

Preprinting and Publishing in the Life and Biomedical Sciences

The editorial process
and peer review



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In today's lesson we will discuss:



The editorial process and scientific peer review



The inner workings of the journal editorial process and the roots of modern peer review



Challenges impacting existing models of peer review and journal workflows

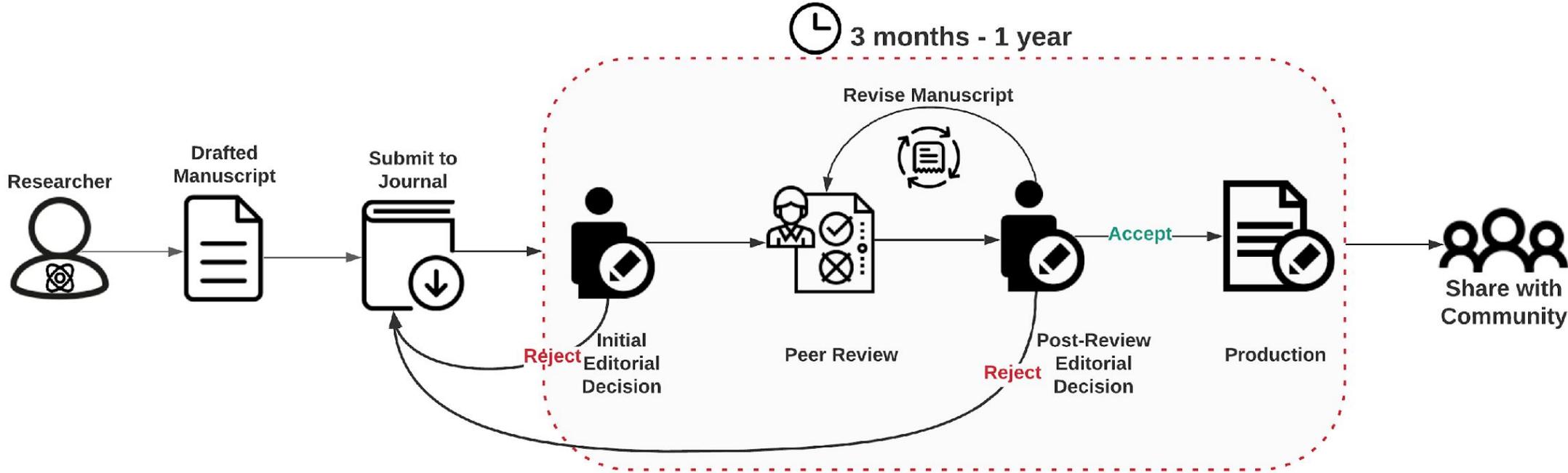


Emerging innovations and best practice in peer review and transparent editorial processes

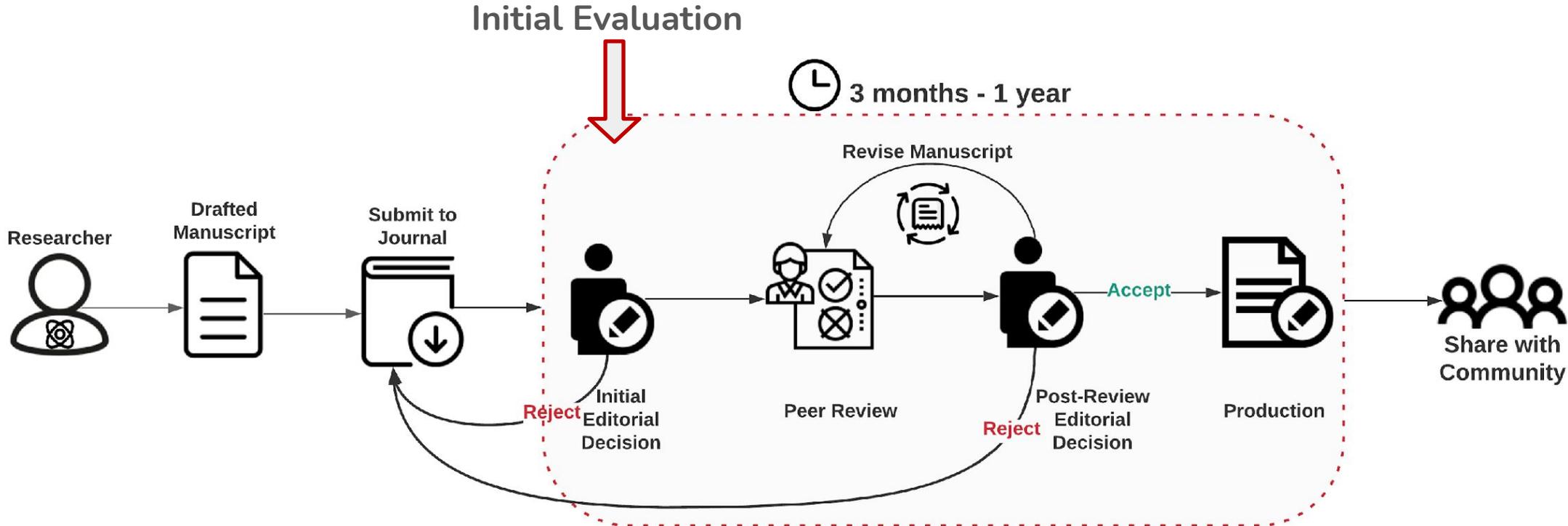


Hands-on peer review workshop

The traditional journal-dependent manuscript lifecycle



The traditional journal-dependent manuscript lifecycle: The editorial process



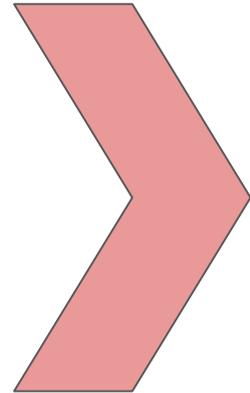
Initial editorial evaluation

Technical checks

Initial **technical checks** ensure that the submission includes all files and information required by the journal.

This process is usually administrative and the submission is returned to the authors for necessary amendments.

- Required disclosures
 - competing interests
 - ethics approval
 - authors' contributions
 - availability of data
 - funding information
- Text overlap (plagiarism)
- File completeness



Initial editorial evaluation

After the technical checks, the manuscript is sent to an editor:

Scope

- Is the manuscript suitable for the disciplinary focus of the journal?
- Are there specific requirements for novelty/advance, does the work meet the expected level?

Editorial policies

- Are all policies met? E.g., regarding ethical requirements, data availability or other

The editor will make an initial decision:



