The Preprint Peer Reviewer's Toolkit:

How to post a peer review of a preprint

Created by Gary McDowell, PhD



With thanks to:
Jessica Polka, PhD of ASAPBio,
Daniela Saderi, PhD of PREreview, and
Rebeccah Lijek, PhD of Mount Holyoke College for comments and feedback

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So, you're reading a preprint and you want to give feedback that can also be viewed publicly, to contribute to a transparent peer review process. How do you go about it?

There are a range of experiments underway in how to go about contributing to preprint peer review. This makes the process exciting to take part in, as a cutting-edge area of experimentation! But it can also make the process overwhelming, to even think about where to begin.

That's where this document comes in, to try to help! I've been trying to help myself and others to undertake preprint peer review as individual researchers, and here I will try to summarize some of the ways you can post your review alongside a preprint. In order to help prioritize these methods, this document will also highlight things like:

- Platforms that allow you to self-select yourself as a reviewer;
- how simple it is to post your text;
- ways to ensure anonymity, if you'd prefer to be anonymous; and
- ways to get credit for your work/proof of your work.

This document was created as part of my own efforts to carry out reviews on preprints as a freelance academic with no university affiliation, and was adapted as a guide for undergraduate students studying peer review with assistance from Dr. Rebeccah Lijek at Mount Holyoke College. As such, it is deliberately focused away from efforts that require you to join a community, or be invited into a community, where you are given invitations to review, in a journal-like model. It is instead designed for an individual who may read a preprint at any given moment, and wishes to find a way to provide transparent, public feedback on it, with minimal effort.

This is a draft version of this document, and so is unlikely to be comprehensive. Please feel free to comment on the preprint, or add your comments to this document, and I will be happy to update the document as appropriate.

How to pick a preprint

Some guiding principles in writing your peer review report
- FAST Principles
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  - Transparent
- Specific Guides and Rubrics for preprint peer review
  - PREreview Open Reviewers Guides
  - Mount Holyoke Undergraduate student-designed Peer Review Rubric

Before you post your peer review report

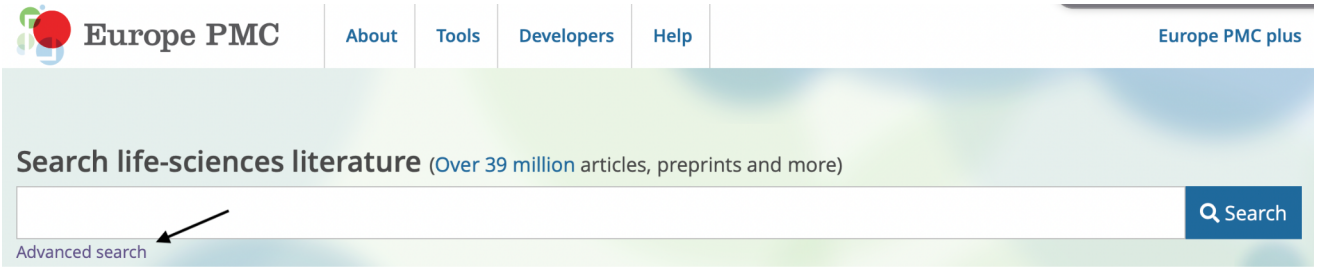
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Other options if you don't want to use the PREreview platform
- "Comment" on bioRxiv/medRxiv
- "Annotate" on OSF Preprints using Hypothes.is
- Preprints.org
- Research Square
- Publons

