

# INNOVATIONS IN PEER REVIEW

Damian Pattinson

September 12<sup>th</sup> 2018

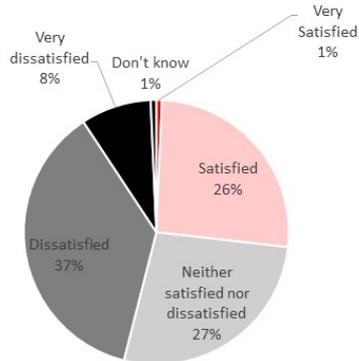


# WHAT DO WE KNOW ABOUT PEER REVIEW?

# IT'S (REASONABLY) POPULAR

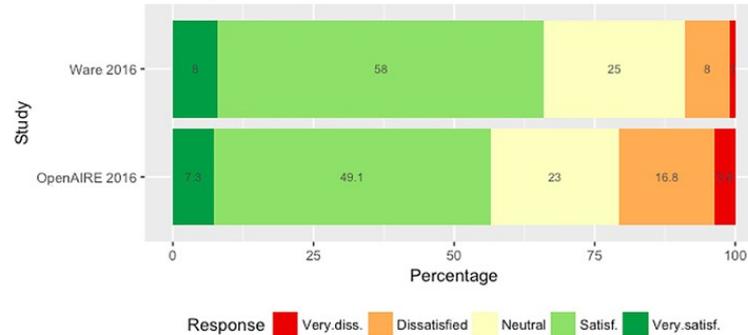
## General attitudes toward peer review

Overall, how satisfied are you with the peer review system used by scholarly journals?



#bioPeerReview  
ASAPbio

How satisfied are you with the peer review system used by scholarly journals?



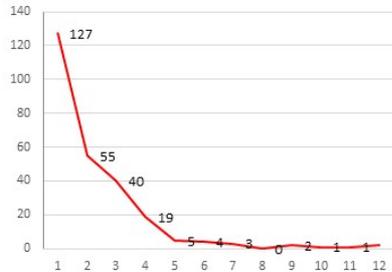
Ross-Hellauer T, Deppe A, Schmidt B (2017) Survey on open peer review: Attitudes and experience amongst editors, authors and reviewers. PLOS ONE 12(12): e0189311. <https://doi.org/10.1371/journal.pone.0189311>

<http://asapbio.org/peer-review/survey>

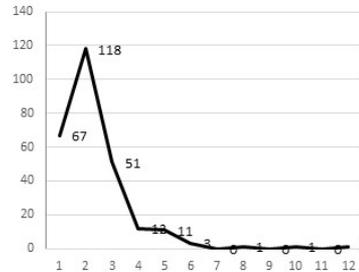
# IT IS INEFFICIENT

## Efficiency in peer review

For your most recent published paper, how many different journals did you submit it to (including the one it was published in)?

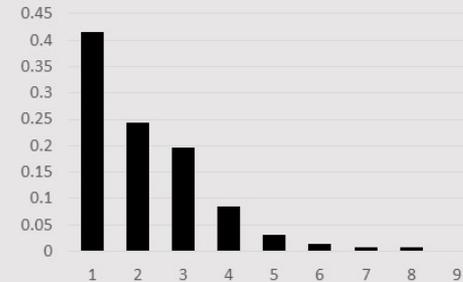


For your most recent published paper, how many rounds of peer review did the manuscript go through?



Peer Review survey

To how many different journals did you submit your last published paper, including the one where it was published? (fraction of 357 responses)



From Peer Feedback survey

#bioPeerReview  
ASAPbio

<http://asapbio.org/peer-review/survey>

# IT IS NOT GOOD AT SPOTTING WRONGDOING

## Retraction Watch

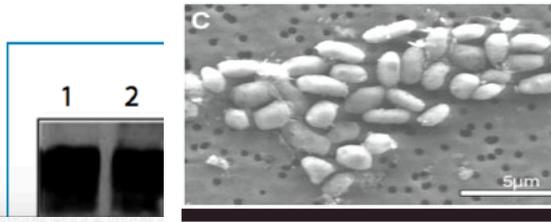
One in 25 papers contains inappropriately duplicated images, screen finds

with 15 comments

[Elisabeth Bik](#), a microbiologist, found scenes of force in scientific images and image duplication to shadows.

