

Preprints and Peer Review

John Inglis Ph.D.

Co-founder at bioRxiv

Cold Spring Harbor Laboratory

twitter @JohnRInglis

inglis@cshl.edu

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- a complete but unpublished manuscript yet to be certified by peer review, distributed by its author before or at submission to a journal

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- a complete but unpublished manuscript yet to be certified by peer review, distributed by its author before or at submission to a journal

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



[HOME](#) | [ABOUT](#) | [SUBMIT](#) | [ALERTS / RSS](#)

bioRxiv
beta

THE PREPRINT SERVER FOR BIOLOGY

[Advanced Search](#)

Subject Areas

All Articles

Animal Behavior and Cognition
Biochemistry
Bioengineering
Bioinformatics
Biophysics
Cancer Biology
Cell Biology
Clinical Trials
Developmental Biology

Ecology
Epidemiology
Evolutionary Biology
Genetics
Genomics
Immunology
Microbiology
Molecular Biology
Neuroscience

Paleontology
Pathology
Pharmacology
Physiology
Plant Biology
Scientific Communication and Education
Synthetic Biology
Systems Biology
Zoology

[View by Month](#)

- 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



[HOME](#) | [ABOUT](#) | [SUBMIT](#) | [ALERTS / RSS](#)

bioRxiv
beta

THE PREPRINT SERVER FOR BIOLOGY

[Advanced Search](#)

Subject Areas

All Articles

Animal Behavior and Cognition
Biochemistry
Bioengineering
Bioinformatics
Biophysics
Cancer Biology
Cell Biology
Clinical Trials
Developmental Biology

Ecology
Epidemiology
Evolutionary Biology
Genetics
Genomics
Immunology
Microbiology
Molecular Biology
Neuroscience

Paleontology
Pathology
Pharmacology
Physiology
Plant Biology
Scientific Communication and Education
Synthetic Biology
Systems Biology
Zoology

