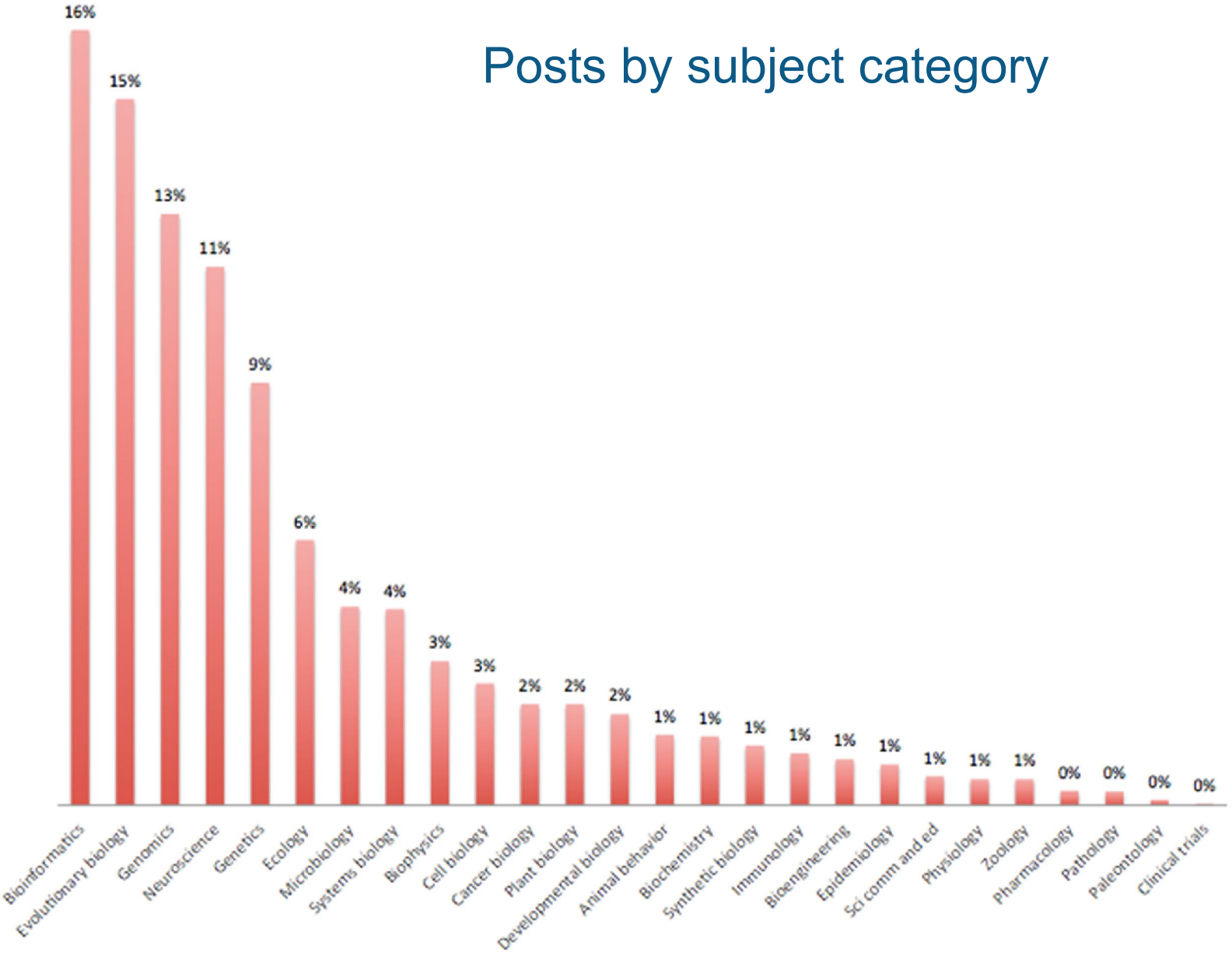
Monthly posts



Monthly usage

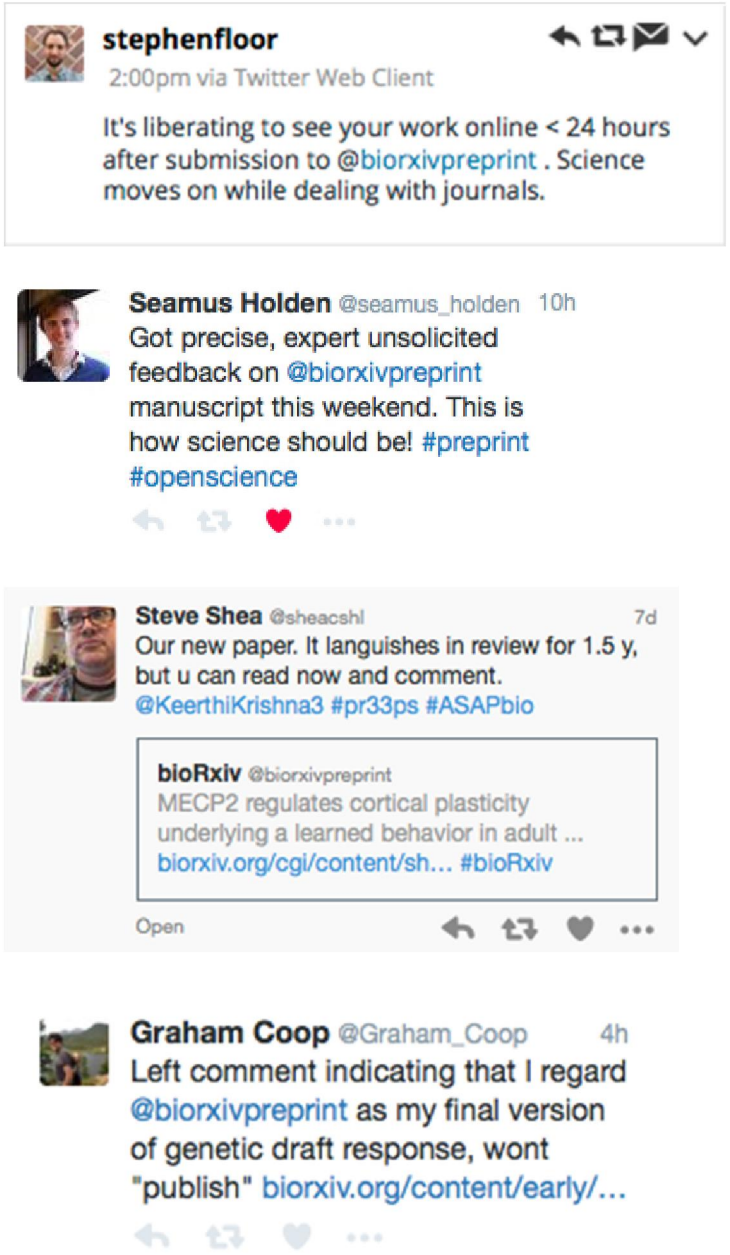


Posts by subject category



Benefits of preprints

- Rapid transmission of results
- Early and broad pre-publication feedback/discussion/potential for collaboration
- Evidence of productivity, especially for early-career investigators
- Easier sharing of work that's hard to publish (negative, contradictory, or confirmatory), or the author chooses not to publish