With the help of two editors, she published a massive study looking for published papers. Bik is a member of our parent organization, including 19 alterations." The study is

An example of the paper used duplicated:



# "This Paper Should Not Have Been

## Scientists see fatal flaws in arsenic-based life.

By [Carl Zimmer](#)

Tracking retractions as a window

The screenshot shows the Nature journal website interface. At the top, the 'nature' logo is displayed with the tagline 'International weekly journal of science'. Navigation links include Home, News & Comment, Research, Careers & Jobs, Current Issue, Archive, Audio & Video, and For Authors. The article title 'STAP retracted' is prominently featured, along with a sub-headline: 'Two retractions highlight long-standing issues of trust and sloppiness that must be addressed.' The article is dated '02 July 2014'. Below the title, there are buttons for 'PDF' and 'Rights & Permissions'. The main text of the article begins with: 'This week, Nature publishes retractions of two high-profile papers that claimed a major advance in the field of stem cells (see page 112). Between them, the two papers seemed to demonstrate that a physical perturbation could do what had previously been achieved only by genetic manipulation: transform adult cells into pluripotent stem cells able to differentiate into almost any other cell type. The acronym STAP (stimulus-triggered acquisition of pluripotency) became instantly famous.' To the right of the article, there is a sidebar with a section titled 'The epigenome' featuring an illustration of DNA and RNA with chemical tags. Below this, there is a social media sharing section with 'Like' and 'Share' buttons, and a 'nature MIDDLE EAST' banner at the bottom right.



# IT CAN BE CORRUPTED

## BioMed Central retracting 43 papers for fake peer review

with 20 comments

BioMed Central is retracting 43 papers, following [their investigation](#) into 50 papers that raised suspicions of fake peer review, possibly involving third-party companies selling the service.



In November 2014 we [wrote about fake peer reviews](#) for Nature; at that point there had been about 110 retractions across several journals. The addition of [16 retractions by Elsevier](#) for the same reason, and today's 43 from BMC, brings retractions resulting from the phenomenon up to about 170.

BMC has also contacted institutions regarding 60 additional papers that were rejected for publication, but seem to be part of the same kind of scam. Regarding the third-party agents, BMC senior editor of scientific integrity Elizabeth Moylan [writes](#):



Some of the manipulations appear to have been conducted by third-party agencies offering language-editing and submission assistance to authors. It is unclear whether the authors of the manuscripts involved were aware that the agencies were proposing fabricated reviewers on their behalf or whether authors proposed fabricated names directly themselves.

When we asked for more information on these third parties, a representative for the journal told us:

# WE DON'T REALLY KNOW WHAT IT LOOKS LIKE

## Generalized Reciprocity in Rats

Claudia Rutte, Michael Taborsky



U.020. For analyzing differences in pulling frequency between treatment groups after the experiment we used the Mann-Whitney U-Test.

Abstract

Author Summary

Introduction

Results

Discussion

**Materials and Methods**

Acknowledgments

Author Contributions

References

Reader Comments (0)

Media Coverage (0)

Figures

## Acknowledgments

We would like to thank Ian Hamilton, Ralph Bergmüller, Dik Heg, Martin Brinkhof, Laurent Keller, Bart Kempnaers, François Taddei, Claus Wedekind, Stuart West, and anonymous referees for helpful comments on the manuscript.

## Author Contributions

CR and MT conceived and designed the experiments, analyzed the data, contributed reagents/materials/analysis tools, and wrote the paper. CR performed the experiments. MT supervised the study at all stages.

## References

1. Trivers R (1971) The evolution of reciprocal altruism. *Q Rev Biol* 46: 35–57.  
[View Article](#) • [Google Scholar](#)
2. Alexander RD (1987) *The biology of moral systems*. Hawthorne (New York): Aldine de Gruyter. 301 p.
3. Axelrod R, Hamilton WD (1981) The evolution of cooperation. *Science* 211: 1390–1396.  
[View Article](#) • [Google Scholar](#)
4. Nowak M, Sigmund K (1998) Evolution of indirect reciprocity by image scoring. *Nature* 393: 573–577.  
[View Article](#) • [Google Scholar](#)
5. Leimar O, Hammerstein P (2001) Evolution of cooperation through indirect reciprocity. *Proc R Soc Lond B Biol Sci* 268: 745–753.  
[View Article](#) • [Google Scholar](#)

**BioDAQ**

Food Intake Monitor for Socially Housed NHP's



ResearchDiets.com

# ASKING THE EDITORS...

From my experience at PLOS ONE:

- Peer review is very inconsistent.
  - Two separate reviewers will usually make very different recommendations, and will rarely identify the same flaws in a paper.
  - As an editor, you often feel that there are lots of issues that have not been picked up by the reviewers.
- The 2+1 model of decision-making is struggling.
- Peer review does improve the literature, but not enough to justify the time it now takes to perform.