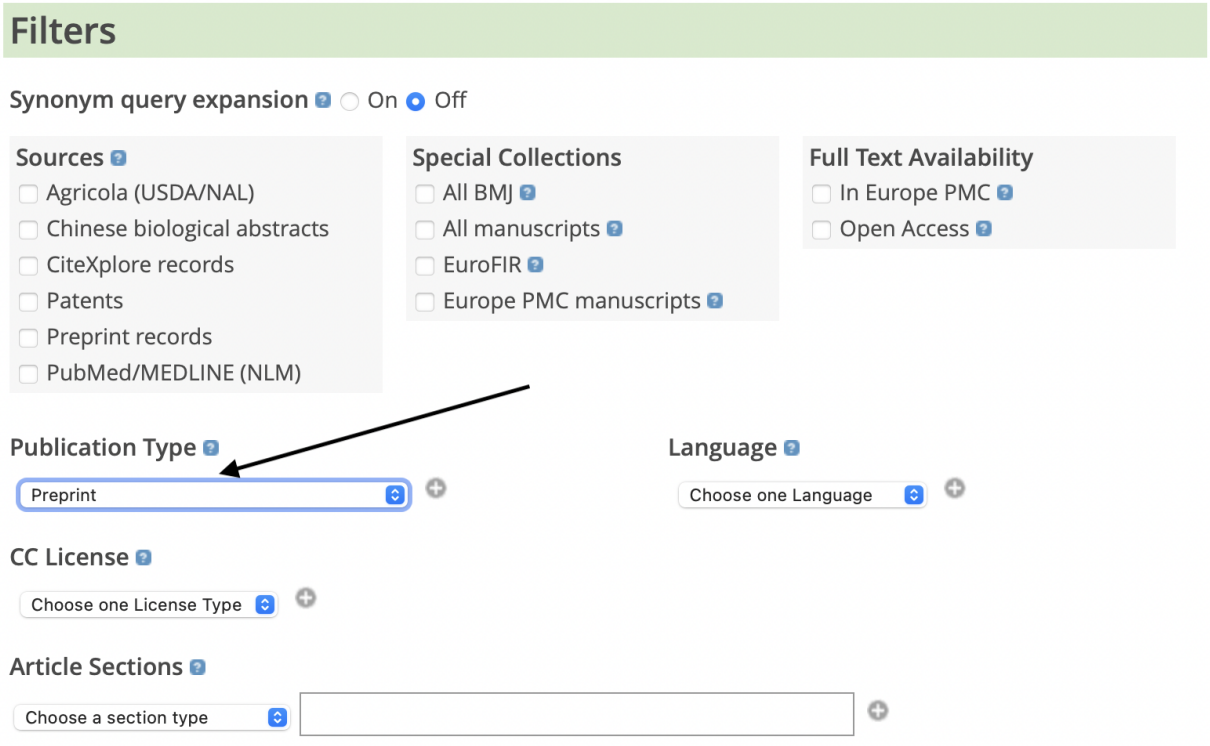
How to pick a preprint

How do you find preprints? You can go to various servers and search for terms you are interested in; but you may want to set up a more systematic search across numerous servers.

One easy way in the life sciences is to use Europe PMC's search tool, and select an Advanced Search (through https://europepmc.org/advancesearch) to specifically search for indexed preprints:



Scroll down to Filters and select "Preprint" from the Publication Type List:



You can add search terms or other filters as you wish, to find preprints you may be interested in. This will then search for preprints across a selection of servers. You can set the search up to give you a weekly update on preprints in your area(s) of interest.

However, here's something to consider, adapted from ASAPbio's preprint review page:

"Highlight less visible preprints:
Preprints have great potential to democratize access and production of knowledge. However, researchers tend to be most aware of work occurring within *their own* network; highlighting and sharing only these preprints can contribute to "Matthew effects", and can limit readers' exposure to a sliver of available science. **Looking outside of the obvious candidates when highlighting or amplifying preprints can help.** You can also:

- **Search regional servers.** Because some servers may overrepresent certain countries (Abdill et al., 2020), check regional preprint servers such as AfricArxiv and RINarxiv to find papers that may be less visible to your colleagues outside those regions, or include the names of specific countries in your search to find work from them.
- **Search preprints in various languages.** An increasing number of preprint repositories accept submissions in more than one language. Make strategic searches by keywords in English and their translations to your mother tongue. Check if a preprint already has one or more translations (of the abstract) available. For more on the importance of multilingualism, see the Helsinki initiative."

