



Tools for Preventing or Identifying Misconduct

Eric Hall

Product Director, PRE

www.pre-val.org

@PeerReviewEval

@eric_m_hall



Agenda



- Degrees of misconduct in scholarly publishing
- Impact on perception of peer review
- ‘Principle’ of peer review
- Peer review in practice
- Practical tools to reduce threat to research and journal brands
- Organized efforts to improve peer review
- The case for transparency
- Getting involved



Misconduct in scholarly publishing



Falsification of Data

- Fabrication
- Selective reporting and omission
- Suppression
- Distortion

Plagiarism

- Including figures, charts, and tables
- Self-plagiarism



Misconduct in scholarly publishing



Improprieties of authorship

- Dual publication
- Fraudulent claims of contribution
- Misrepresentation by Corresponding Author
- Identity fraud
- Peer review rings

Misappropriation of the ideas of others

- Reviewer misconduct too!
 - Misrepresentation of qualifications
 - Breach of impartiality
 - Breach of confidentiality
 - Bias (explicit and implicit)



Misconduct in scholarly publishing



Violation of generally accepted research practices

- “P-hacking”
- Reporting bias
- "HARKing"
- Publication bias

Material failure to comply with legislative and regulatory requirements affecting research

- Willfull and/or repeated violations of law or regulations



Misconduct in scholarly publishing



Inappropriate behavior in relation to misconduct

- Failure to report
- False accusations
- Withholding knowledge of
- Withholding or destroying info related to claim
- Retaliation



Perception of peer review

The peer review drugs don't work

A process at the heart of science is based on faith rather than evidence, as vested interests keep it in place

May 28, 2015

By [Richard Smith](#)

TheScientist

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[The Scientist](#) > [The Nutshell](#)

Fake Paper Exposes Failed Peer Review

The widespread acceptance of an atrocious manuscript, fabricated by an investigative journalist, reveals the near absence of quality at some journals.

By Kerry Grens | October 6, 2013

OPINION SCIENCE

Is the Peer Review Process for Scientific Papers Broken?

Melinda Baldwin | April 29, 2014



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عربي

Publishing: The peer-review scam

When a handful of authors were caught reviewing their own papers, it exposed weaknesses in modern publishing systems. Editors are trying to plug the holes

[Cat Ferguson](#), [Adam Marcus](#) & [Ivan Oransky](#)

26 November 2014



Peer review is broken

Peer review is meant to weed out junk science before it reaches publication. Yet over and over again in our survey, respondents told us this process fails. It was one of the parts of the scientific machinery to elicit the most rage among the researchers we heard from.

Normally, peer review works like this: A researcher submits an article for publication in a journal. If the journal accepts the article for review, it's sent off to peers in the same field...



Most studies show overwhelming support for the *principle* of peer review

“Peer review remains clearly the central pillar of trust.”

NICHOLAS, D., WATKINSON, A., JAMALI, H. R., HERMAN, E., TENOPIR, C., VOLENTINE, R., ALLARD, S. and LEVINE, K. (2015), Peer review: still king in the digital age. *Learned Publishing*, 28: 15–21. doi:10.1087/20150104

“The large majority (85%) agreed with the proposition that scientific communication is greatly helped by peer review.”

WARE, MARK (2008), Peer review: benefits, perceptions, and alternatives. Publishing Research Consortia. Retrieved from: [file:///C:/Users/ehall/Desktop/PRCsummary4Warefinal\(1\)%20\(1\).pdf](file:///C:/Users/ehall/Desktop/PRCsummary4Warefinal(1)%20(1).pdf)

“82% agreed with the statement “without peer review there is no control in scientific communication”, unchanged from the 83% response in 2007 and 2009.”