View by Month

- 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

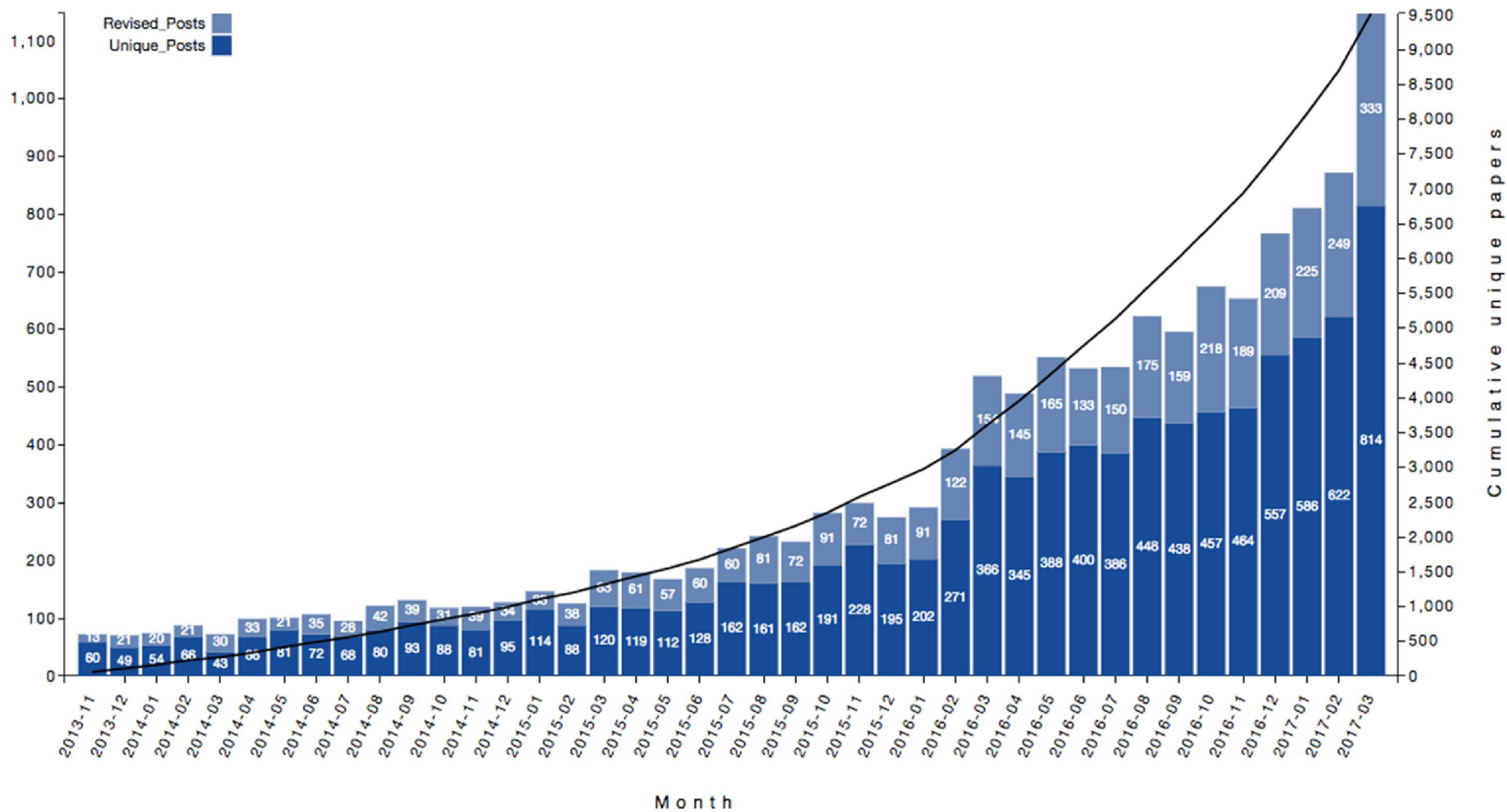
Submission to bioRxiv

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

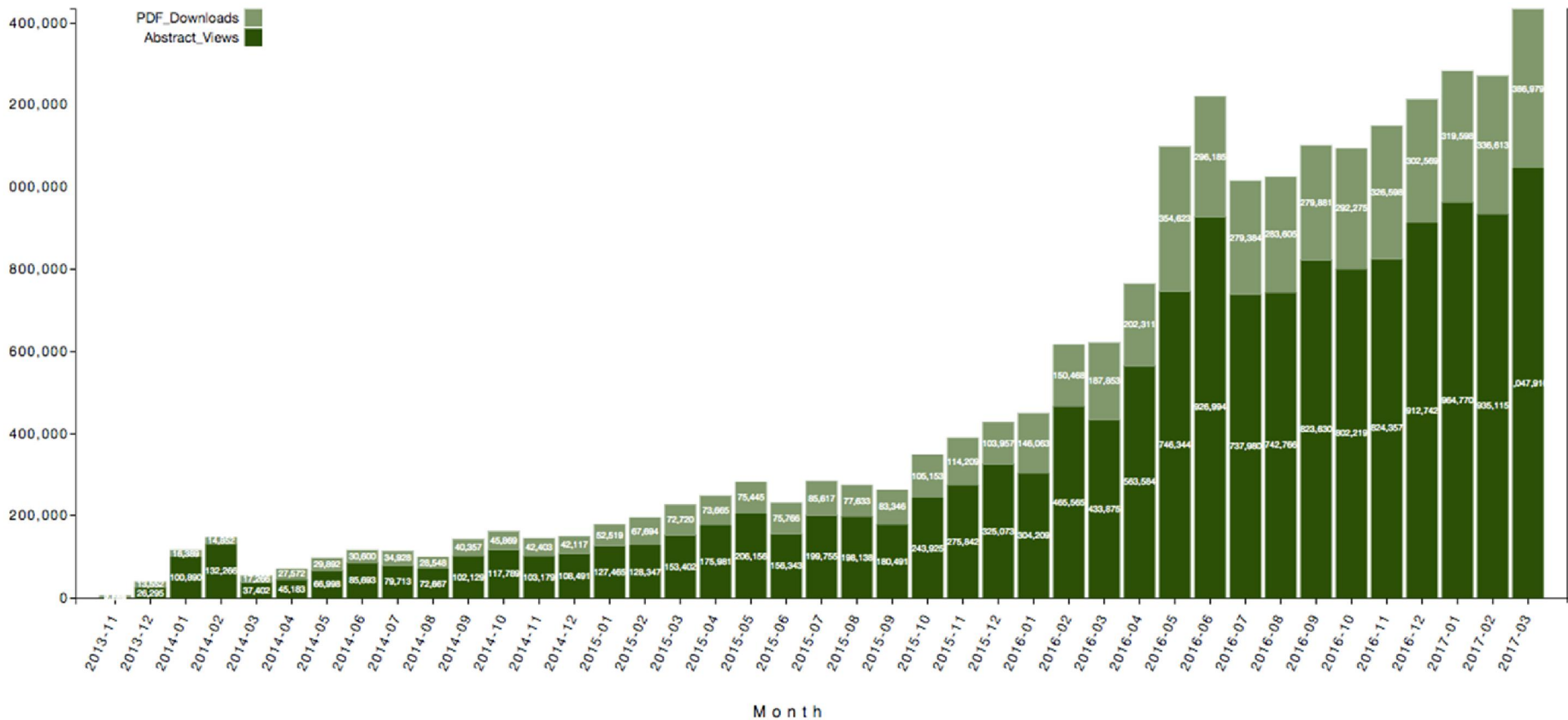
bioRxiv submissions and usage

- >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

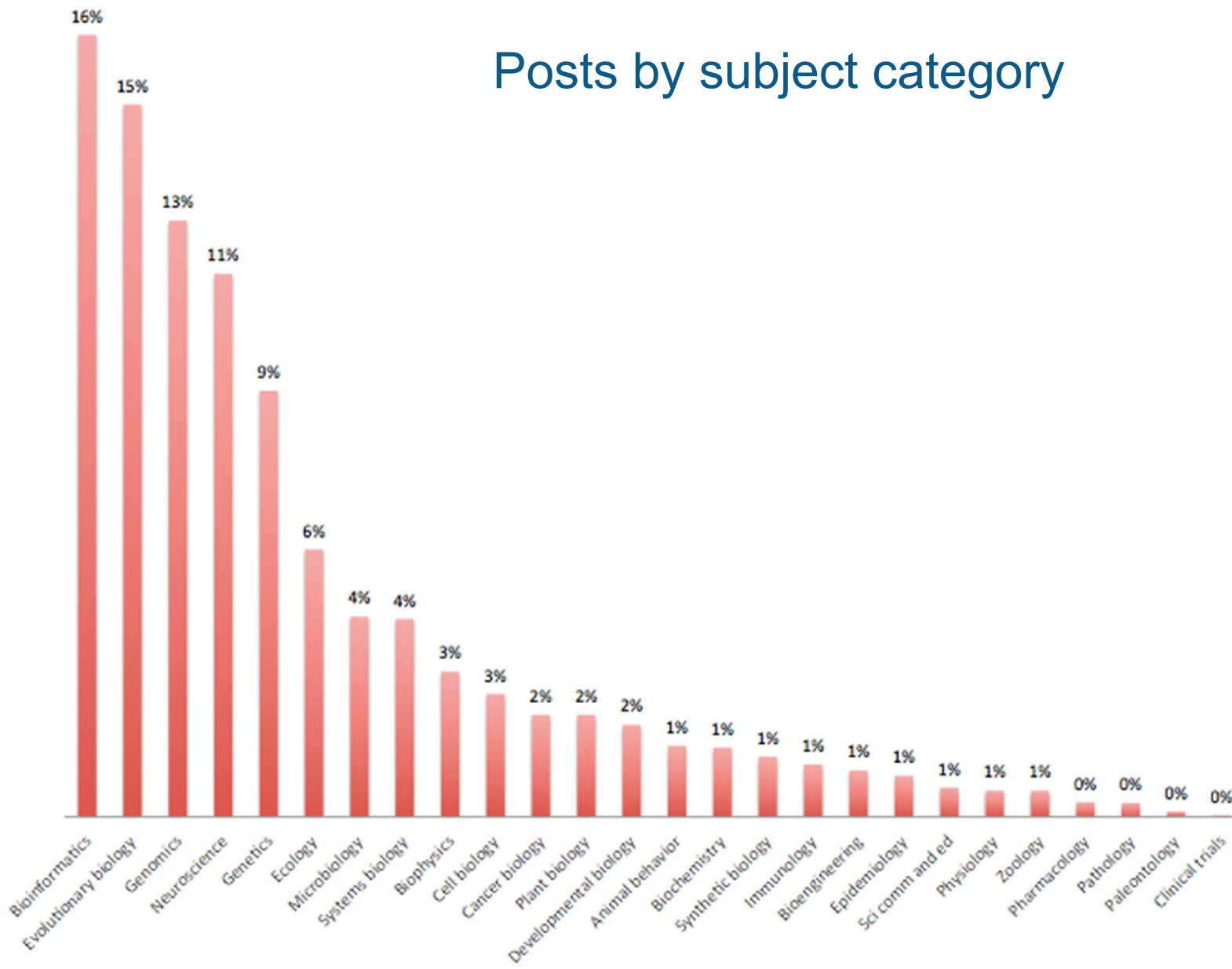
Monthly posts



Monthly usage

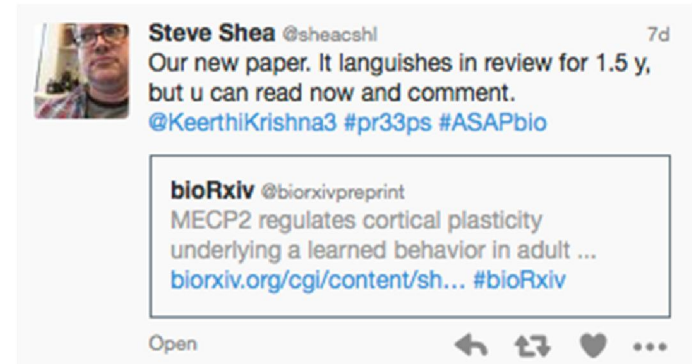
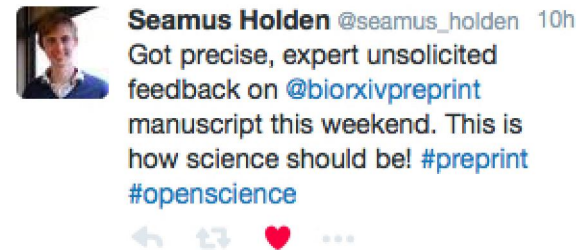


Posts by subject category



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



Yaniv (((Erlich))) @erlichya

Oct 5