All requirements met ⇒ **proceed to peer review**

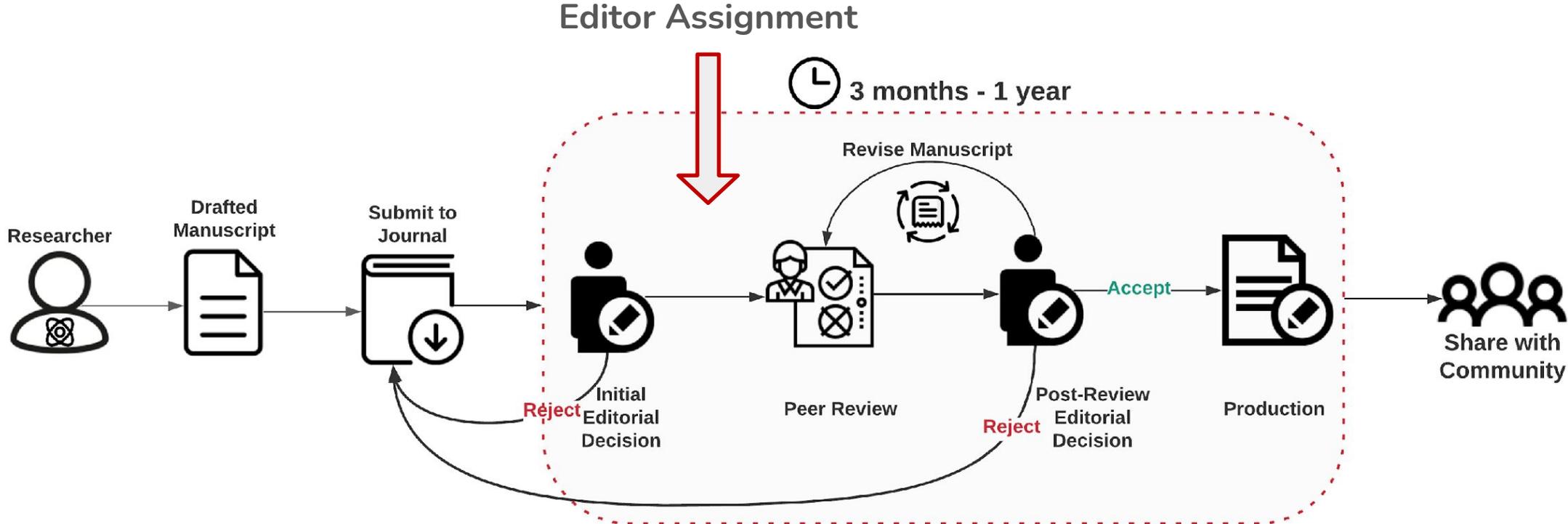


Scope and/or policies not met ⇒ **desk reject**, the journal notifies the author

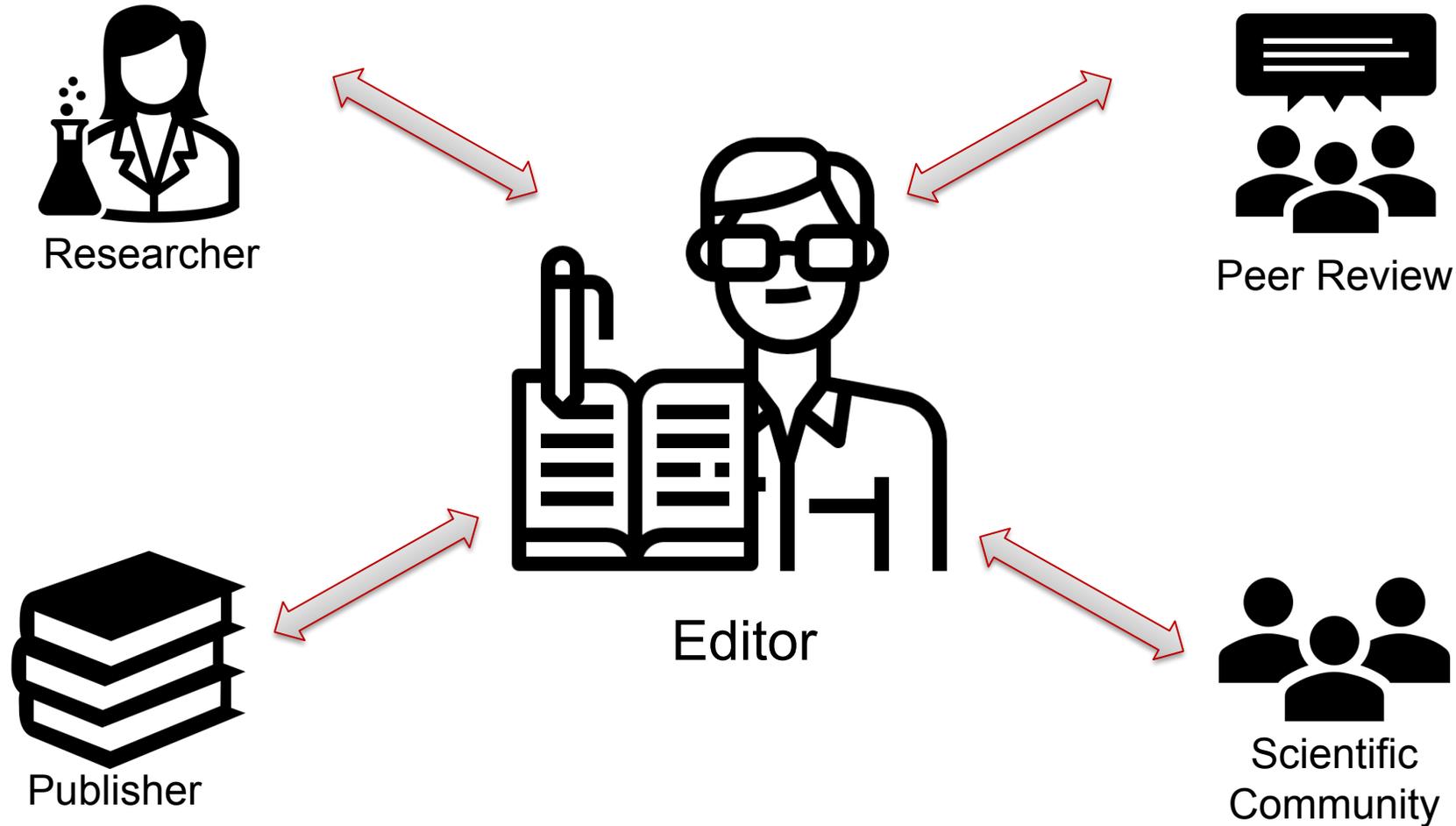


This step takes from 1-2 days up to a couple of weeks

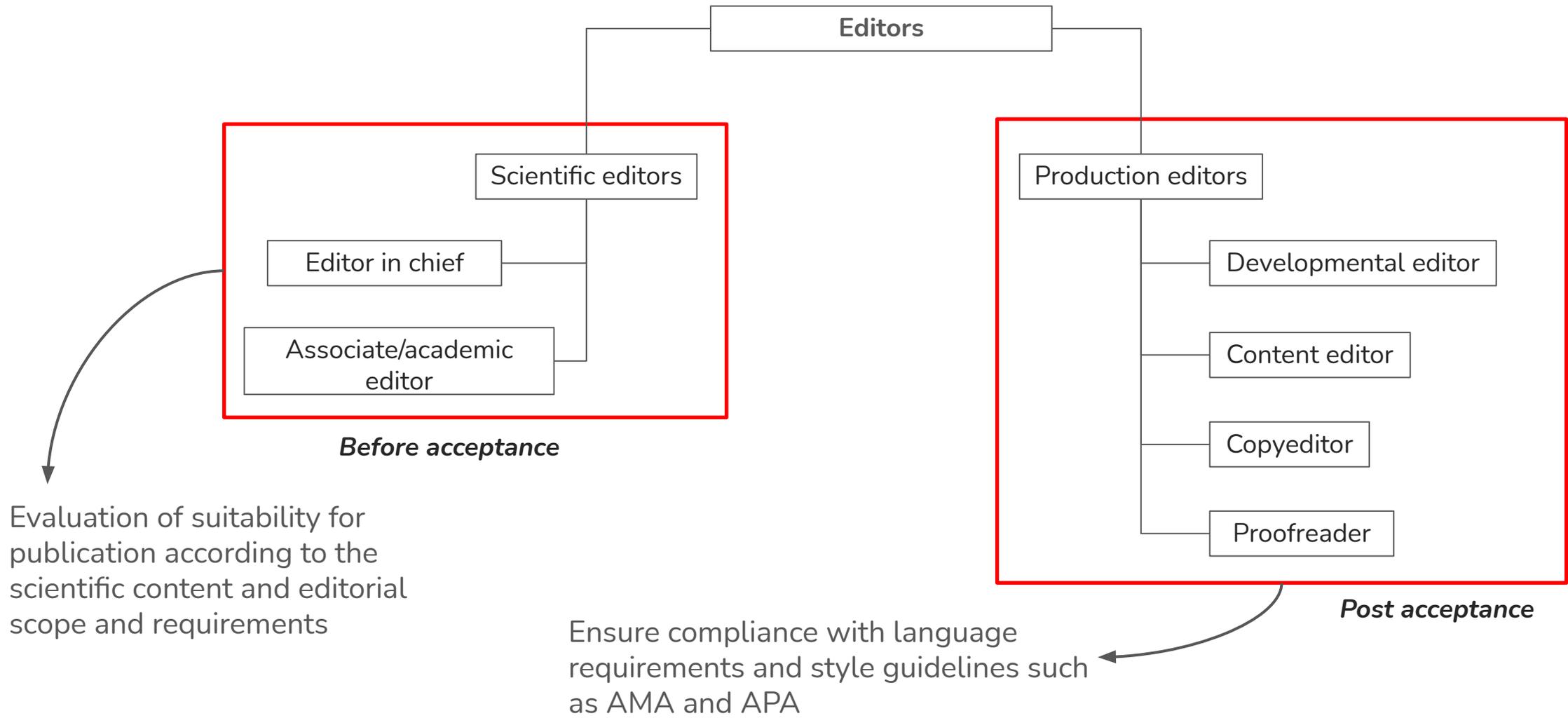
The traditional journal-dependent manuscript lifecycle: The editorial process



Editors – a central hub in the journal-dependent publication process



The various types of editors: What do they do?



Scientific Editors



The Editor-in Chief and the Associate/Academic Editors act as gatekeepers for the journal

- They **curate** content i.e. make decisions on what gets published in the journal
- They uphold the journal's policies and thus look after the journal's **reputation**

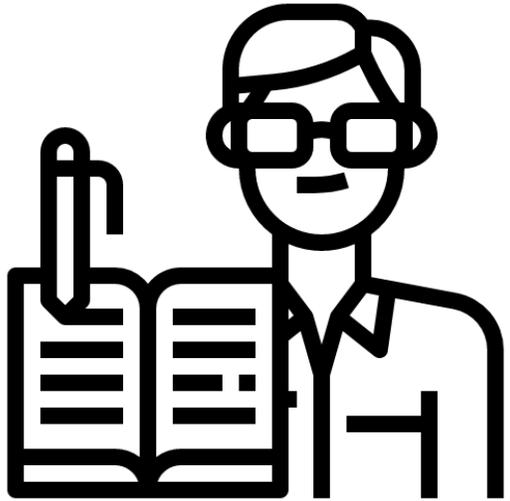


In addition to handling the editorial process for individual manuscripts, they also:

- Invite colleagues to submit to the journal
- Invite colleagues to review for the journal or join its editorial board
- Commission non-research manuscripts such as narrative reviews and commentaries
- Keep abreast of the latest literature and developments in their field and make recommendations for commissioned content or editorial policy needs
- Represent the journal at conferences and meetings
- Suggest topics for and/or manage special issues at the journal - collections of publications around a specific theme, usually time bound



Editor-in-Chief



Overall responsibility for editorial content at the journal

- Ultimate say on editorial decisions
- Sets strategy and direction for the journal
- Drives and oversees development of journal scope and editorial policies
- May be more or less involved in manuscript handling depending on the journal structure and size
- Public face for the journal
- May be academic (a recognized leader in the field served by the journal) or professional (an employee of the journal or publisher)
- Supported by an **editorial board** - a group of Academic Editors/Associate Editors who handle individual manuscripts and provide input on scope and editorial policies

Associate/Academic Editors



The Associate or Academic Editors are researchers with expertise in the field(s) covered by the journal