WARE, MARK (2016), Publishing Research Consortia. Peer survey 2015 Retrieved from: <http://publishingresearchconsortium.com/index.php/prc-documents/prc-research-projects/57-prc-peer-review-survey-2015/file>



Learned Publishing, 28: 15–21
doi:10.1087/20150104

Introduction

This paper provides a window into a recently completed international project on trust in the scholarly digital environment, conducted for the Alfred P. Sloan Foundation,¹ that investigated the views and practices of around 4,000 academic researchers. The formative stages of the project were reported previously in *Learned Publishing*,² and here we focus on probably its biggest finding: that peer review is not only alive and kicking, but apparently increasing its influence, despite the many potential (or invented) threats posed by a rapidly unfolding and enveloping digital environment: threats such as social media, new information behaviours, and the growing number of proxy trust metrics (e.g. impact factors, usage, and altmetrics). When publishers heard about our findings, their typical response was, ‘We could

Peer review: still king in the digital age

David NICHOLAS¹,
Anthony WATKINSON²,
Hamid R. JAMALI², Eti HERMAN²,
Carol TENOPIR³, Rachel VOLENTINE³,
Suzie ALLARD³, and Kenneth LEVINE³

¹*Tomsk State University, Russia*

²*CIBER Research*

³*University of Tennessee*

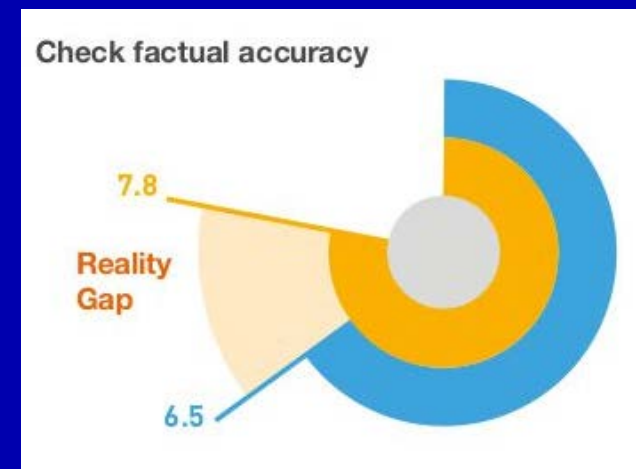
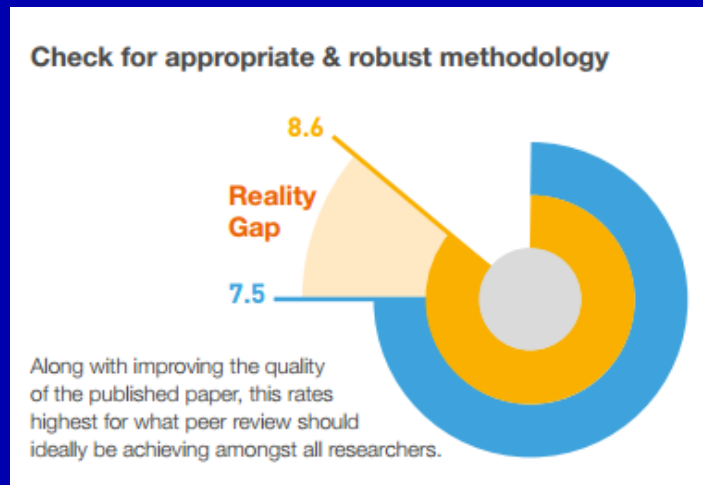
ABSTRACT. *The article presents one of the main findings of an international study of 4,000 academic researchers that examined how trustworthiness is*



Practice of peer review leaves a lot to be desired

“While satisfaction levels with peer review are generally high, only a third (32%) think that the current system is the best that can be achieved.”

Sense about Science (2009). Peer review survey 2009. Retrieved from:
http://www.senseaboutscience.org/data/files/Peer_Review/Peer_Review_Survey_Final_3.pdf



Taylor & Francis (2015). Peer review in 2015: a global view. Retrieved from:

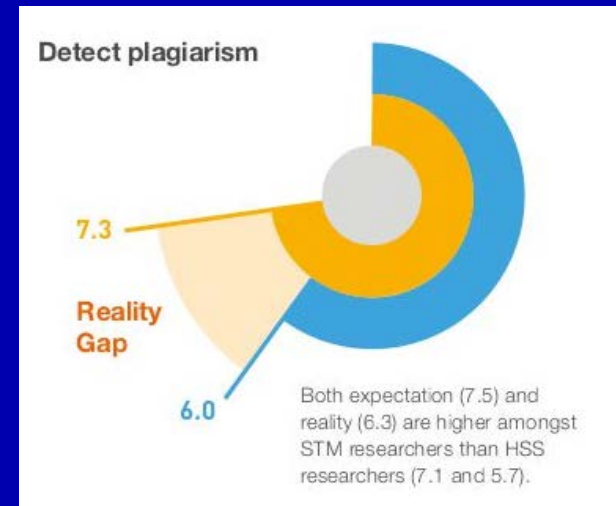
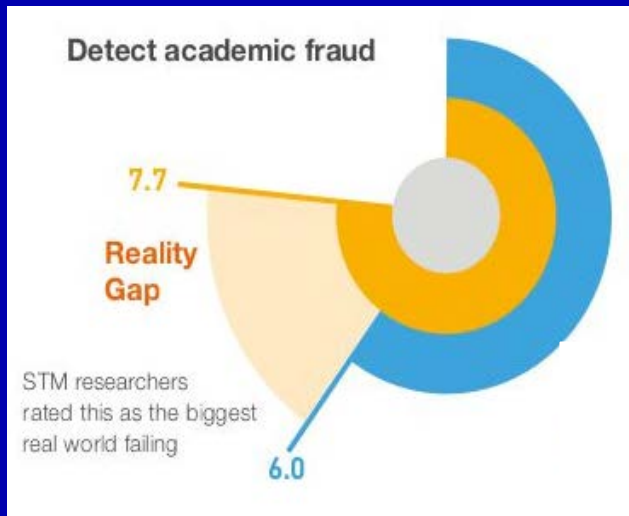
<https://www.yumpu.com/en/document/download/55717484/6cf03-20ef9-cf1d1-d1389-1028e-86fc8-4a83a-3edd8>



Raising questions about roles/responsibilities

“The principal function of the journal is to organize and mediate quality signaling within the author-reader market. The role of the editor is simply to make this happen.”

Davis, Phill (2011). Have journal editors become anachronisms? Scholarly Kitchen. Retrieved from: <https://scholarlykitchen.sspnet.org/2011/09/19/have-journal-editors-become-anachronisms/>



Taylor & Francis (2015). Peer review in 2015: a global view. Retrieved from:

<https://www.yumpu.com/en/document/download/55717484/6cf03-20ef9-cf1d1-d1389-1028e-86fc8-4a83a-3edd8>



Recent research indicates:

- Variability of practice
- Inadequate reviewer training
- Susceptible to fraud
- At risk of hacking
- Implicit and explicit bias



Pre-publication closed:

- Single, double, and triple-blinded

Pre-publication open:

- Mandatory
- Optional

Pre-publication open and published:

- Mandatory
- Optional

Pre-print servers and post-publication review:

- Open
- Hybrid



Recent research indicates:

- Variability of practice
- Inadequate reviewer training
- Susceptible to fraud
- At risk of hacking
- Implicit and explicit bias





“there are no easily identifiable types of formal training or experience that predict reviewer performance. Skill in scientific peer review may be as ill defined and hard to impart as is "common sense.””



Recent research indicates:

- Variability of practice
- Inadequate reviewer training
- Susceptible to fraud
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- Implicit and explicit bias



Practical tools



Image manipulation screening

The screenshot shows the website for the Office of Research Integrity (ORI) under the U.S. Department of Health & Human Services. The page is titled "Forensic Tools" and includes a breadcrumb trail: Home » Research Misconduct » Forensic Tools. A "Printer Friendly" link is visible. The main content area describes forensic tools used for examining questioned text and images in biomedical science. It mentions that ORI's Forensic Image Analysis Tools may be available in two forms. A section titled "Forensic Droplets:" describes a small desktop application in Adobe Photoshop that automatically processes image files. A sidebar on the right contains several links: Misconduct Case Summaries, Newsletter, Follow Us on Twitter, PHS Administrative Action Bulletin Board, and Annual Report System.

U.S. Department of Health & Human Services www.hhs.gov

ORI THE OFFICE OF RESEARCH INTEGRITY

Contact Us **ORI 2.0**

Home About ORI News & Events Research Misconduct RCR Resources Programs Policies & Regulations Assurance Program

Home » Research Misconduct » Forensic Tools Printer Friendly

Forensic Tools

These Forensic tools illustrate several principles in examining questioned text and images in biomedical science.