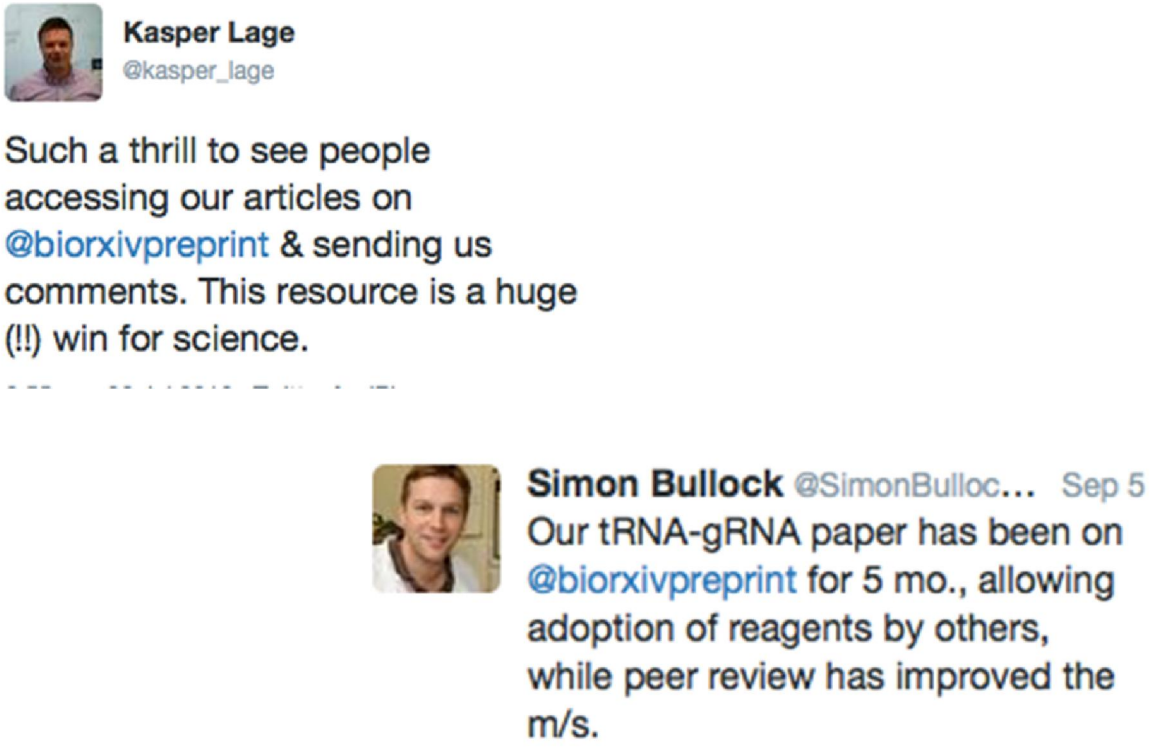


Benefits of preprints

They are read

Benefits of preprints

They get useful feedback



Benefits of bioRxiv preprints

They can permit rapid reanalysis of recently published data

Benefits of preprints

They can support grant and job applications as evidence of recent productivity – and may be mandated by some organizations

Reporting Preprints and Other Interim Research Products

Purpose

The NIH encourages investigators to use interim research products, such as preprints, to speed the dissemination and enhance the rigor of their work. This notice clarifies reporting instructions to allow investigators to cite their interim research products and claim them as products of NIH funding.

MRC Medical Research Council **The MRC supports preprints**

Wellcome **We now accept preprints in grant applications**

Leslie Vosshall @pollyp1 Sep 20

Just back from a review committee meeting where 2 candidates submitted @biorxivpreprint in their materials. And we liked them #ASAPbio

Benefits of preprints

Most journals will consider preprints for publication

- 60% of bioRxiv manuscripts have been published in >550 journals

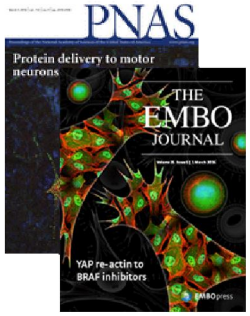
Preprint integration with journal peer review

Submission

Integration: bioRxiv to journal transfer

Submission

One-click transfer



BioPhysical J
Development
eLife
EMBO J
EMBO Mol Med
EMBO reports
G3
Genetics
Genome Res
J Cell Biol
J Gen Physiol
Mol Biol Cell
Mol Sys Biol
Plant J
Plant Physiol
PNAS
& >40 more