In <1 month, our [@biorxivpreprint](#) on capacity approaching DNA storage was accessed over 4000 times
[biorxiv.org/content/early/...](https://www.biorxiv.org/content/early/...) Preprints work!



← in reply to Marco Trizzino



Jenna E Gallegos @FoodBe... Oct 27

[@marcotrizzino](#) [@biorxivpreprint](#)
thanks Marco! This is our first time posting to BioRxiv and I'm already amazed by the readership!

Benefits of preprints

They get useful feedback



Kasper Lage
@kasper_lage

Such a thrill to see people accessing our articles on [@biorxivpreprint](#) & sending us comments. This resource is a huge (!!) win for science.



Simon Bullock @SimonBulloc... Sep 5
Our tRNA-gRNA paper has been on [@biorxivpreprint](#) for 5 mo., allowing adoption of reagents by others, while peer review has improved the m/s.

Benefits of bioRxiv preprints

They can permit rapid reanalysis of recently published data

Alex Holcombe @ceptional 2d
A healthy preprint culture means faster progress towards the truth. Cite preprints. @biorxivpreprint @PsyArXiv @socarxiv #ASAPbio

Daniel MacArthur @dgmacarthur
Preprint describing disastrous statistical flaws in a recent @NatureGenet paper reporting new autism genes:
[biorxiv.org/content/early/...](https://www.biorxiv.org/content/early/2018/05/01/298111)

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.