ORI's Forensic Image Analysis Tools may be available in two forms (depending in some cases on the specific task):

Forensic Droplets:

A "Droplet" is small desktop application in Adobe Photoshop®, (v.7 and later) that automatically processes image files that are dragged onto its icon. A Droplet can be a nearly "seamless" interface for quickly examining certain features of a scientific image in Photoshop while reading the publication in the FULL TEXT (html) form or in some forms in an Internet Browser. Droplets can be used to automate the batch processing, by dragging and dropping


- Misconduct Case Summaries
- Newsletter
- Follow Us on Twitter
- PHS Administrative Action Bulletin Board
- Annual Report System

Image manipulation screening

Online Learning Tool
for Research Integrity and Image Processing

Home	Guidelines	Questionable Practices	Case Study	Misconduct Cases	The Continuum
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This site explains what is appropriate in image processing in science and what is not. It also shows how best practices in handling images intersects with other best practices.



The site provides:

- the twelve **guidelines** for best practices in image processing, with **Photoshop videos** illustrating each guideline.
- a list of **mistakes people commonly make** and a **quiz** to teach how to avoid them through understanding the reasons for the guidelines.
- a **case study section** including an interactive **video case study** that shows how, when best practices in image processing, mentoring, and authorship are used, the entire research group benefits, and a **handout for live group discussion**.
- some **examples of unethical research behavior and consequences** of not conforming to best or even marginally good practices.
- a section on the **relationship between best practices and compliance**, including a **videotaped interview** with a journal editor.

The site is intended for students and faculty members to help use and encourage best practices for promoting research integrity in their research groups. The site is also intended for researchers and administrators at all levels to help to teach best practices for research integrity among students and colleagues alike.



Image manipulation screening

A screenshot of the website for Image Data Integrity. The page has a white background with a blurred grayscale image of a person's face in the background. In the top left corner is the logo for "Image Data Integrity", which consists of three horizontal lines to the left of the words "Image", "Data", and "Integrity" stacked vertically. In the top right corner is a navigation menu with the links "HOME", "ABOUT", "RESOURCES", and "CONTACT". The main content area features the title "Image Data Integrity" in a large, bold, black font. Below the title is the text "Consulting services about image data manipulation in biomedical research". At the bottom center is a white rectangular button with the text "LEARN MORE" in black capital letters.

Image Data Integrity

HOME ABOUT RESOURCES CONTACT

Image Data Integrity

Consulting services about image data manipulation in biomedical research

LEARN MORE



Practical tools



Plagiarism screening

✓ iThenticate®

turnitin® 



Viper

safe  assign™
by Blackboard



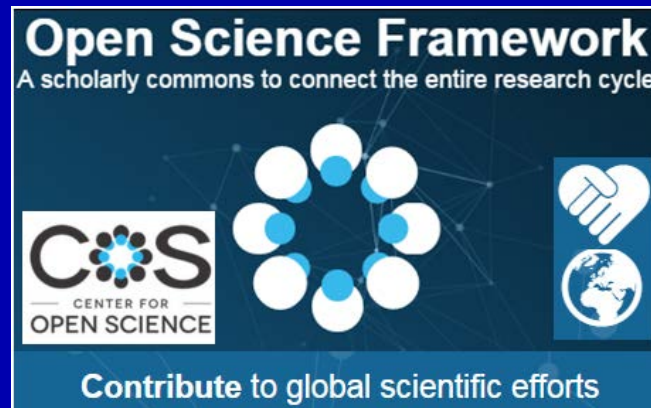
 **Crossref**
Similarity Check
Powered by iThenticate



Practical tools



Disambiguation and fraud prevention





Practical tools



Post-publication peer review



PubPeer
The online journal club

The PubPeer logo is centered on a dark teal rectangular background. The word "PubPeer" is written in a large, white, sans-serif font, and the tagline "The online journal club" is written in a smaller, white, sans-serif font below it.

Independent peer review



 **Rubriq**
independent peer review system

The Rubriq logo features a blue speech bubble icon with a white dot inside, positioned to the left of the word "Rubriq" in a large, bold, black, sans-serif font. Below "Rubriq", the text "independent peer review system" is written in a smaller, grey, sans-serif font.