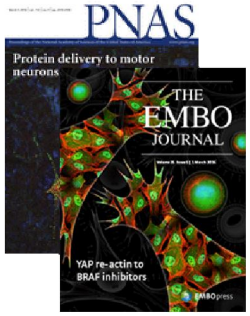
>100 titles

Formal publication

Integration: journal to bioRxiv transfer

Submission

One-click transfer



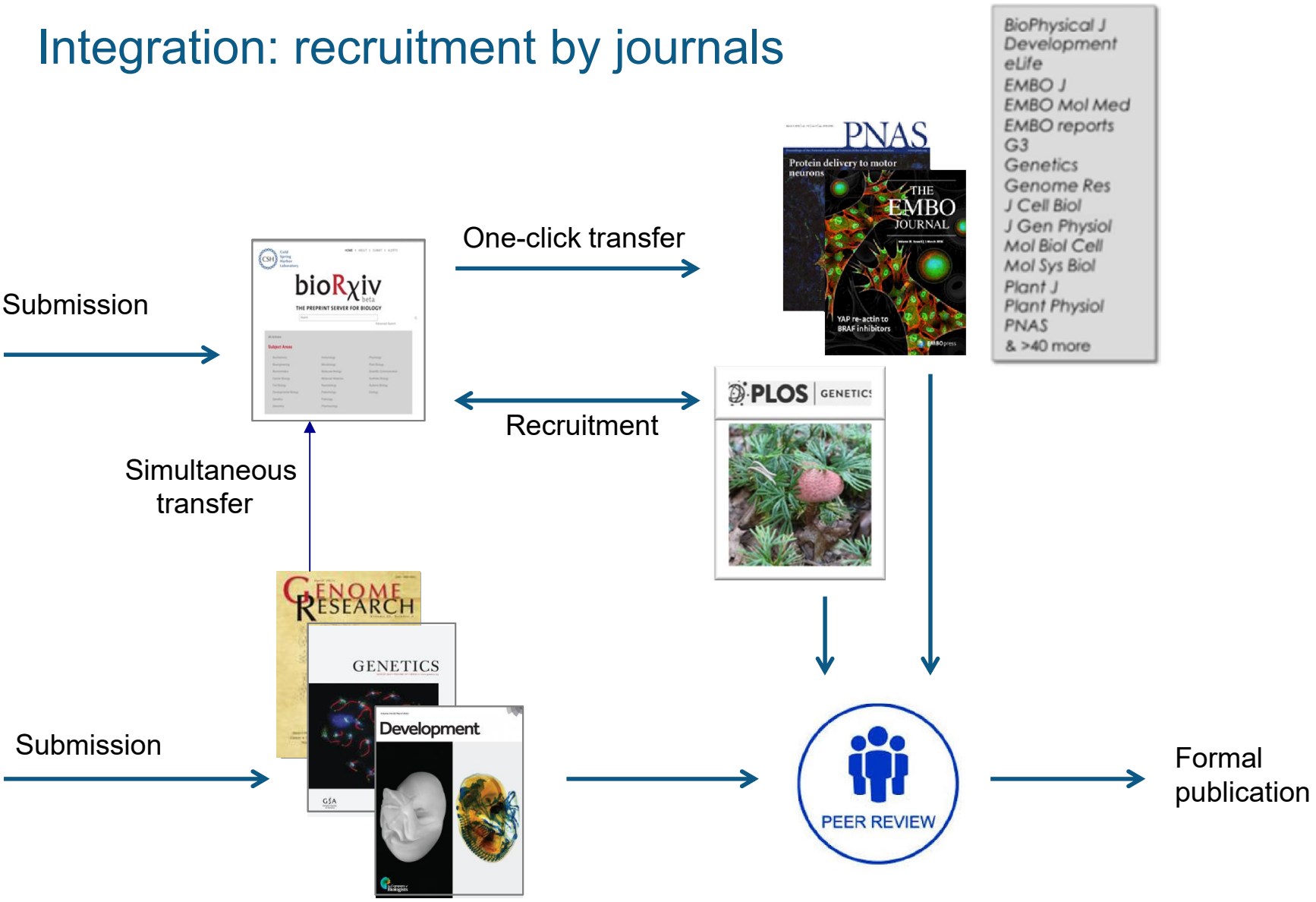
BioPhysical J
Development
eLife
EMBO J
EMBO Mol Med
EMBO reports
G3
Genetics
Genome Res
J Cell Biol
J Gen Physiol
Mol Biol Cell
Mol Sys Biol
Plant J
Plant Physiol
PNAS
& >40 more

Simultaneous transfer

Submission

Formal publication

Integration: recruitment by journals



Integration: flagging journal acceptance

New Results

OptiClust: Improved method for assigning amplicon-based sequence data to operational taxonomic units