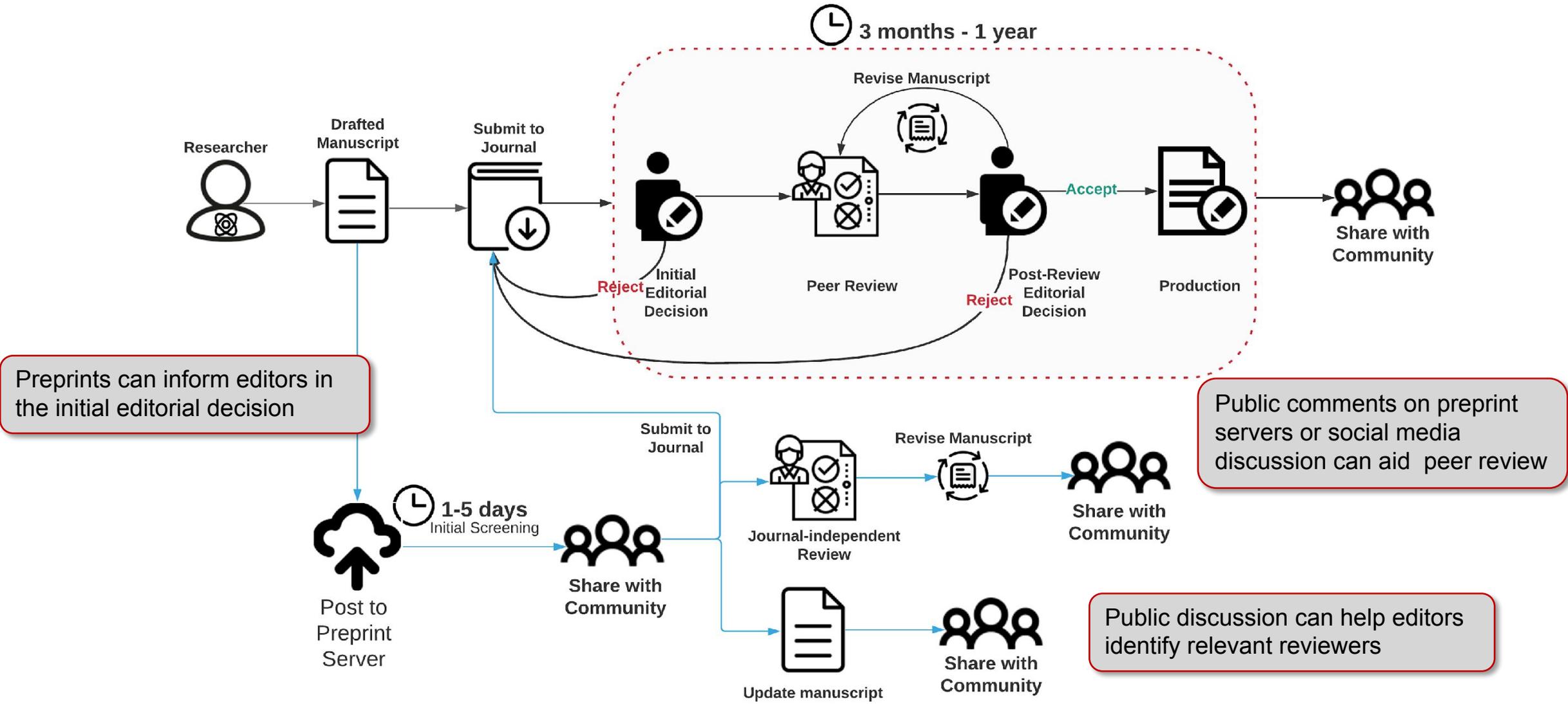


They manage the editorial process and peer review for individual manuscripts:

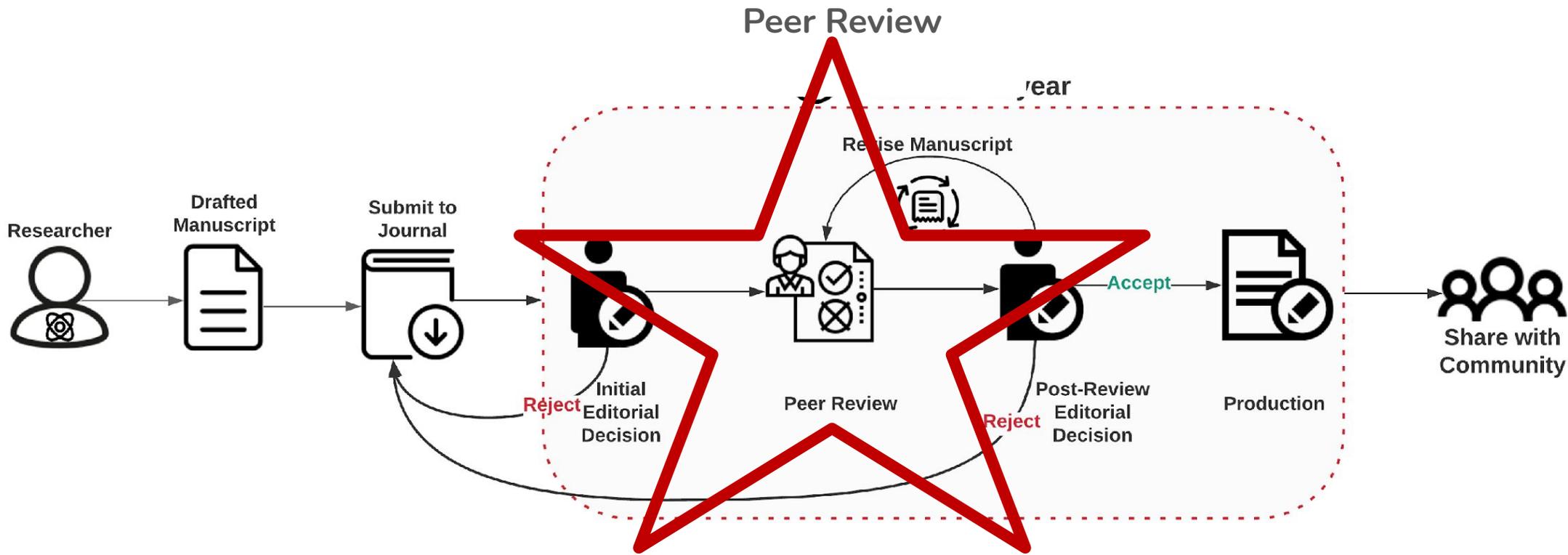
- Make initial decisions on whether to proceed to peer review or desk reject
- Identify reviewers for the manuscript
- Make a decision on whether to publish the manuscript, informed by the reviewer's comments and their assessment of the manuscript and the journals' requirements
- Liaise with authors about specific editorial requests, or queries the authors may have
- Handle complaints and appeals on editorial decisions



Can preprinting benefit the editorial process?



The traditional journal-dependent manuscript lifecycle: The peer review process



Editors play a critical role in the peer review process



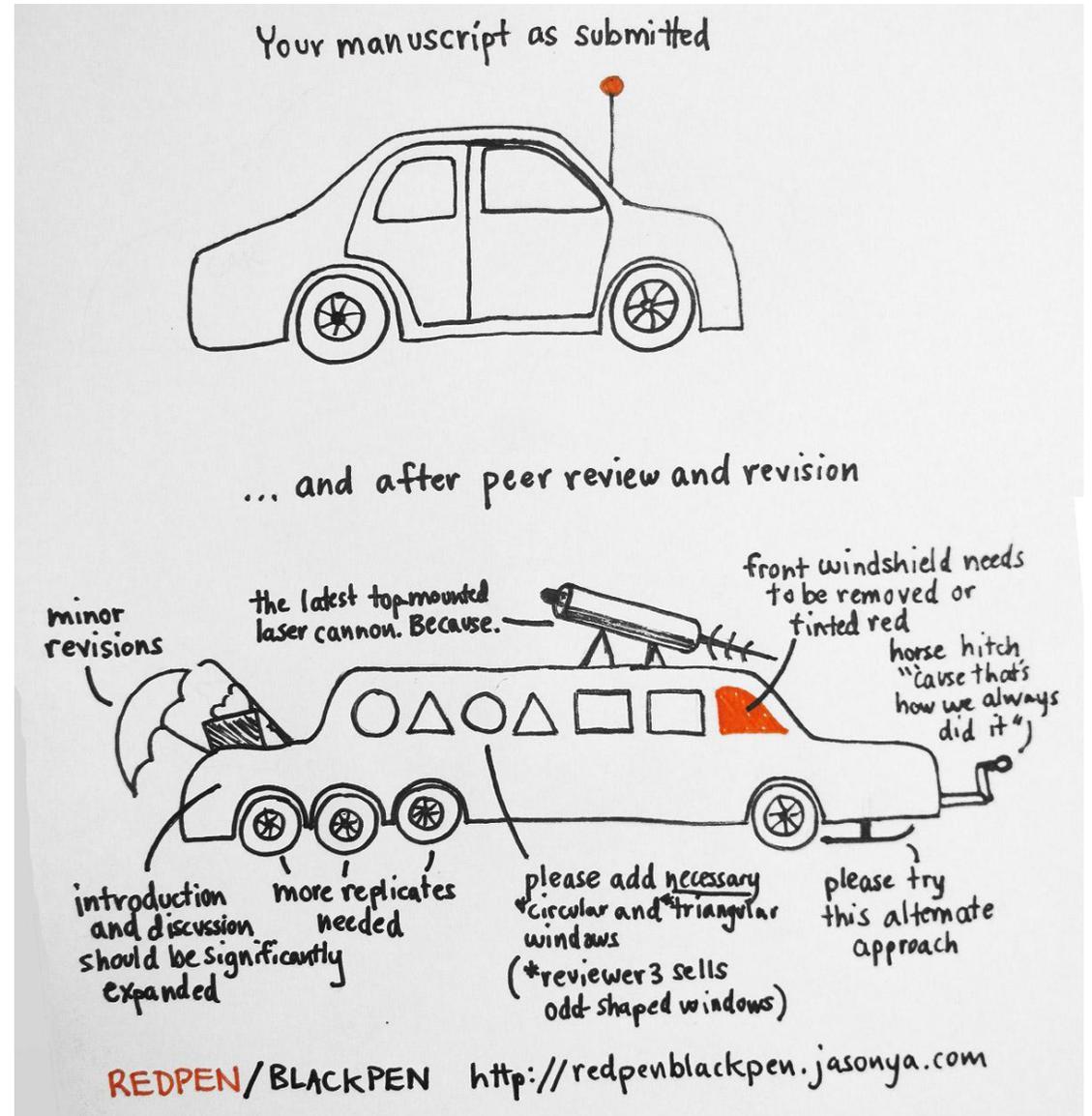
“Editors are responsible for monitoring and ensuring the fairness, timeliness, thoroughness, and civility of the peer-review editorial process.”
- Council of Science Editors, *White Paper on Publication Ethics*

Peer review

What is peer review?

Many scientists' first exposure to peer review is on the receiving end. Do we understand how peer review works - and how it should work in an ideal world?