Some guiding principles in writing your peer review report

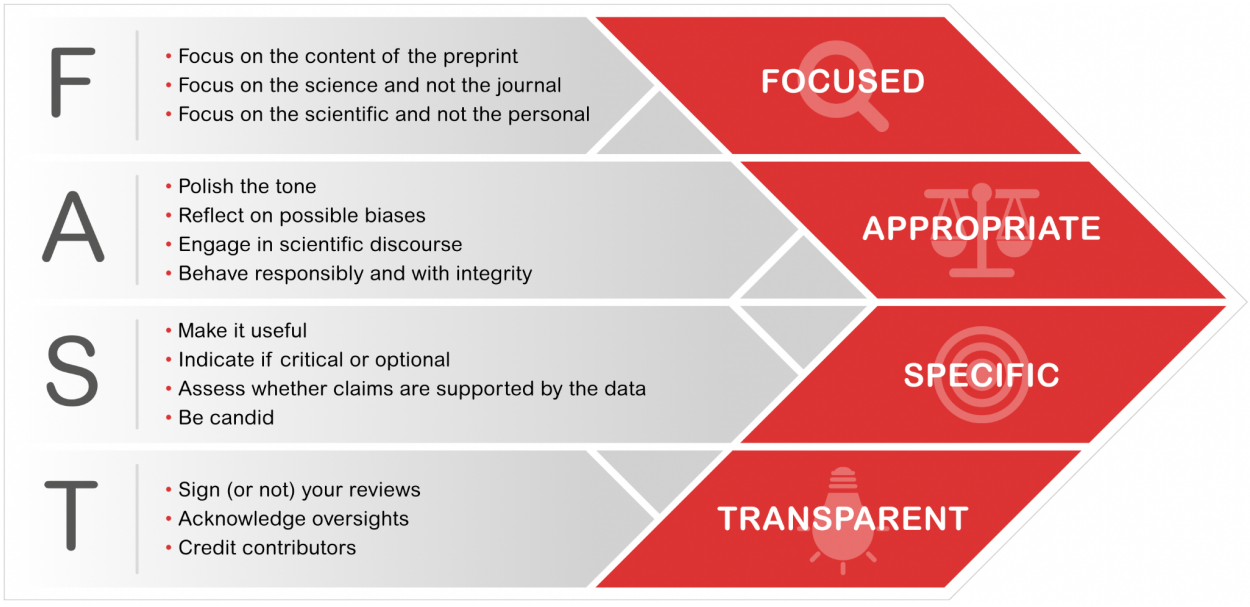
There's no shortage of ways you can find to lay out your peer review report, as you may have seen in various guides about the typical structure and content of peer review reports.

However, there are some recommendations **specifically designed for preprints** to bear in mind as you think about writing your review. Here I will briefly point to the recently published FAST principles for preprint peer review, and then provide some links to specific guides and rubrics that have been designed with preprint peer review as their focus.

FAST Principles

The FAST principles are a suggested set of norms and principles for providing constructive and useful feedback on preprints through peer review. "FAST" stands for:

- Focused (on the content, the science)
- Appropriate (considering tone and biases)
- Specific (making critiques clear and concise)
- Transparent (ensuring credit and conflicts are acknowledged)



Taken from Promoting constructive feedback on preprints with the FAST principles.

Specifically, the FAST principles that apply to ***reviewers*** (taken from Promoting constructive feedback on preprints with the FAST principles) are:

Focus

- **Focus on the *content* of the preprint**
  Feedback should focus on the paper as it stands, and not be driven by the reviewer's preferred line of research or their view on the study the authors should have conducted. The reviewer may suggest how the design or execution could have been stronger or how to expand the study, but *requests that go beyond the paper's scope or that relate to perceived impact should be avoided or clearly designated as optional* suggestions for a future study. The reviewer should consider whether suggestions for additional work are feasible vs. the study scope and context.
- **Focus on the science and not the journal**
  Feedback on preprints should be journal agnostic and focused on the scientific work without specific journal criteria in mind. Preprint feedback may also take different forms compared to journal peer review, both in structure and scope.
- **Focus on the scientific and not the personal**
  Feedback must be *objective* and focused on the *content* of the preprint. Reviewers may raise comments about potential competing interests or concerns about deviations from best practice, but should avoid speculation about the authors' motivations or prejudices.