Organized efforts

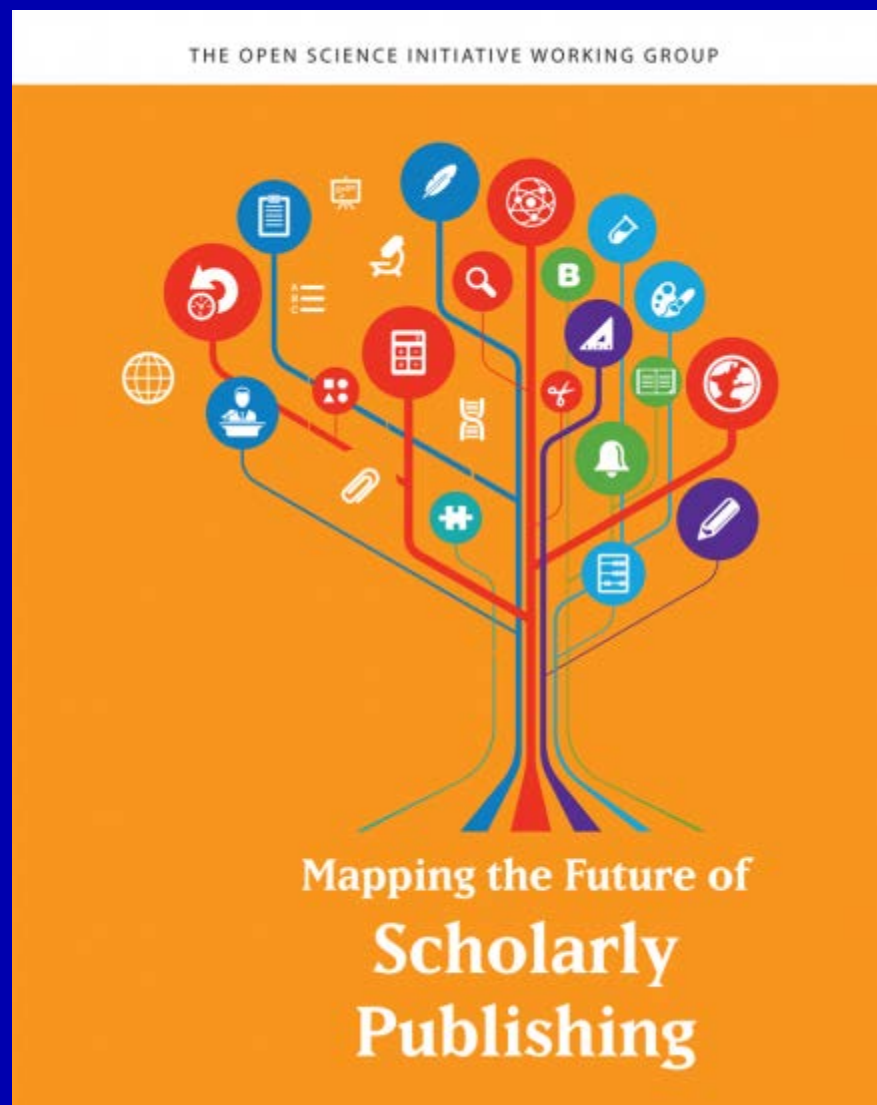


Reporting guidelines for main study types

<u>Randomised trials</u>	<u>CONSORT</u>	<u>Extensions</u>
<u>Observational studies</u>	<u>STROBE</u>	<u>Extensions</u>
<u>Systematic reviews</u>	<u>PRISMA</u>	<u>Extensions</u>
<u>Case reports</u>	<u>CARE</u>	
<u>Qualitative research</u>	<u>SRQR</u>	<u>COREQ</u>
<u>Diagnostic / prognostic studies</u>	<u>STARD</u>	<u>TRIPOD</u>
<u>Quality improvement studies</u>	<u>SQUIRE</u>	
<u>Economic evaluations</u>	<u>CHEERS</u>	
<u>Animal pre-clinical studies</u>	<u>ARRIVE</u>	
<u>Study protocols</u>	<u>SPIRIT</u>	<u>PRISMA-P</u>