The MRC supports preprints



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](#)



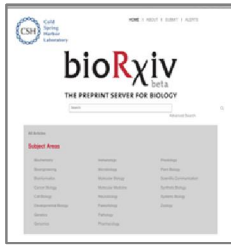
Benefits of preprints

Most journals will consider preprints for publication

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

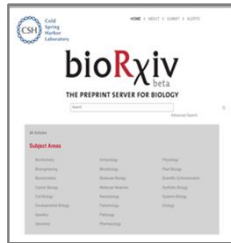
Preprint integration with journal peer review

Submission

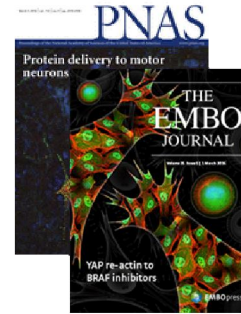


Integration: bioRxiv to journal transfer

Submission



One-click transfer



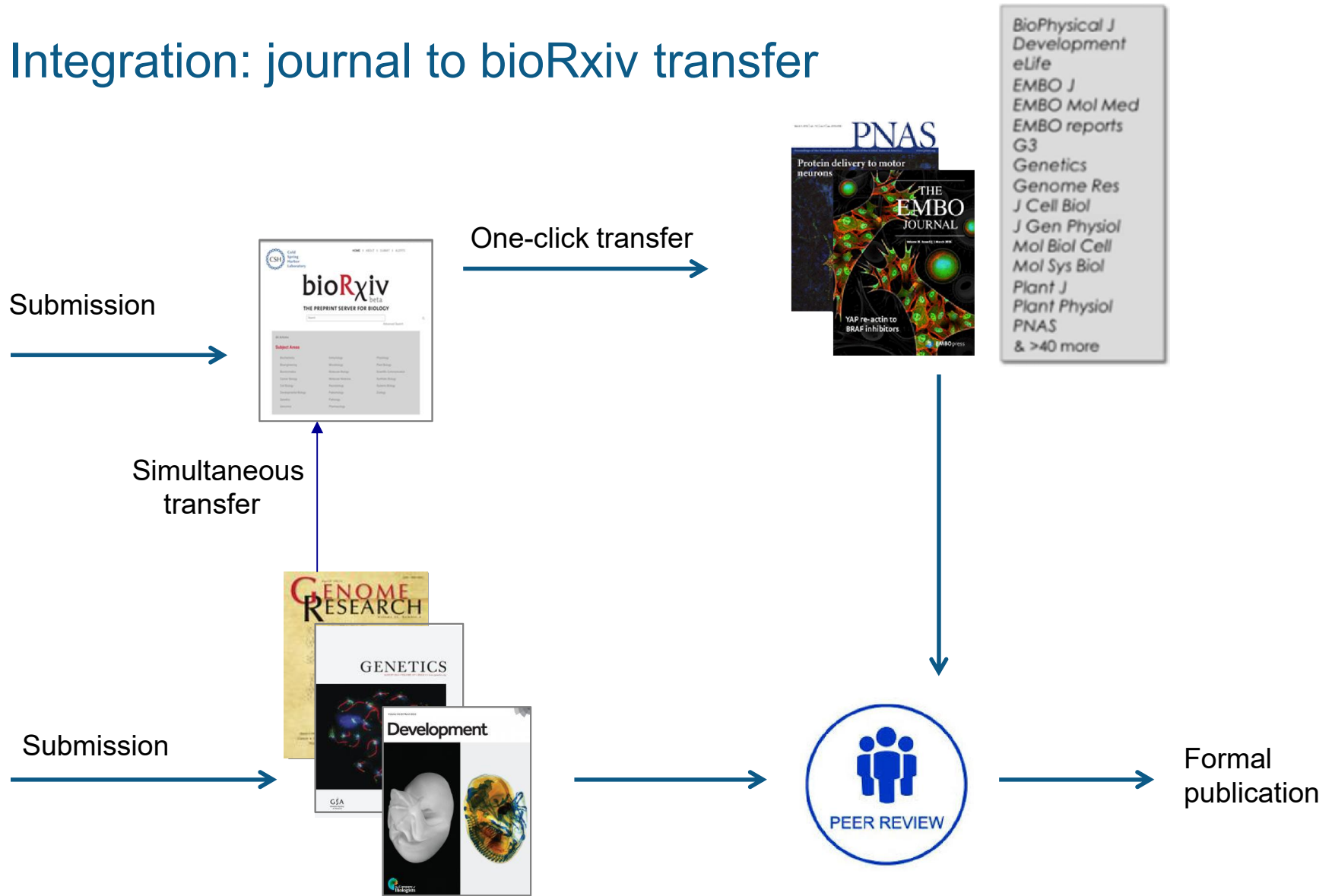
- BioPhysical J
- Development
- eLife
- EMBO J
- EMBO Mol Med
- EMBO reports
- G3
- Genetics
- Genome Res
- J Cell Biol
- J Gen Physiol
- Mol Biol Cell
- Mol Sys Biol
- Plant J
- Plant Physiol
- PNAS
- & >40 more