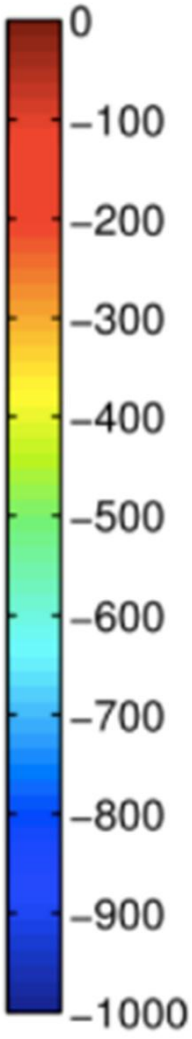
Sarah L Westcott, Patrick D Schloss

doi: https://doi.org/10.1101/096537

Now accepted for publication in *mSphere*

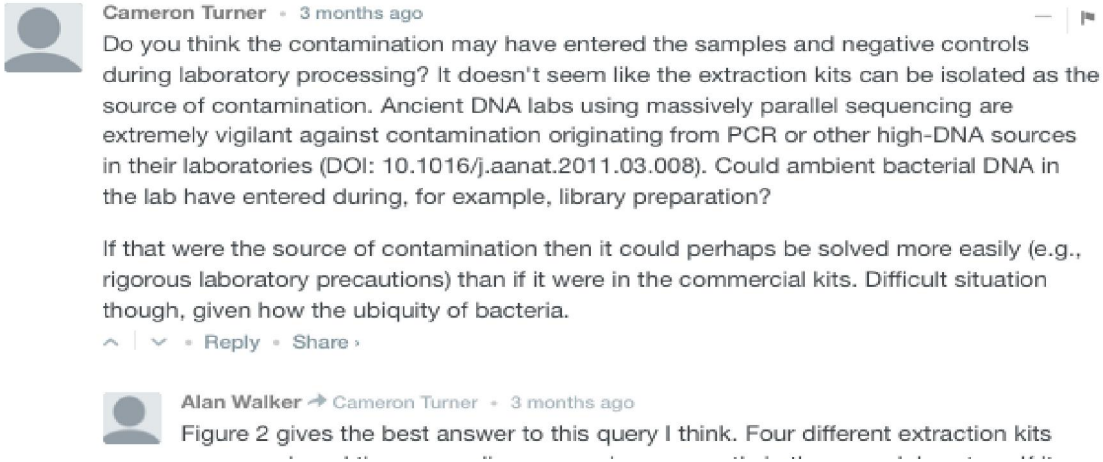
Direct evaluation of preprints

- Comments on social media
- Comments on the bioRxiv site
- Commentary on subject-focused blogs
- Journal-independent peer review
- Overlay journals



Direct evaluation of preprints

- Comments on the bioRxiv site
  - 10% of manuscripts
  - >2500 comments



Cameron Turner • 3 months ago

Do you think the contamination may have entered the samples and negative controls during laboratory processing? It doesn't seem like the extraction kits can be isolated as the source of contamination. Ancient DNA labs using massively parallel sequencing are extremely vigilant against contamination originating from PCR or other high-DNA sources in their laboratories (DOI: 10.1016/j.aanat.2011.03.008). Could ambient bacterial DNA in the lab have entered during, for example, library preparation?

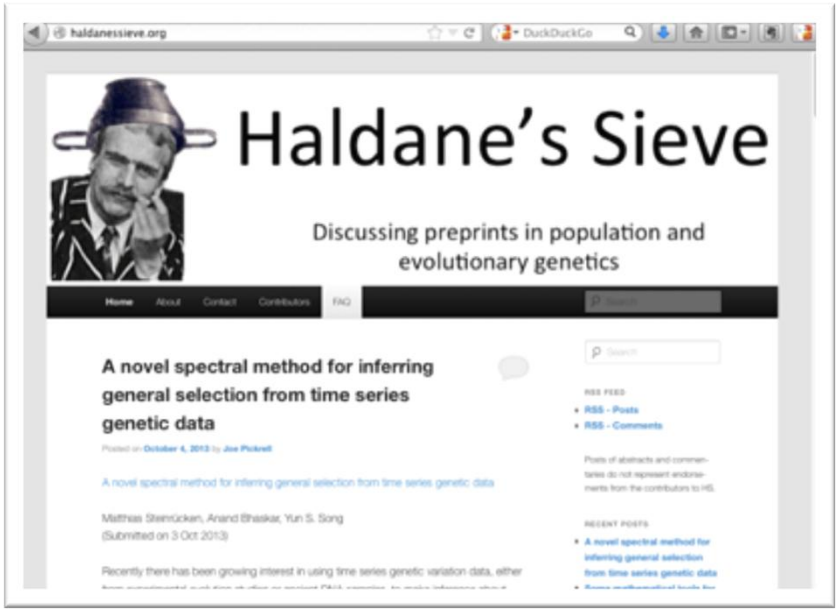
If that were the source of contamination then it could perhaps be solved more easily (e.g., rigorous laboratory precautions) than if it were in the commercial kits. Difficult situation though, given how the ubiquity of bacteria.