The idea of peer review as the gatekeeper for a stable repository of human knowledge is not as old as it might seem!

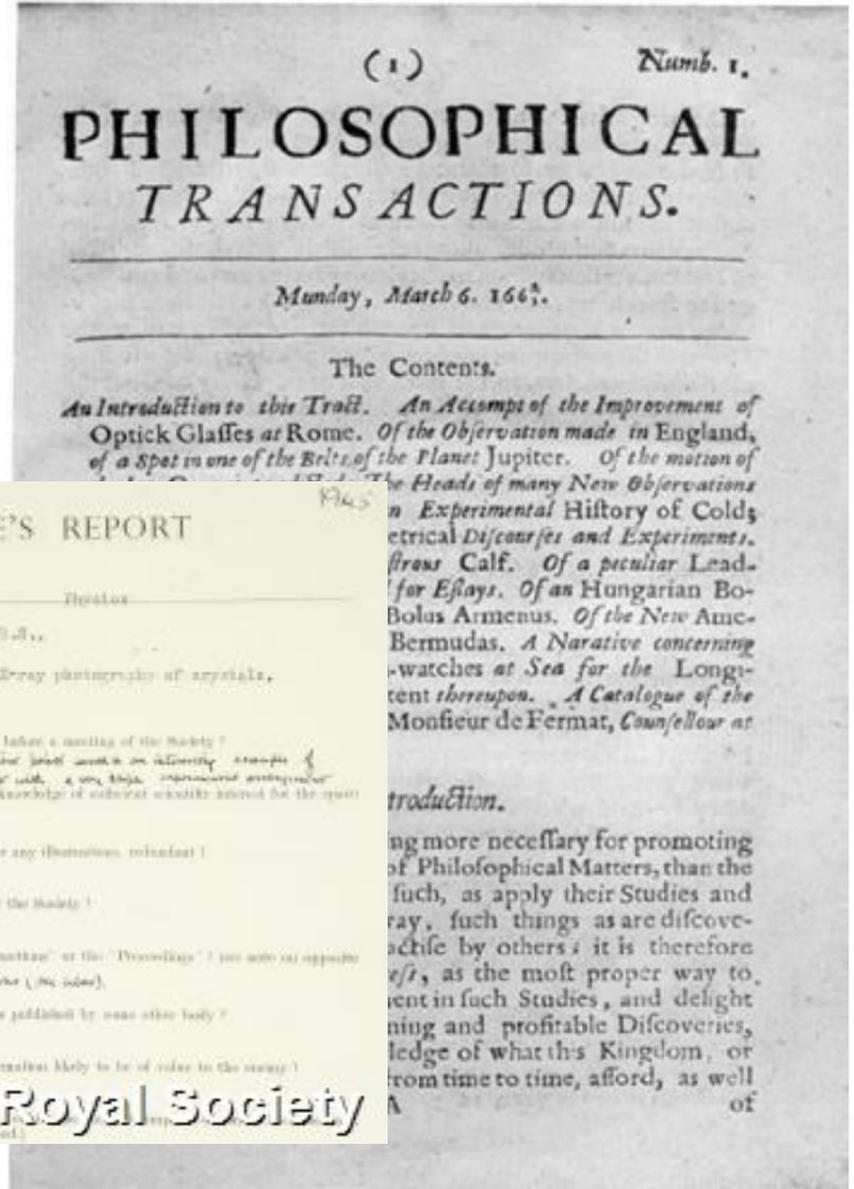


The history of peer review

Modern peer review was born at the Royal Society in the mid-1600s...

[...it was determined that "... [articles in the Society's Philosophical Transactions should be] first reviewed by some of the members of the same" (Royal Society Order in Council 1/3/1665)]

...and hasn't changed all that much since.



What is a peer review?

An evaluation of the manuscript completed by an expert in the field

As part of the editorial process, the editor will invite experts (*peers*) to provide a report (*review*) on the manuscript

- Most journals aim to obtain 2-3 reviews
- Ideally the reviewer should be **knowledgeable** in the area of work of the manuscript and able to provide an **objective** review i.e. free of a comparing interest or bias
- Reviewers may agree or decline depending on their expertise and availability, journals often invite multiple reviewers until 2-3 agree
- Reviewers are usually given 10-21 days to complete the review (deadlines vary per journal)

The format of the review will vary per journal:

- Free text
- Review form requesting that specific items are covered
- Possibility (or not) to provide confidential comments to the editor

Recommendation: No Recommendation

Cancel Save & Submit Later Upload Reviewer Attachments Proof & Print Proceed

Reviewer Instructions

Thank you for agreeing to contribute your expert opinion to the evaluation of this manuscript.

Assessing the manuscript

As you evaluate the manuscript, consider whether it satisfies the *PLOS ONE* criteria for publication. Consult these resources for additional information:

- [Reviewer Guidelines](#). An overview of our peer review process and what to consider in your review.
- [PLOS Reviewer Center](#). Peer review how-to information and strategies.
- Other questions? Contact us at plosone@plos.org

Submitting your review

To complete your review, answer the questions in the review form below. (A red asterisk (*) indicates that a response is required.) Enter the main body of your review under question 5, along with any concerns about potential competing interests on the part of the authors, data availability, or research ethics. Declare your own potential [competing interests](#) under the section titled Confidential to Editor. This information is visible only to the editor and the journal office.

Review Questions

*Comments to the Author [Insert Special Character](#)

1. Is the manuscript technically sound, and do the data support the conclusions?

The manuscript must describe a technically sound piece of scientific research with data that supports the conclusions. Experiments must have been conducted rigorously, with appropriate controls, replication, and sample sizes. The conclusions must be drawn appropriately based on the data presented.

Please select a response

*2. Has the statistical analysis been performed appropriately and rigorously?

Please select a response

*3. Have the authors made all data underlying the findings in their manuscript fully available?

The [PLOS Data policy](#) requires authors to make all data underlying the findings described in their manuscript fully available without restriction, with rare exception (please refer to the Data Availability Statement in the manuscript PDF file). The data should be provided as part of the manuscript or its supporting information, or deposited to a public repository. For example, in addition to summary statistics, the data points behind means, medians and variance measures should be available. If there are restrictions on publicly sharing data—e.g. participant privacy or use of data from a third party—those must be specified.

Please select a response

*4. Is the manuscript presented in an intelligible fashion and written in standard English?

PLOS ONE does not copyedit accepted manuscripts, so the language in submitted articles must be clear, correct, and unambiguous. Any typographical or grammatical errors should be corrected at revision, so please note any specific errors here.

Please select a response

(In)formal training in peer review

Several new training resources available and/or in development!

 **eLIFE**
elifesciences.org

FEATURE ARTICLE |  | 

RESEARCH CULTURE

Co-reviewing and ghostwriting by early-career researchers in the peer review of manuscripts

Abstract Many early-career researchers are involved in the peer review of manuscripts for scientific journals, typically under the guidance of or jointly with their advisor, but most of the evidence about this activity is anecdotal. Here we report the results of a literature review and a survey of researchers, with an emphasis on co-reviewing and 'ghostwriting'. The literature review identified 36 articles that addressed the involvement of early-career researchers in peer review, most of them about early-career researchers and their advisors co-reviewing manuscripts for the purposes of training: none of them addressed the topic of ghostwriting in detail. About three quarters of the respondents to the survey had co-reviewed a manuscript. Most respondents believe co-reviewing to be a beneficial (95%) and ethical (73%) form of training in peer review. About half of the respondents have ghostwritten a peer review report, despite 81% responding that ghostwriting is unethical and 82% agreeing that identifying co-reviewers to the journal is valuable. Peer review would benefit from changes in both journal policies and lab practices that encourage mentored co-review and discourage ghostwriting.
DOI: <https://doi.org/10.7554/eLife.48425.001>

GARY S MCDOWELL*, **JOHN D KNUTSEN**, **JUNE M GRAHAM**, **SARAH K OELKER**
AND REBECCA S LIJEK*

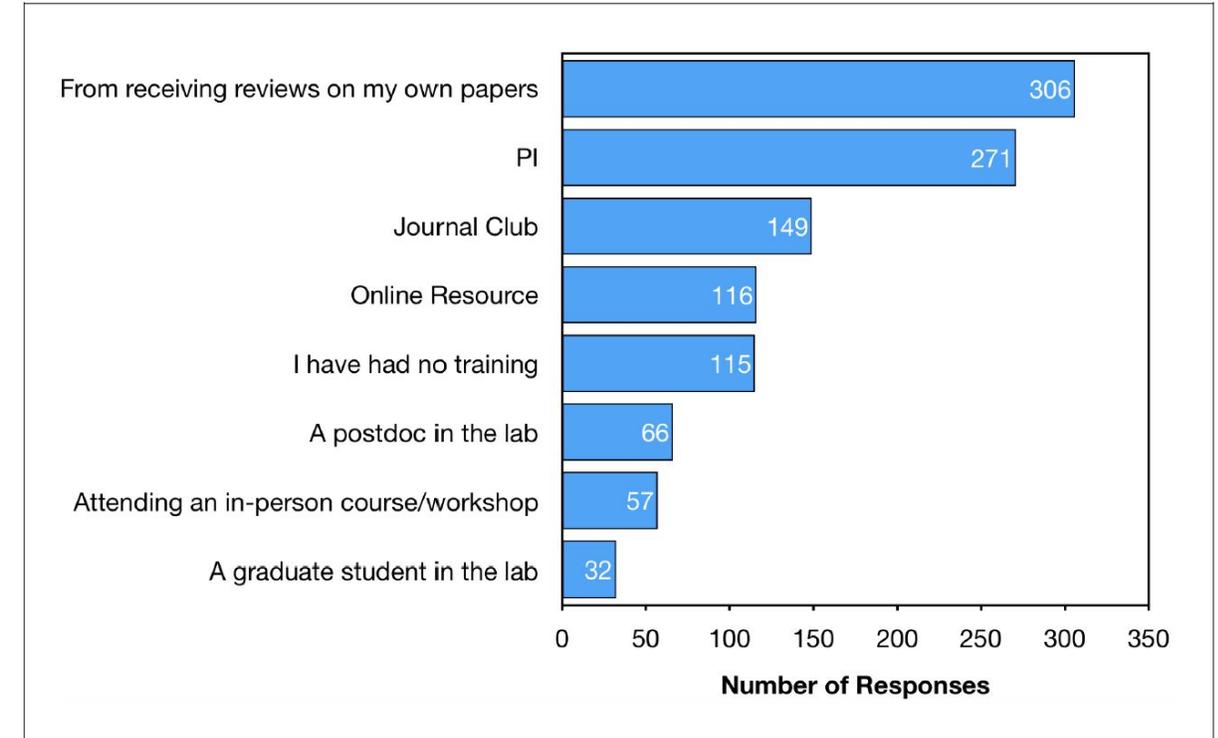


Figure 3. Training in how to peer review a manuscript. Responses to the question: "How did you gain training in how to peer review a manuscript?" Respondents were able to select as many options as applied to them. These data include responses from all survey participants, including those without any independent or co-reviewing experience.