>100 titles

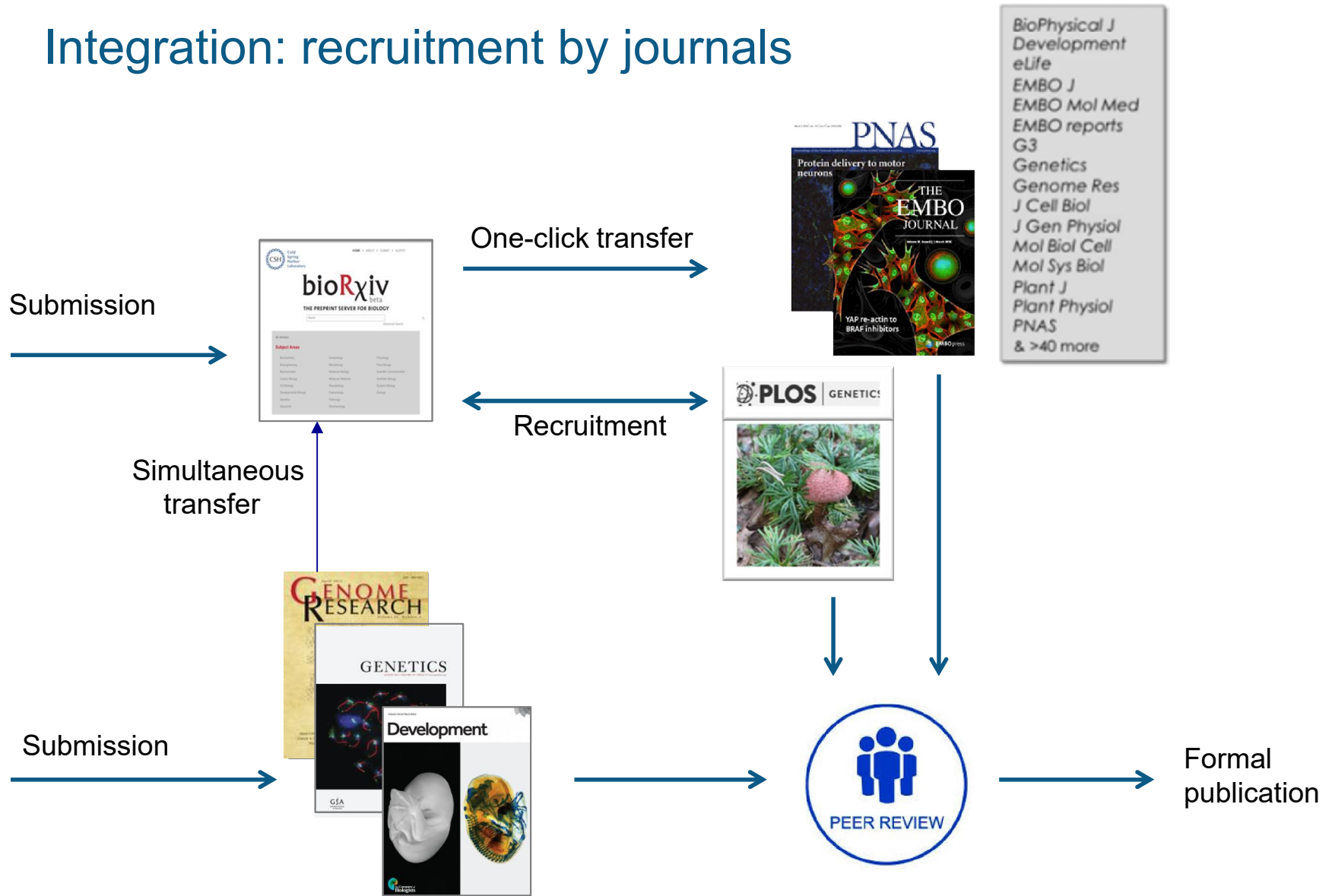


Formal publication

Integration: journal to bioRxiv transfer



Integration: recruitment by journals



Integration: flagging journal acceptance

New Results

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

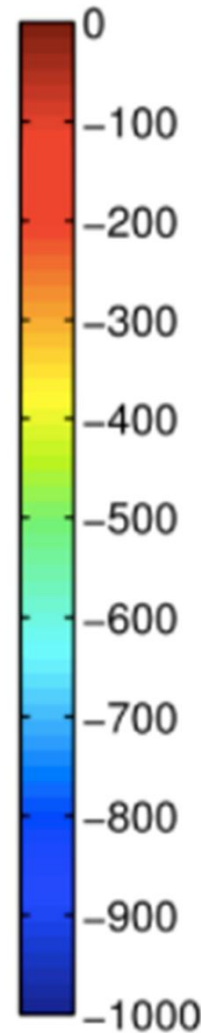
Sarah L Westcott, Patrick D Schloss

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.

^ | v · 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

The screenshot shows the website 'haldanesieve.org' with a browser window. The page features a header with a man's portrait and the title 'Haldane's Sieve'. Below the header, there is a navigation menu and a search bar. The main content area displays a post titled 'A novel spectral method for inferring general selection from time series genetic data' by Joe Pickard, dated October 4, 2013. The post text mentions authors Matthias Stemmer, Arand Bhaskar, and Yun S. Song, and notes it was submitted on October 3, 2013. A sidebar on the right contains RSS feeds for posts and comments, and a 'RECENT POSTS' section listing the current post.

Direct evaluation of preprints

Journal-independent peer review



[Browse preprint reviews](#)

[Find preprint review page](#)

[Open reviewers](#)

[Login](#)

[Review for "Improved de novo Genome Assembly: Linked-Read Sequencing Combined with Optical Mapping Produce a High Quality Mammalian Genome at Relatively Low Cost"](#)