Reply • Share ›

Alan Walker ➔ Cameron Turner • 3 months ago

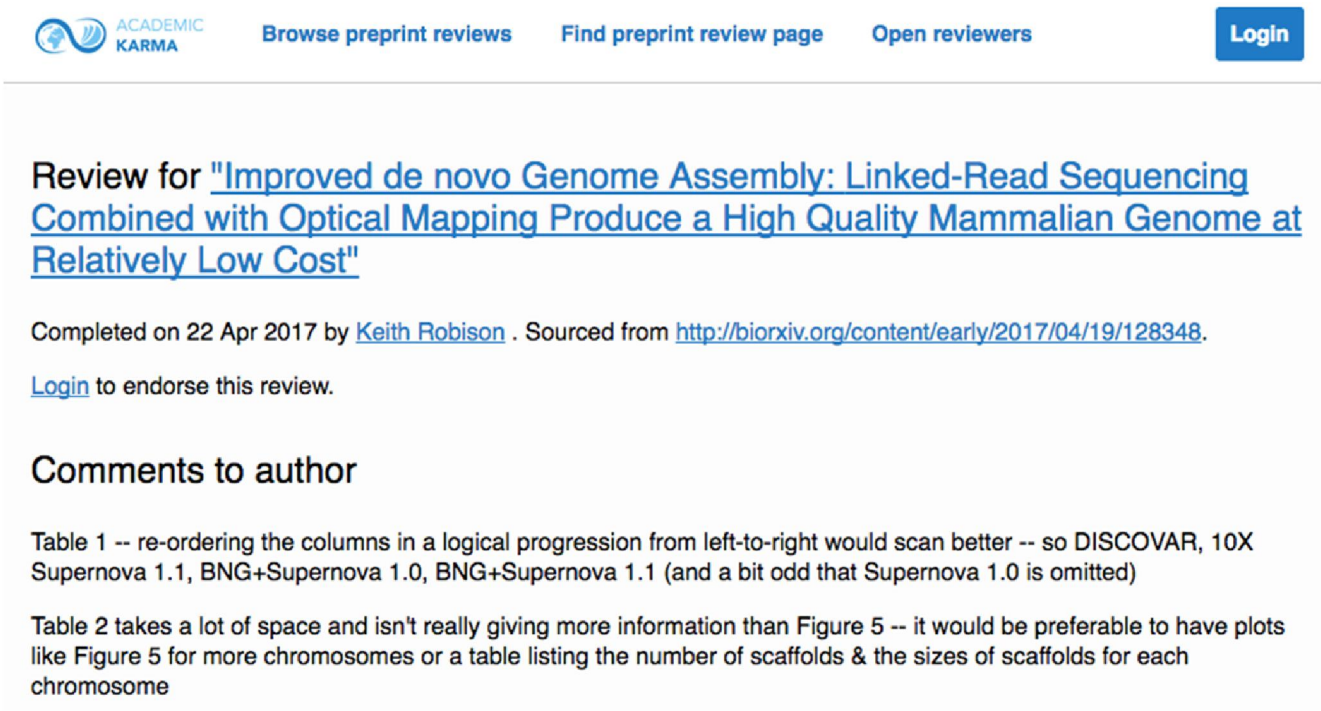
Figure 2 gives the best answer to this query I think. Four different extraction kits