DOI: <https://doi.org/10.7554/eLife.48425.007>

Training and certification in peer review

Some examples...

PREreview Open Reviewers
mentorship programme

IOP Peer Review Certification

PLOS Peer Review Centre



Figure 1. PREreview Open Reviewers Stages of Engagement

Reviewer best practice

Would you publicly commit to a set of principles that guide you as a peer reviewer?

Reviewing papers as you would like your papers to be reviewed

Buzz Baum*

MRC Laboratory for Molecular Cell Biology, University College London, London WC1E 6BT, United Kingdom

F1000Research

F1000Research 2015, 3:271 Last updated: 24 FEB 2021



RESEARCH NOTE

REVISED An Open Science Peer Review Oath [version 2; peer review: 4 approved, 1 approved with reservations]

Jelena Aleksic¹, Adrian Alexa², Teresa K Attwood³, Neil Chue Hong⁹, Martin Dahlö⁴, Robert Davey⁵, Holger Dinkel⁶, Konrad U Förstner⁷, Ivo Grigorov⁸, Jean-Karim Hériché⁶, Leo Lahti¹⁰, Dan MacLean¹¹, Michael L Markie¹², Jenny Molloy¹³, Maria Victoria Schneider⁵, Camille Scott¹⁴, Richard Smith-Unna¹⁵, Bruno Miguel Vieira¹⁶,
as part of the AllBio: Open Science & Reproducibility Best Practice Workshop

[Link to sample reviewer oath](#)

RajLab

Random musings from the Raj Lab for systems biology

Saturday, April 19, 2014

How to review a paper

Or, I should say, how I review a paper.

Peer review is a mess. We all know it, and have written about it endlessly, including myself. And we've also railed against a system in which we do all the work for the benefit of the publishers. But wait: if we are doing all the work, then we should be able to bend this system to our collective will, right? When we complain about bad reviews, just remember that we ourselves are the ones giving these terrible reviews. So our goal should be to give good reviews!

How do you do that? Here are some principles I try to think about and follow:

Peer review and editorial decision

Peer reviewers will submit their reports to the editor, the reports include:

- An assessment of the manuscript
- Comments on any potential concerns or flaws, questions or requests for the authors
- A recommendation on whether the manuscript is suitable for publication in the journal

Once all the reviews are available, the editor will make an editorial decision, informed by the reviewers' comments, their own assessment of the manuscript and the editorial policies at the journal:



Accept - the manuscript will be published



Revision - the manuscript does not yet meet all the journal requirements, the authors are asked to make revisions to address remaining items, requests for revisions may be

Major - usually requiring additional data or major changes to the interpretation

Minor - usually involving clarifications or changes to the text



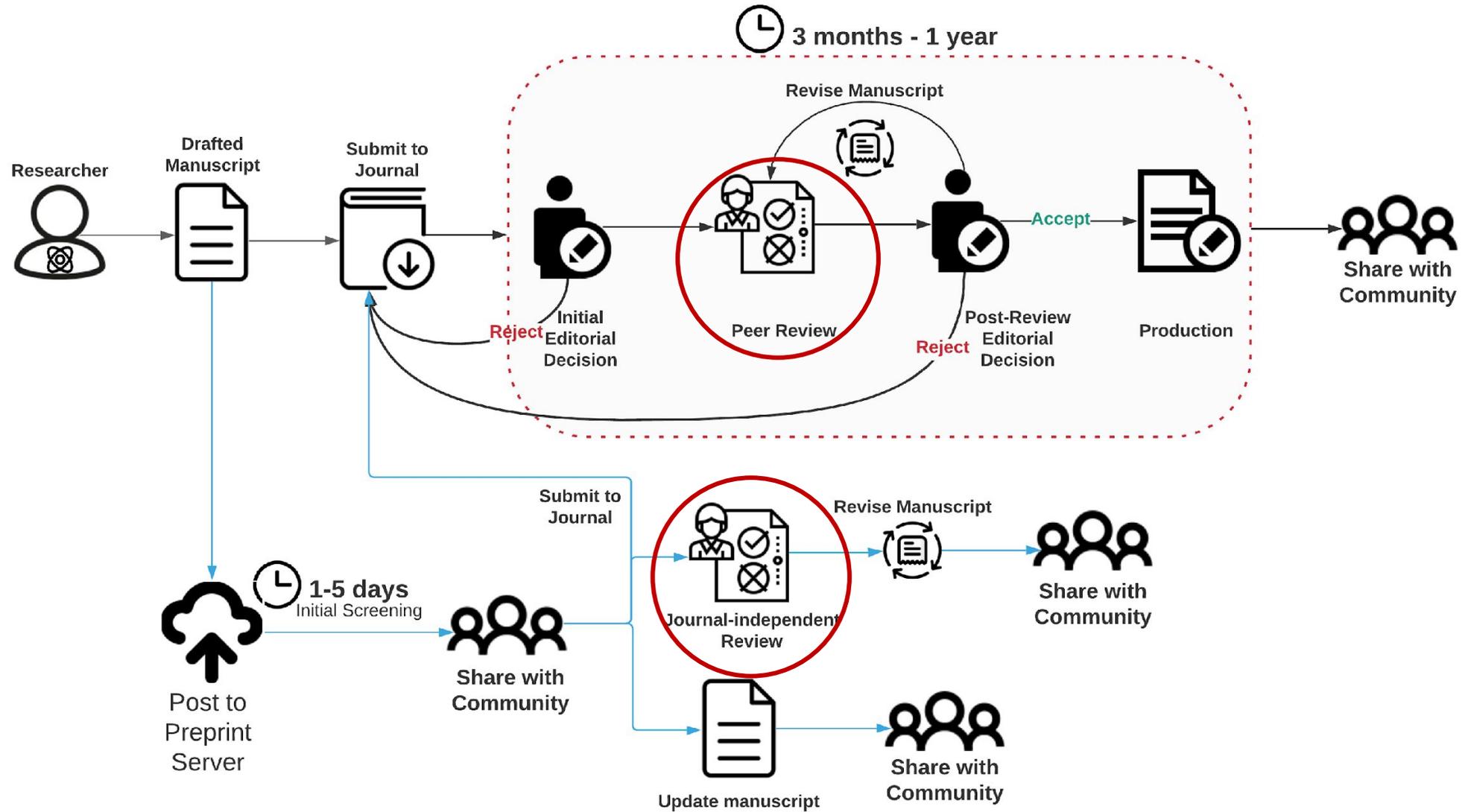
Reject - the manuscript does not meet the journal requirements, and

The editor will notify the authors with a decision letter including the decision, the editor's' comments and the peer reviews