Completed on 22 Apr 2017 by [Keith Robison](#) . Sourced from <http://biorxiv.org/content/early/2017/04/19/128348>.

[Login](#) to endorse this review.


Comments to author

Table 1 -- re-ordering the columns in a logical progression from left-to-right would scan better -- so DISCOVER, 10X Supernova 1.1, BNG+Supernova 1.0, BNG+Supernova 1.1 (and a bit odd that Supernova 1.0 is omitted)

Table 2 takes a lot of space and isn't really giving more information than Figure 5 -- it would be preferable to have plots like Figure 5 for more chromosomes or a table listing the number of scaffolds & the sizes of scaffolds for each chromosome

Direct evaluation of preprints

Journal-independent peer review



PRINTABLE PAGE PDF RECOMMENDATION SHOW REVIEWS SHOW USER COMMENTS CLOSE

Like Share +1 Tweet

Recommendation



On 1 Facebook pages

[See more details](#)

Cite as:

Stephanie Bedhomme (2017) Experimental test of the conditions of maintenance of polymorphism under hard and soft selection. *Peer Community in Evolutionary Biology*, 100020. [10.24072/pci.evolbiol.100020](https://doi.org/10.24072/pci.evolbiol.100020)

Experimental test of the conditions of maintenance of polymorphism under hard and soft selection

by

- [Stephanie Bedhomme](#) – *Centre d'Ecologie Fonctionnelle et Evolutive, CNRS – Montpellier, France*