Organized efforts





Organized efforts



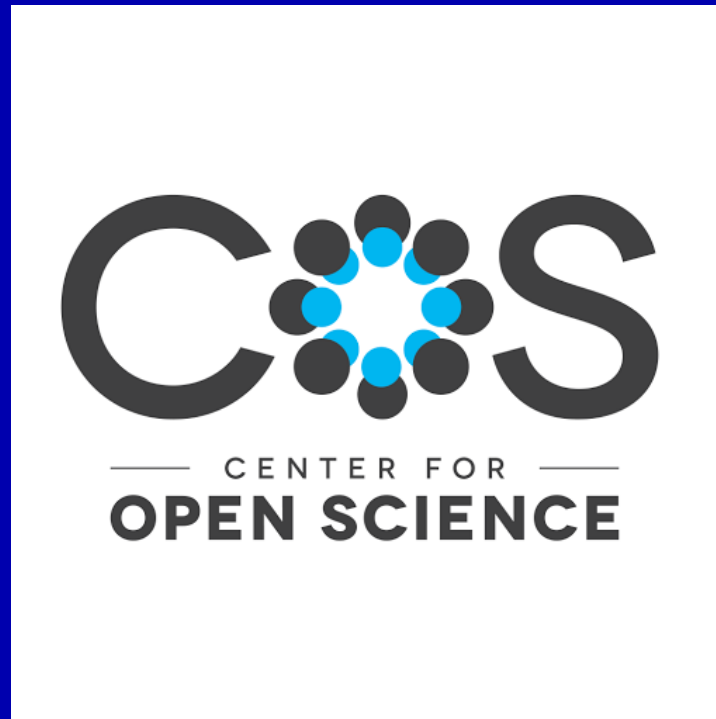
NEW FRONTIERS OF PEER REVIEW



“aims to improve efficiency, transparency and accountability of peer review through a trans-disciplinary, cross-sectorial collaboration.”



Organized efforts



Transparency and Openness Promotion (TOP) Guidelines



Watchdogs





New efforts



IT ALL STARTS WITH TRANSPARENCY!



- 14-item tool to rate transparency of the peer-review process
- Authors' ratings of the transparency were positively associated with quality of the peer-review process
- Journals with higher transparency ratings were less likely to accept the flawed paper



PRE and plans for future

PRE was created to:

- Introduce greater transparency into the journal peer review process
- Promote best practices and standards

PRE collects data related to the peer review process and makes it available at the article-level via the PRE badge





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Emergence of healing in the Antarctic ozone layer

Susan Solomon^{1,*}, Diane J. Ivy¹, Doug Kinnison², Michael J. Mills², Ryan R. Neely III^{3,4}, Anja Schmidt³

+ Author Affiliations

*Corresponding author. Email: solos@mit.edu

Science 15 Jul 2016:
Vol. 353, Issue 6296, pp. 269-274
DOI: 10.1126/science.aae0061



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Emer layer

Susan Solk

+ Author

*Correspon

Science 15 Ju
Vol. 353, Issu
DOI: 10.1126.

Peer Review Details

DOI: 10.1126/science.aae0061

- Peer review method: **Single-Blind**
[Peer review policy](#)
- Date of original submission: **Dec-06-2015**
- Date accepted: **Jun-20-2016**

Rounds of review prior to acceptance: **2**

Roles who reviewed

Editor:	1
Reviewer:	3
Advisor:	1

Article

This journal supports the following organizations and publishes according to their best practices and standards





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Peer Review Details

DOI: 10.2337/db15-0340

- Peer review method: **Single-Blind**
[Peer review policy](#)
- Plagiarism software screening?: **Yes**
- Date of original submission: **Mar-11-2015**
- Date accepted: **Apr-02-2016**