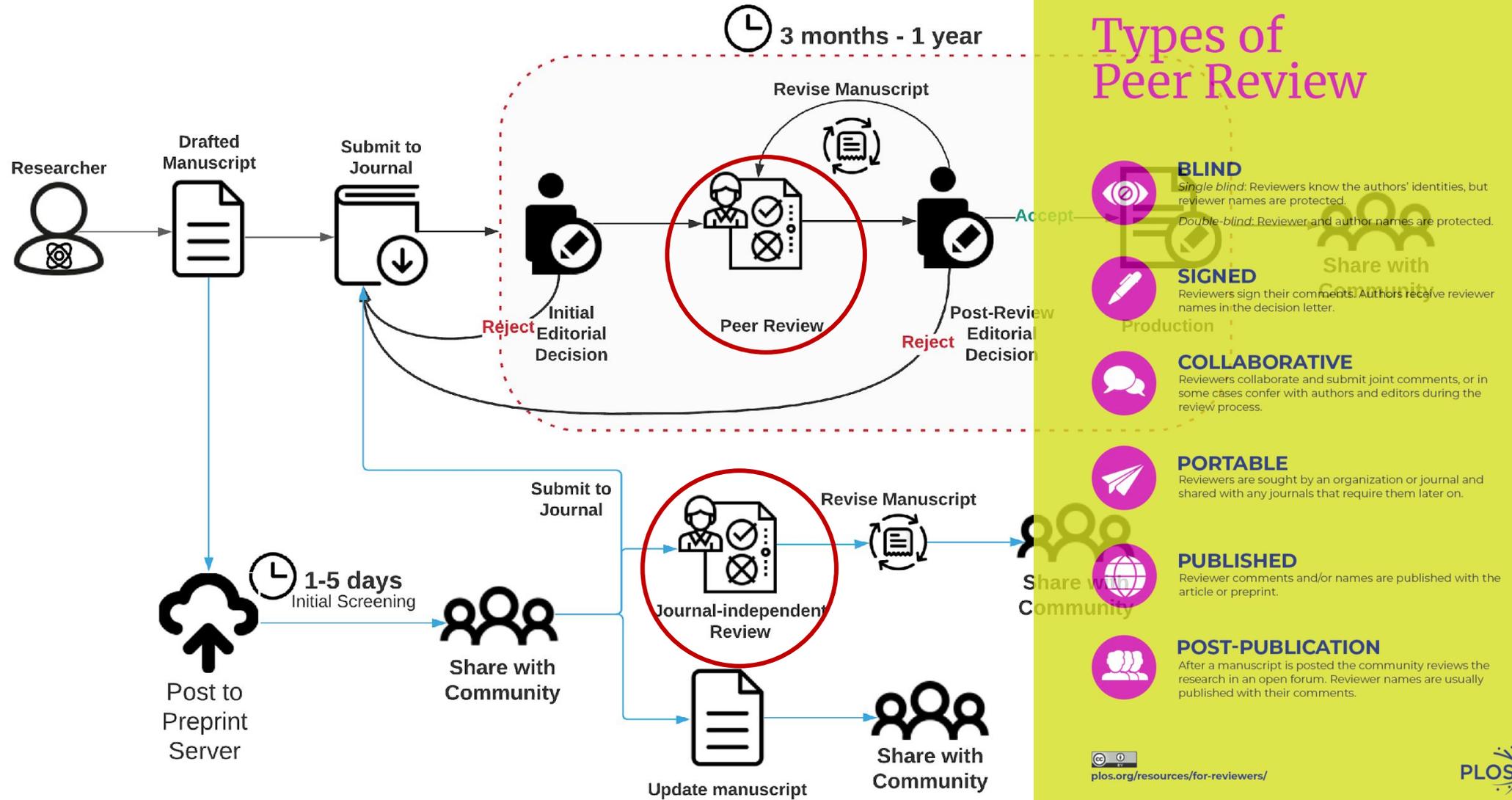


This stage can take from 3-4 weeks to several months, timelines vary per manuscript and discipline

Evolving formats of peer review



Evolving formats of peer review



Transparent and/or signed peer reviews



eLIFE

Article

Figures and data

Side by side

Abstract

Introduction

Results

Discussion

Materials and methods

References

Decision letter

Author response

Article and author information

Metrics

Decision letter

Christina L Stallings

Reviewing Editor; Washington University School of Medicine

Dominique Soldati-Favre

Senior Editor; University of Geneva, Switzerland

Josep Casadesús

Reviewer; Universidad de Sevilla, Spain

In the interests of transparency, eLife publishes the most substantial and novel requests and the accompanying author responses.

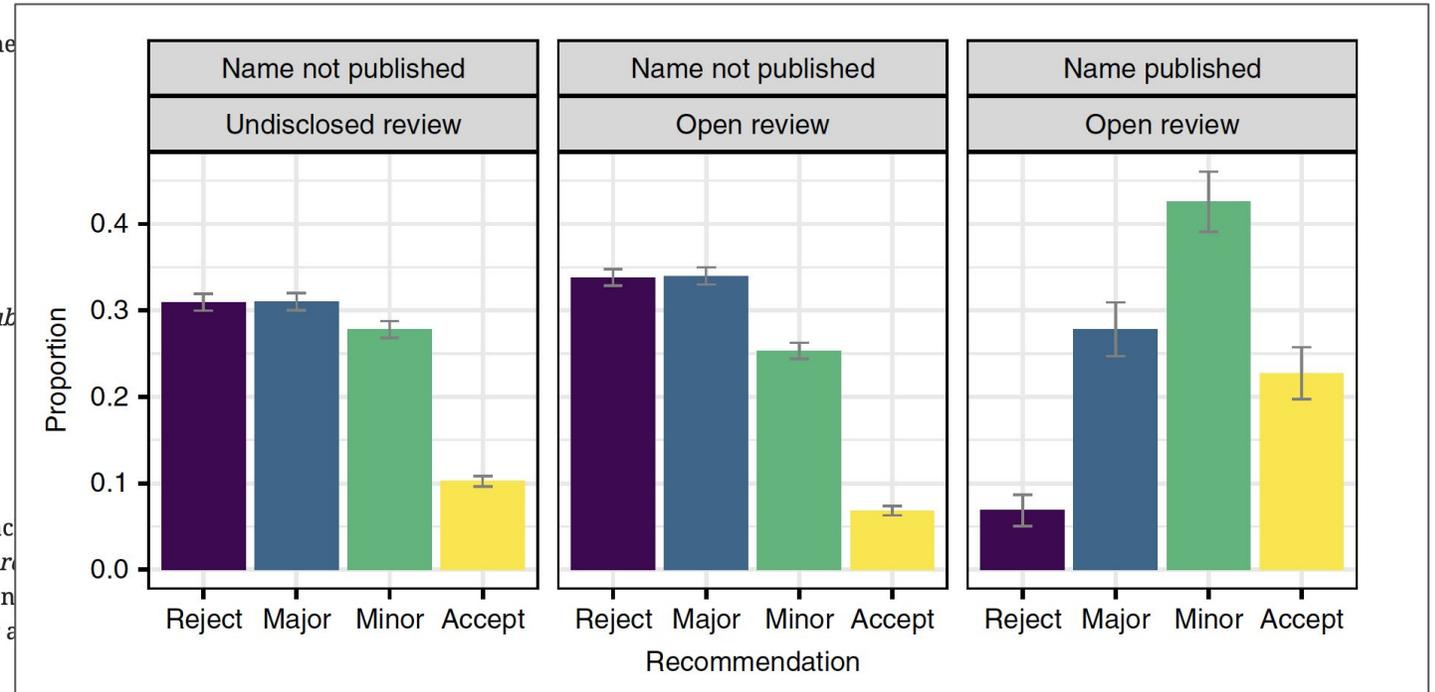
Acceptance summary:

This study is interesting and important because by using PacBio we can conduct SMRT-seq based methylome analyses of 93 *M. tuberculosis* authors were able to uniquely provide a detailed description of *M. tuberculosis* genomes associated with the presence or absence of MTases.

Decision letter after peer review:

Thank you for submitting your article "Epigenetic mosaicism in the *Mycobacterium tuberculosis* methylome enables phenotypic plasticity without genetic mutation" for consideration by *eLife*. Your article has been reviewed by Dominique Soldati-Favre as the Senior Editor, a Reviewing Editor, and three

To sign or not to sign?



Bravo et al. Nat. Comms. 2019

Research Output Reviewed



Preprints



Journal accepted manuscripts



Privately shared manuscripts



Other scholarly outputs

[View all registered projects](#)

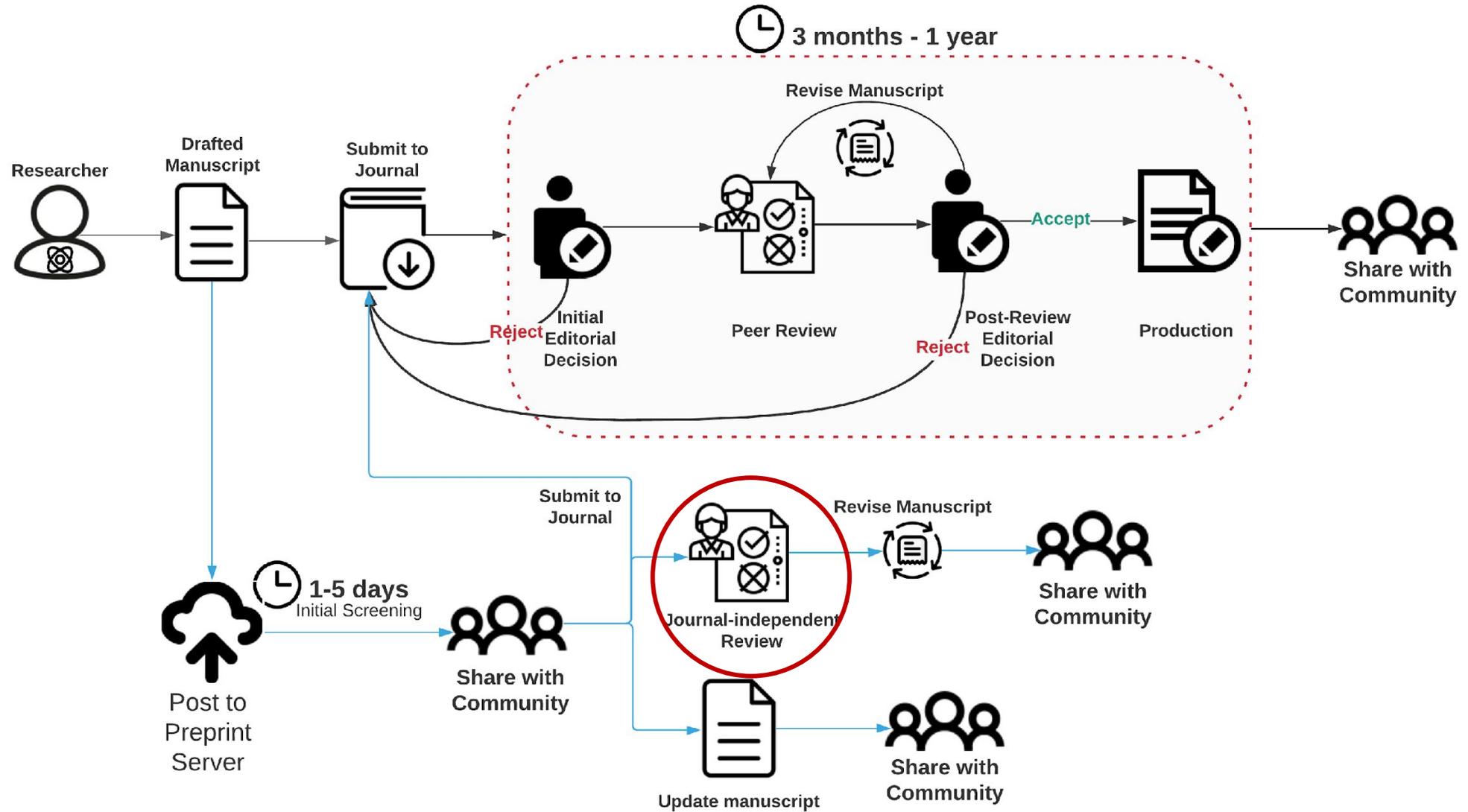
Discover peer review projects

Projects

Search

Search

Decoupling peer review from the journal

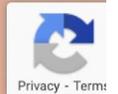


For a comparison of services in this area:
<https://asapbio.org/comparing-review-services>