## ASKING THE EDITORS...

*“The mistake, of course, is to have thought that peer review was any more than a crude means of discovering the acceptability — not the validity — of a new finding... We portray peer review to the public as a quasi-sacred process that helps to make science our most objective truth teller. But we know that the system of peer review is biased, unjust, unaccountable, incomplete, easily fixed, often insulting, usually ignorant, occasionally foolish, and frequently wrong.”*

Richard Horton  
Editor-in-chief, *The Lancet*

*“As Winston Churchill said about democracy, that it is the worst form of government, “except for all those other forms that have been tried from time to time”, so is the case for peer review.”*

Sir Mark Walport,  
Director, Wellcome Trust



# THE PROBLEM WITH CONFIDENTIAL REVIEW...

- Means we can't study the effectiveness of the peer review system
- Removes the ability for reviewers to gain credit for their work
- Makes it hard for new reviewers to learn best practices for performing their own reviews
- Readers lose useful information on the validity and usefulness of a paper
- Confidentiality breeds negativity – reviewers find reasons to withhold papers from the public, not make them available.
- Allows journals to be less accountable for their editorial decisions

MENU ▾

**nature**  
International journal of science



Search



E-alert



Submit



Login

**News & Comment** Research

News Opinion Research Analysis Careers Books & Culture

**COMMENT** · 29 AUGUST 2018

# Publish peer reviews

*Jessica K. Polka and colleagues call on journals to sign a pledge to make reviewers' anonymous comments part of the official scientific record.*

Jessica K. Polka , Robert Kiley, Boyana Konforti, Bodo Stern & Ronald D. Vale 



# OPEN PEER REVIEW

# LEVELS OF “OPENNESS”

**Open identities:** Authors and reviewers are aware of each other’s identity

**Open reports:** Review reports are published alongside the relevant article.

**Open participation:** The wider community are able to contribute to the review process.

**Open interaction:** Direct reciprocal discussion between author(s) and reviewers, and/or between reviewers, is allowed and encouraged.

**Open pre-review manuscripts:** Manuscripts are made immediately available (e.g., via pre-print servers like arXiv) in advance of any formal peer review procedures.

**Open final-version commenting:** Review or commenting on final “version of record” publications.

**Open platforms (“decoupled review”):** Review is facilitated by a different organizational entity than the venue of publication.



# TOWARDS TRULY OPEN PEER REVIEW

- We will need...
  - A place to post manuscripts before review
  - The ability of editors to obtain reviews from trusted experts
  - The ability for other experts to submit their own reviews
  - The ability for authors to suggest experts to review their manuscript
  - The ability for readers to add questions and comments to the author
  - The ability for journals to invite manuscripts to be submitted for consideration

Integrity Check: **Passed**

Reproducibility Check: **Pending**

# Ongoing slow oscillatory phase modulates speech intelligibility in cooperation with motor cortical activity

Takayuki Onojima Keiichi Kitajo Hiroaki Mizuhara

Version 2: Submitted 18 June 2018 | DOI: <https://doi.org/10.1198/rs.aaf9088>

Invite Comments Download PDF

Article Peer Review Timeline Metrics

## ABSTRACT

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Sed eget viverra odio. Proin eget rutrum sem. Aenean porttitor, enim tincidunt elementum rutrum, massa purus faucibus dolor, quis tincidunt leo odio sed lorem. Nulla aliquam diam sit amet ligula volutpat interdum a a justo. Sed vitae urna convallis, lacinia turpis non, ultrices arcu. Sed massa mi, congue a malesuada elementum, lobortis quis arcu. Cras euismod nisi odio, et maximus augue euismod fringilla.

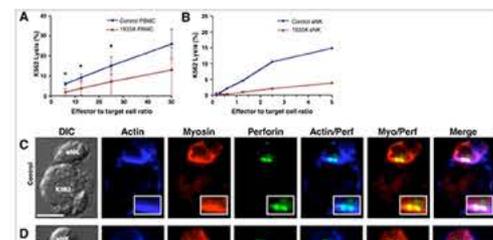
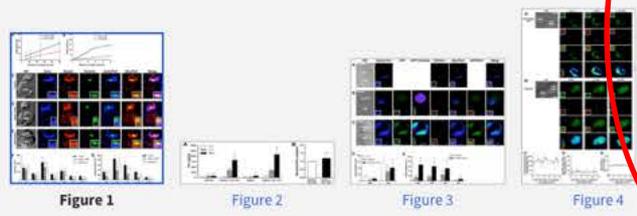
Submit an Open Review

How does it work?