2017-04-03

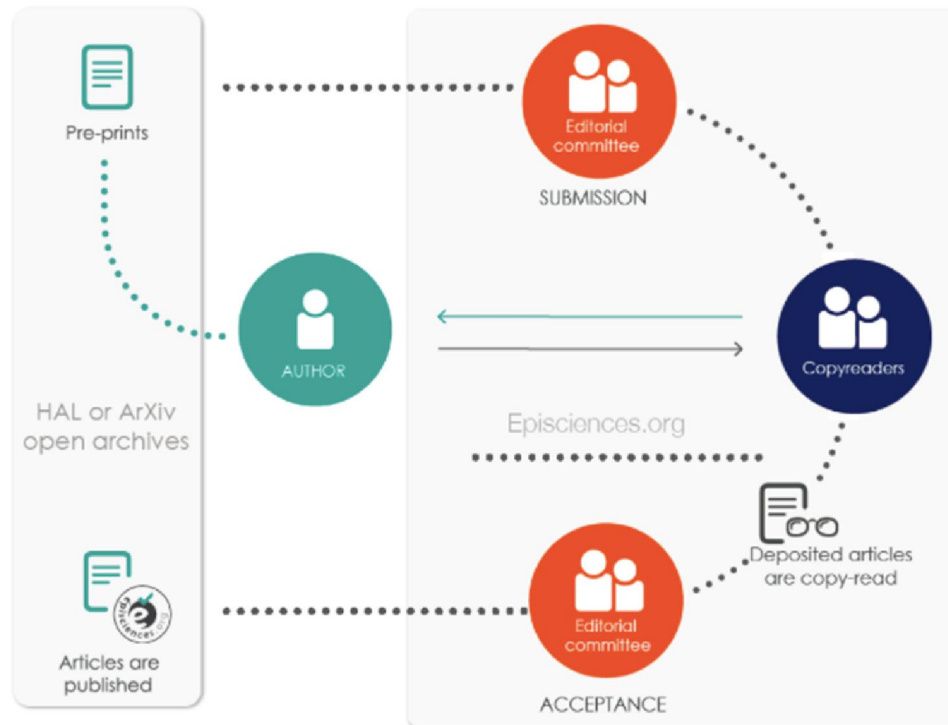
Recommendation: [10.24072/pci.evolbiol.100020](https://doi.org/10.24072/pci.evolbiol.100020)

A recommendation of preprint: Gallet R, Froissart R, Ravigné V. 2017. Things softly attained are long retained: dissecting the impacts of selection regimes on polymorphism maintenance in experimental spatially heterogeneous environments. bioRxiv 100743; doi: [10.1101/100743](https://doi.org/10.1101/100743)

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)



Discrete Analysis is an arXiv overlay journal. This means that while we have a conventional editorial board and refereeing process, we do not host the articles we accept or offer a formatting and copy-editing service. Instead, we simply link to preprints that are posted on the arXiv, which we believe amply meets the needs of our readers. As a

Direct evaluation of preprints



Preprint Editors

Casey M. Bergman

University of Georgia
Georgia, USA

Expertise: computational biology, genomics, evolution

Christopher D. Brown

University of Pennsylvania
Philadelphia, USA

Expertise: human genetics, complex trait genetics, gene regulation

Nadia D. Singh

North Carolina State University
North Carolina, USA

Expertise: recombination, evolution, population genetics

bioRxiv

THE PREPRINT SERVER FOR BIOLOGY

Many thanks to:
the bioRxiv team, authors, and affiliates;
CSHL and The Lurie Foundation for
funding.

And to these supporting publishers:

American Association for Immunology
American Society for Biochemistry and
Molecular Biology
American Society for Cell Biology
American Society for Microbiology
American Society for Plant Biology
American Society of Pharmacology
Biophysical Society
Company of Biologists

eLife
EMBO Press
Genetics Society of America
International Union of
Crystallographers
Oxford University Press
Public Library of Science
Rockefeller University Press
Society for Neuroscience
Springer Nature