Independent peer review before journal submission

SUBMIT

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Preprint peer review/ Overlay journals

Vs

Post-publication peer review



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REVIEW Check for updates

REVISED Data publication consensus and controversies [version 2; peer review: 2 approved, 1 approved with reservations]

John Kratz, Carly Strasser | Author details

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Open Peer Review

Reviewer Status: ✓✓✓

Reviewer Reports

	Invited Reviewers		
	1	2	3
Version 3 (revision) 16 Oct 14	✓ read		
Version 2 (revision) 16 May 14	↑	✓ read	✓ read
Version 1 23 Apr 14	? read		

- Mark Parsons, Research Data Alliance, Troy, NY, USA
Peter Fox, Rensselaer Polytechnic Institute, Troy, NY, USA
- Mark Costello, University of Auckland, Auckland, New Zealand
- Ingrid Dillo, Data Archiving and Networking Services (DANS), The Hague, The Netherlands

Comments on this article

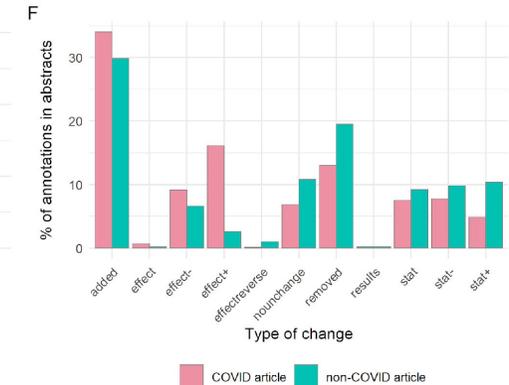
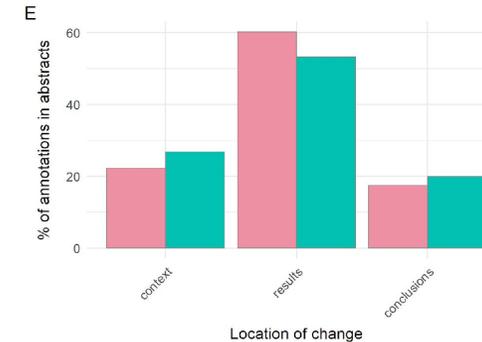
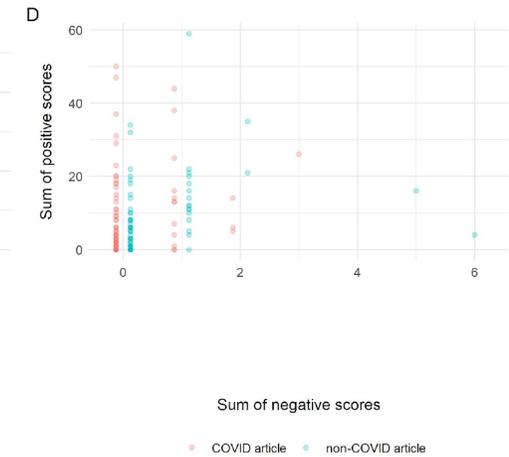
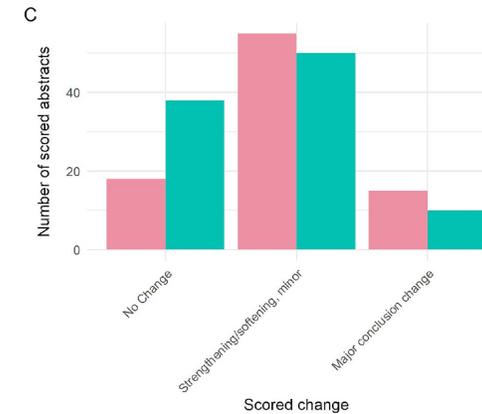
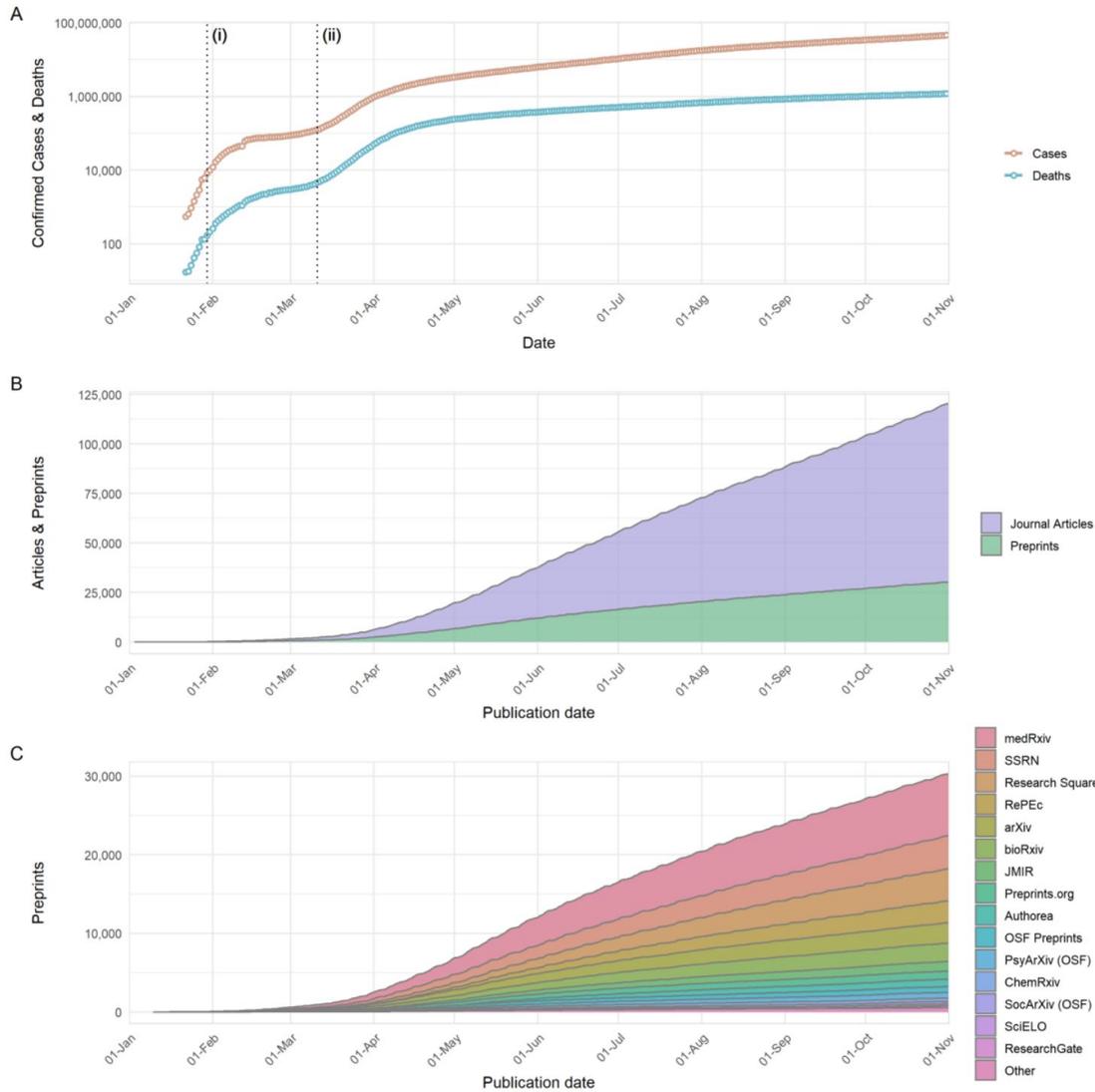
All Comments (5)
Add a comment

Abstract

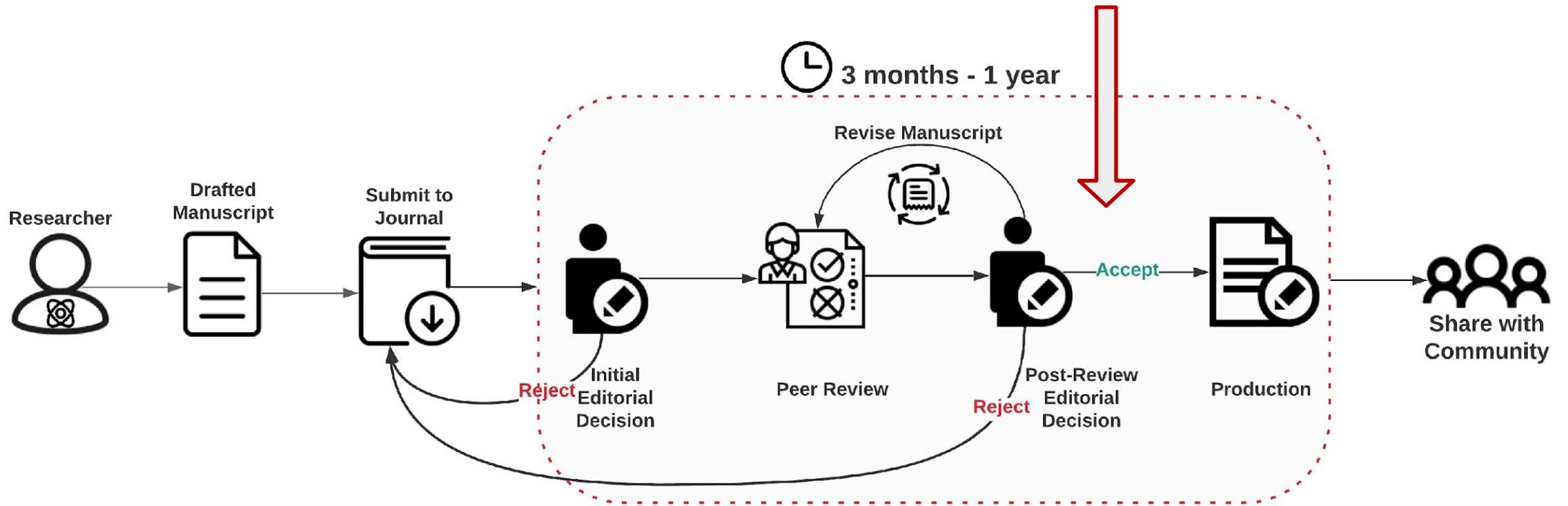
The movement to bring datasets into the scholarly record as first class research products (validated, preserved, cited, and credited) has been inching forward for some time, but now the pace is quickening. As data publication venues proliferate, significant debate continues over formats, processes, and terminology. Here, we present an overview of data publication initiatives underway and the current conversation, highlighting points of consensus and issues still in contention. Data publication implementations differ in a variety of factors, including the kind of documentation, the location of the documentation relative to the data, and how the data is validated. Publishers may present the data as supplemental material to a journal article, with a descriptive "data paper," or independently. Complicating the situation, different initiatives and communities use the same terms to refer to distinct but overlapping concepts. For instance, the term "published" means that the data is publicly available and citable to virtually everyone, but it may or may not imply that the data has been peer-reviewed. In turn, what is meant by data peer review is far from defined; standards and processes encompass the full range employed in reviewing the literature, plus some novel variations. Basic data citation is a point of consensus, but the general agreement on the core elements of a dataset citation frays if the data is dynamic or part of a larger set. Even as data publication is being defined, some are looking past publication to other metaphors, notably "data as software," for solutions to the more stubborn problems.