## Peer Review Timeline

- Version 2**  
Submitted 18 June 2018
  - ★ Community review #1  
Received 22 June 2018
- Version 1**  
Submitted 7 May 2018
  - 👤 Editor: Prof J. Johnson  
Assigned 22 May 2018
  - ★ Editor invited review #1  
Received 4 May 2018
  - ★ Community review #1  
Received 5 May 2018
  - 💬 Community comment #1  
Received 5 May 2018
  - ★ Editor invited review #2  
Received 7 May 2018
  - ✅ Editorial Decision: **Revise**  
12 May 2018

## FIGURES



View complete timeline

## Structured Review Visualization



## Subject Areas

Molecular Epidemiology  
Cell Communication and Signaling



# PEER REVIEW CHANNELS

The Research Square platform supports a variety of different forms of peer review, from editor-invited reviews to informal notes and queries from readers.

## Unstructured Comments

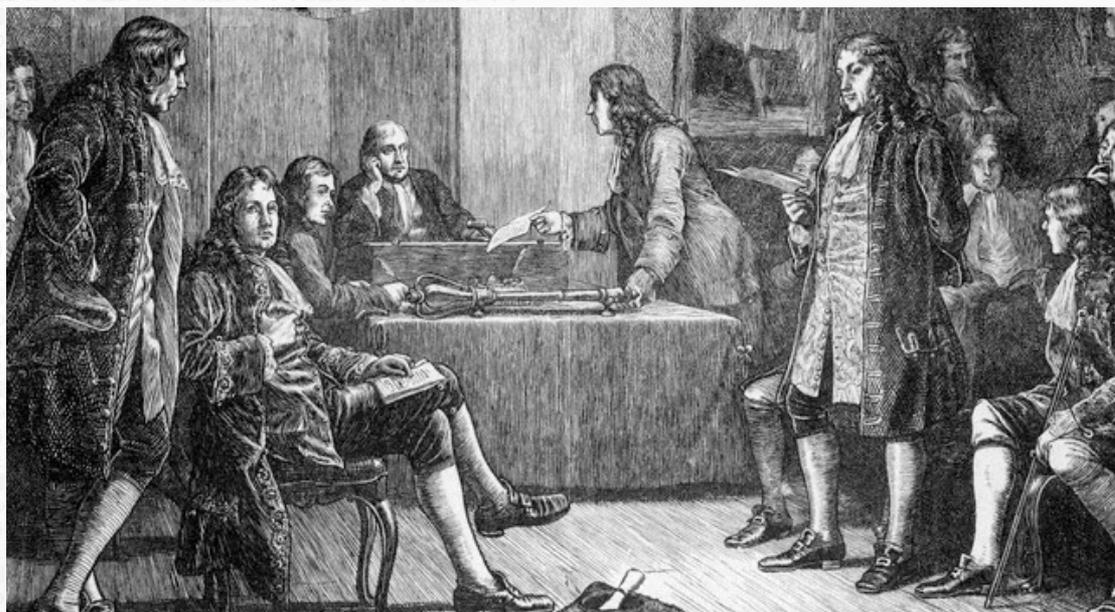
- Allow readers to ask informal questions to the authors.
- Threaded to allow replies from authors and other readers.
- Unmoderated but with ability to report unsuitable content

## Structured Reviews

- Free to anyone to submit.
- Reviewers must complete a full RQE using our structured template.
- Reviews are validated before posting.

## Invited Reviews

- Invited by the assigned journal editor.
- Can take any form: RQE, unstructured or other.
- Includes editor decision letters.



PHILOSOPHICAL  
TRANSACTIONS:  
GIVING SOME  
ACCOMPT  
OF THE PRESENT  
Undertakings, Studies, and Labours  
OF THE  
INGENIOUS  
IN MANY  
CONSIDERABLE PARTS  
OF THE  
WORLD.

Vol. I.  
For Anno 1665, and 1666.

In the SAVOY,  
Printed by T. N. for John Moxon at the Bell, a little with-  
out Temple-Bar, and James Allshof in Duck-Lane,  
Printers to the Royal Society.

Presented by the Author May 30.<sup>th</sup> 1667.