- Commentary on subject-focused blogs



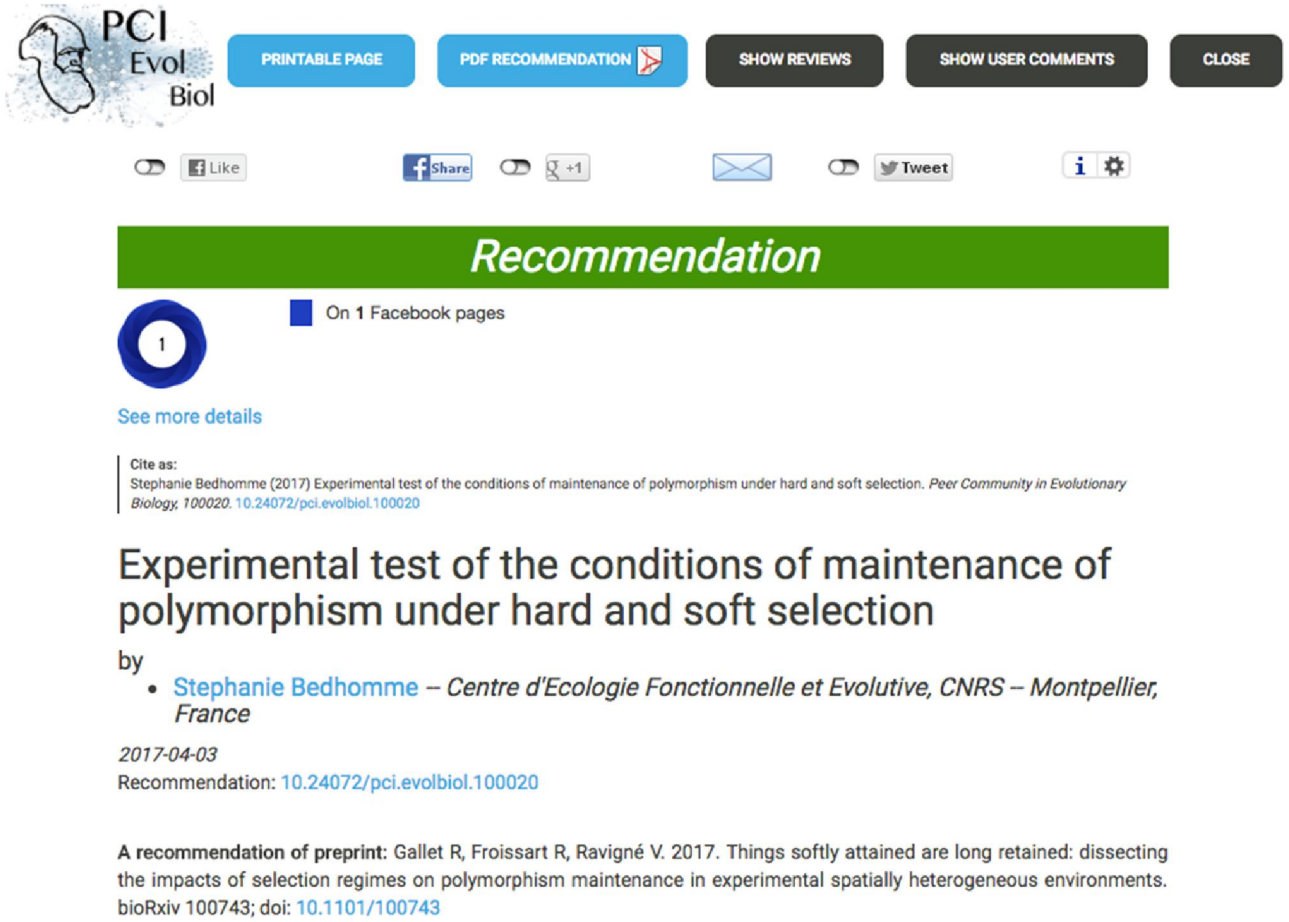
Direct evaluation of preprints

Journal-independent peer review



Direct evaluation of preprints

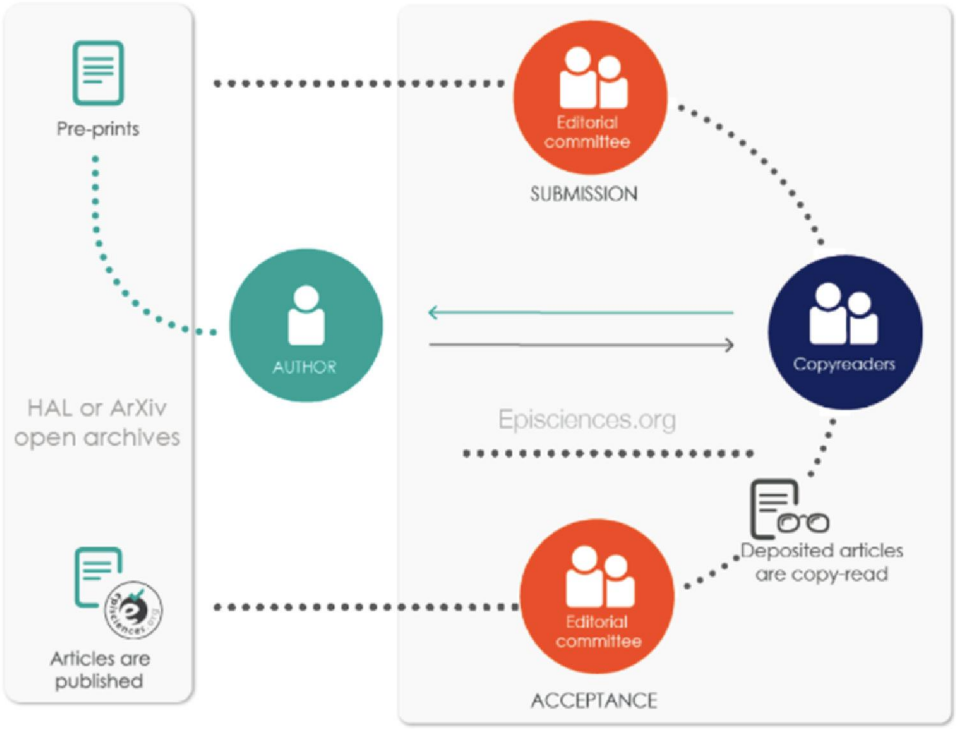
Journal-independent peer review



Direct evaluation of preprints

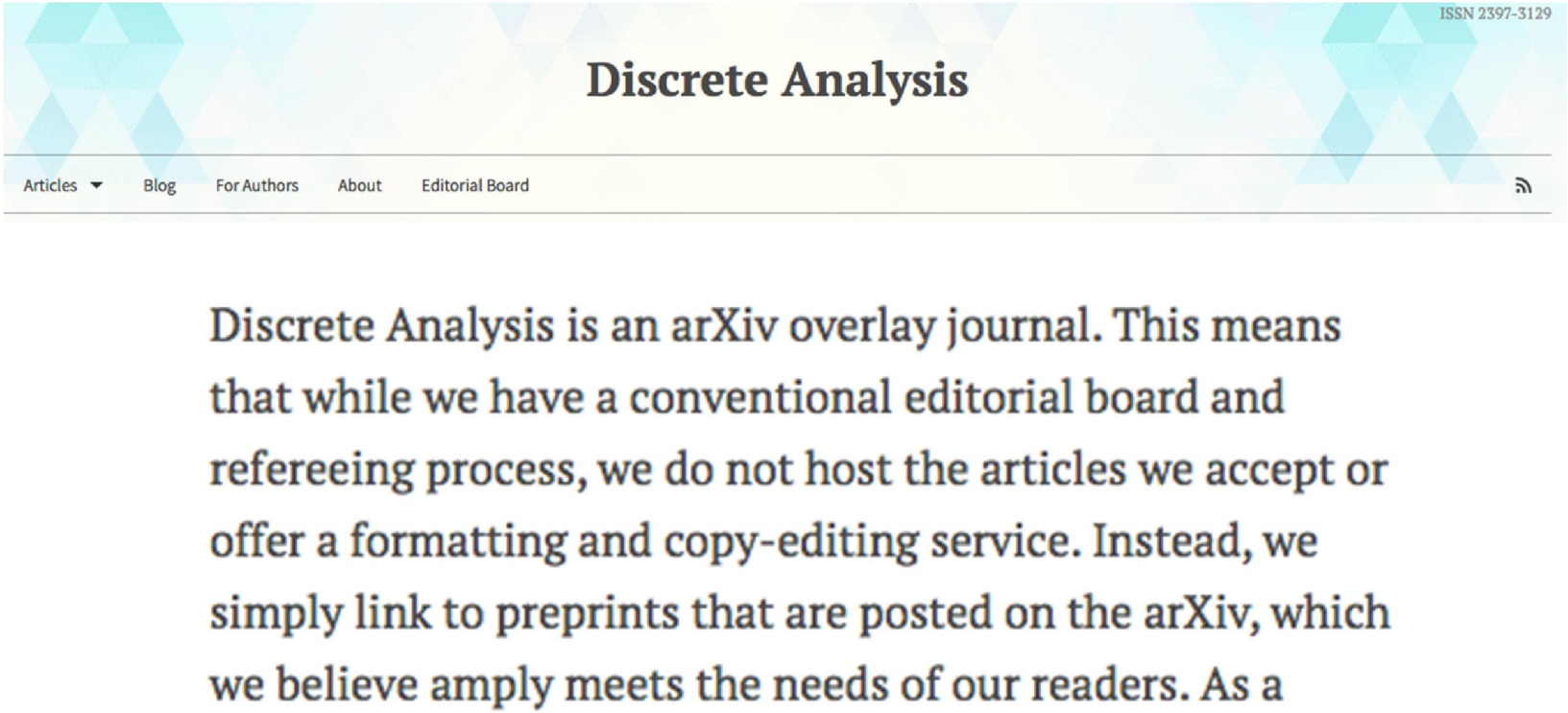
Overlay journals (epi-journals)

The editorial boards of such epijournals organize peer reviewing and scientific discussion of selected or submitted preprints. Epijournals can thus be considered as "overlay journals" built above the open archives; they add value to these archives by attaching a scientific caution to the validated papers.



Direct evaluation of preprints

Overlay journals (epi-journals)



Direct evaluation of preprints

PLOS | GENETICS

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University of Pennsylvania
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Nadia D. Singh

North Carolina State University
North Carolina, USA
Expertise: recombination, evolution, population genetics

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