Assessing the quality of peer review

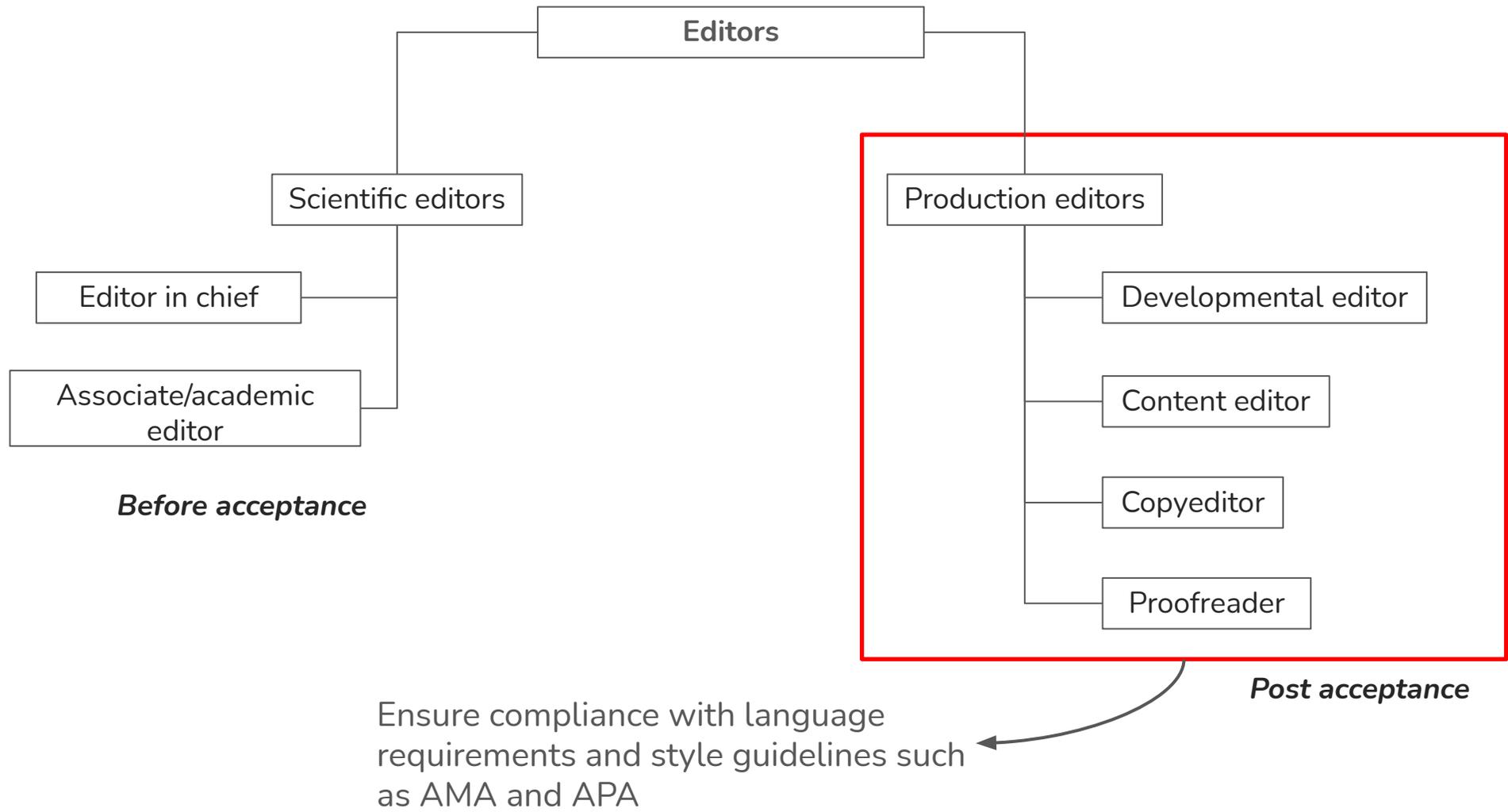
An explosion in preprinting, accelerated by COVID-19, provides an opportunity to rigorously examine peer review



What happens after acceptance?



Production editors: What do they do?



What happens after acceptance?

Once the Scientific Editor reaches a decision for acceptance, the manuscript is transferred to the **Production Editors** who will take steps to prepare the files for publication:

Document proof

- i. copyediting
- ii. compliance with style & format requirements
- iii. check and enhance artwork quality
- iv. author proofing - the author may be sent a draft of the article for checking

The screenshot displays a journal manuscript interface. At the top, there are tabs for 'Article' and 'e-Extra Content', and buttons for 'Edit' and 'Proof'. The main content area shows the title 'Development of bioconjugat against targeted microbial p bactericidal activity'. Below the title, there is a yellow box with an information icon and the text: 'The corrections made in this section will be reviewed and approved by journal production editor.' The authors listed are Syed Baker^{3,a,*}, syedbaker3@gmail.com, M.N. Nagendra Prasad³, Raghuraj Singh Chouhan^c, K. Mohan Kumar^d, and S. Satish^{e,*}, satish.micro@gmail.com. Below the authors, there are two footnotes: ^aDepartment of Microbiology, Krasnoyarsk State Medical University Named After Prof. VF. Voino-Yasenetskiy, Krasnoyarsk Partizana-Zheleznaya Street, 1, 660022, Siberia, Russian Federation; and ^bDepartment of Biotechnology, JSS Science and Technology University, JSS Technical Institutional Campus, Mysore, 570006, Karnataka, India. On the right side, there is a 'View Comment' panel with a question mark icon. It contains a comment: 'To DC: Kindly tag this affiliation'. Below the comment is an 'Attachment' section with a 'Close' button. At the bottom of the interface, there is a grey box with the text: 'Corrections were submitted via Proof Central (Online method) for this article. No further modification can be made via this interface.'

<https://www.youtube.com/watch?v=xXimclWTzBQ>

Production Editors

Language and style editing: why bother?

The village blacksmith finally found an apprentice willing to work hard at a low pay for long hours.



The apprentice did exactly as he was told. Now he is the village blacksmith.

What happens after acceptance?

During production, the journal will also:

- **Invoice** the author at this stage if there are any publication fees e.g.
 - Article-processing charges for Open Access journals
 - Any fees for figures or other services
- Produce the **final version of the journal article** (Version of Record)
 - Assign a DOI
 - Add metadata and identifiers to the article
 - Convert the manuscript to XML
 - If the journal has print issues, assign pagination

Upon publication the journal will:

- Make the article available on the journal website (PDF, HTML formats) and in print
- Submit the article to indexing services such as PubMed, EuropePMC, Google Scholar etc
- The editorial team may promote the article to the readers of the journal via editor highlights, press releases, social media

 *The production stage can take from 10 days to several months, depending on whether the journal publishes continuously or per issue, and whether there is print publication involved*

Exercise #1

You are a scientific editor who just received a new submission, where the author has also posted a preprint.

What steps would you take to decide whether to send the paper to review?

Exercise #2

Let's peer review!

General resources

A brief history of peer review

<https://blog.f1000.com/2020/01/31/a-brief-history-of-peer-review/>

https://www.stm-assoc.org/2015_03_04_STM_journal_at_350_Mabe.pdf

<https://catalogues.royalsociety.org/CalmView/Record.aspx?src=Catalog&id=RR>

The birth of modern peer review

<https://blogs.scientificamerican.com/information-culture/the-birth-of-modern-peer-review/>

Ugly side of peer review

<https://www.elsevier.com/connect/editors-update/when-reviewing-goes-wrong-the-ugly-side-of-peer-review>

Peer review and preprints

<https://blogs.biomedcentral.com/bmcblog/2017/05/05/the-history-of-peer-review-and-looking-forward-to-preprints-in-biomedicine/>

Bias in peer review

https://asistdl.onlinelibrary.wiley.com/doi/full/10.1002/asi.22784?casa_token=nEayy_-NY2AAAAAA%3A1qkxK1uESg0wKtAr-0ltOEboMDYQbriBXeyp6BvBkEINzSr-rG4yVMvEFWpu2Imp72NaN-T7hoJV0HI

Resources Cont'd

The Editorial Process

- <https://www.councilscienceeditors.org/resource-library/editorial-policies/white-paper-on-publication-ethics/>
- https://www.elsevier.com/_data/assets/pdf_file/0005/95117/SC_FAQ-Role-of-an-Editor-22092014.pdf
- http://publicationethics.org/files/Code_of_conduct_for_journal_editors_Mar11.pdf
- <https://bmcmedicine.biomedcentral.com/articles/10.1186/s12916-017-0927-0>
- <https://theplosblog.plos.org/2019/11/why-engage-with-preprints/>