■ Rounds of review prior to acceptance: **3**

Roles who reviewed

Editor-in-Chief:	1
Associate Editor:	1
Reviewer:	3

Home Ar



Mast Cells

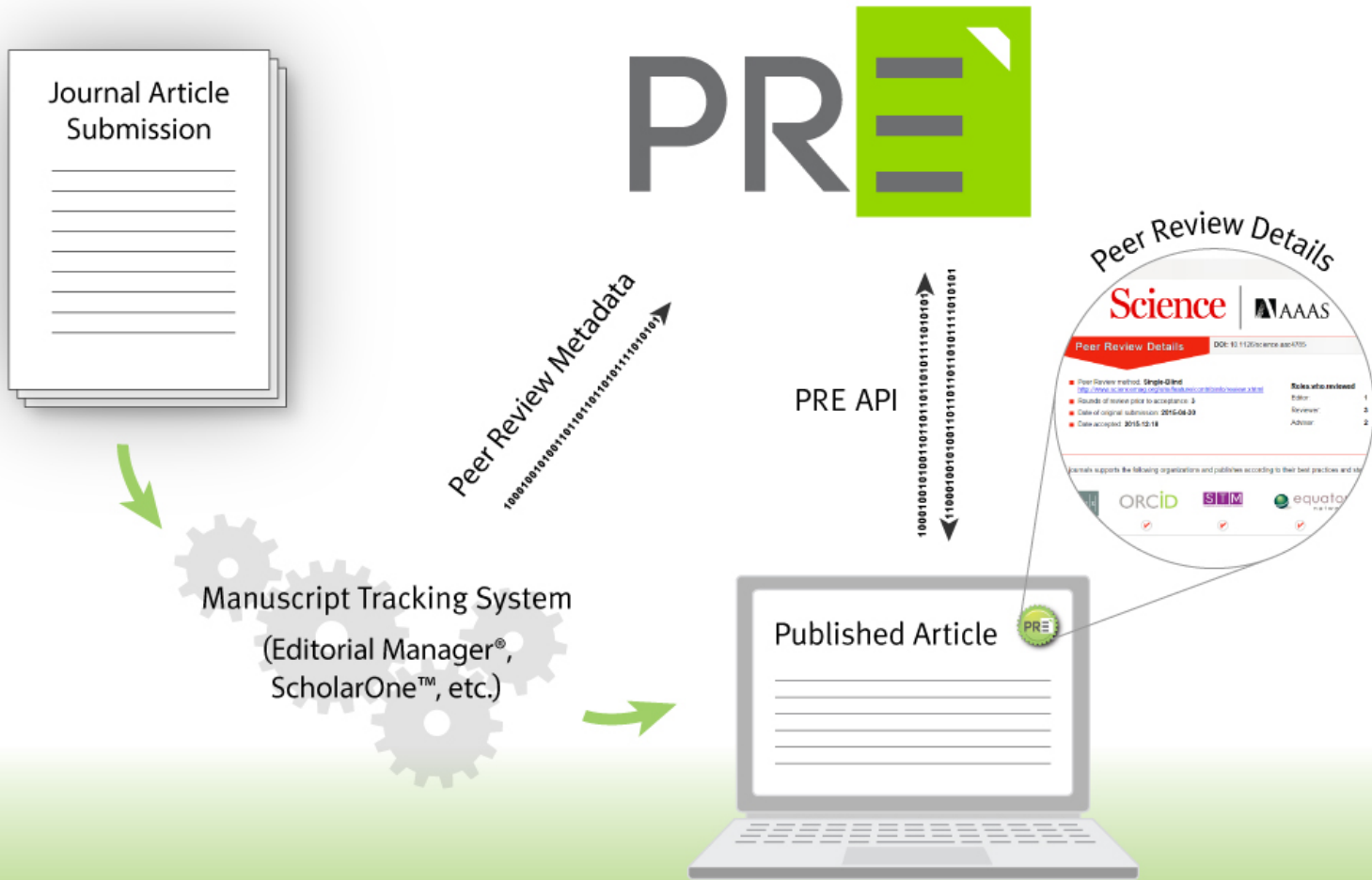
Ana Tellechea^{1,2},
Sarada Kuchibhotla

This journal supports the following organizations and publishes according to their best practices and standards





PRE and plans for future





PRE and plans for future

Research

Facilitate data sharing/collection
Sponsor/author studies
Test accepted practices

Standards

Adopt/endorse best practices
Propose new standards/best practices

Certification & Support

Establish comprehensive curriculum
Partner with publishers

Resources

Research/white papers
Webinars & panel discussions
News & developments





Get involved!



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19TH TO 25TH SEPTEMBER 2016

Theme:
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Watch for PRE/AAAS peer review survey!



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Thank you!
Questions?

Eric Hall

ehall@aaas.org

@eric_m_hall