Appropriate

- **Polish the tone**
  The tone of the feedback should always be *polite, respectful and constructive*. Reviewers should be mindful of the impact language choices might have on authors or readers. If a commenter would not share a comment in person, they should reconsider whether it should be included in the public feedback; they should reflect on the tone of their feedback to ensure it remains constructive and polite to prevent misinterpretation.
- **Reflect on possible biases**
  Reviewers should consider their motivation for providing feedback and *reflect on any biases* before, during, and after commenting, including aspects related to their own background, professional position, scientific or personal relationships or perception about the work's interest. **The evaluation of the work should be the same irrespective of who the authors are, their background or seniority.** Potential competing interests should be considered; if any competing interests, biases, or the limit to the reviewer's expertise might influence the feedback, the reviewer should disclose those or reconsider whether to provide the comments.
- **Engage in scientific discourse**
  Public feedback on preprints is a *form of scientific discourse*. Reviewers should be willing to discuss their feedback with others provided the exchange aligns to the principles outlined here.
- **Behave responsibly and with integrity**

Anyone engaging in preprint feedback should *behave with integrity*, following ethical conduct expected in all research activities. All actors should commit to creating a safe and supportive space for everyone to take part in public preprint feedback. We should favor constructive critiques and disfavor bad reactions to critiques, feedback aimed at gaining a benefit or seeking to damage a competitor. All actors are responsible for ensuring their own feedback is polite and constructive, and for speaking out if others engage in inappropriate comments or interactions, to signal that such behaviors will not be tolerated and to provide support to anyone attacked by others for their feedback or subject to unreasonable criticism.

Specific

- **Make it useful**
  Feedback should be specific, clear, actionable, and useful for the authors to improve the work. Comments should be outlined in a logical manner and substantiated with evidence. The clearer the feedback, the easier it will be for authors and the community to understand it.
- **Indicate if critical or optional**
  Feedback may include a summary of major strengths and weaknesses of the preprint. In such cases, it is important to designate which critiques are major and affect the rigor of the study (flaws/controls) and *which are optional or minor issues*.
- **Assess whether claims are supported by the data**
  An important element of reviews is to evaluate whether the study claims are supported by the data: it is thus relevant for public preprint feedback to contain comments about this. If the claims are not supported, the feedback can include requests for the claims to be revised or for new data to support the conclusions.
- **Be candid**
  Be honest and candid; if the paper needs improvement, say so, and specify how.

Transparent

- **Sign (or not) your feedback**
  Public feedback is valuable to both authors and the community as it increases awareness and transparency about the scientific process. Reviewers may sign the feedback they post publicly if they are comfortable doing so. Reviewers who prefer to remain anonymous can *include a statement about their background* or expertise to place their feedback in context.
- **Acknowledge oversights**
  Embrace feedback; it is good practice to acknowledge any oversights in our work, either in the paper or in a review/comment. It is beneficial for the community to witness how reviewers and authors acknowledge any oversights, this helps create a culture of transparency and openness.
- **Credit contributors**
  Disclose and credit colleagues who contributed to the feedback.

Specific Guides and Rubrics for preprint peer review

PREreview Open Reviewers Guides

As part of their Open Reviewers training program, PREreview has put together:

- **A Reviewer's Guide:** this provides a comprehensive, step-by-step framework for the reviewer to use while they are composing a review, and includes a template for structuring a review.
- **A Bias Reflection Guide:** this is designed to help the reviewer assess their own biases guiding them through a non-judgmental, self-reflective process.
- **A rubric for evaluation of preprint peer reviews:** this is designed to help evaluate the reviews of others, or to provide a check on your own review draft.

Mount Holyoke Undergraduate student-designed Peer Review Rubric

As part of a class on peer review, undergraduate students at Mount Holyoke College designed a rubric for evaluating peer reviews on preprints, which also functions very well as a general guide and checklist on style, structure and content of the review relating to specific components of a preprint:

- **A Rubric to Evaluate Preprint Peer Reviews**

Before you post your peer review report

There are many things to consider when deciding whether to post a preprint review publically, including:

I. **Should I let the authors' know ahead of time?** One thing to consider broadly about preprints is *why* people post them; many people post a manuscript to a preprint server at the same time as they are submitting the manuscript to a journal. They may be posting the preprint as part of efforts to increase transparency about their work, to establish that they have carried out work first, and/or to have a product they can point to in grant applications. At the moment, many people may not be waiting to receive peer reviews on the preprints before submitting a revised version to a journal, and so people may not expect to see comments or reviews appearing on their preprints.

   Therefore, it may be worth considering sending a brief email to the corresponding author simply saying, "I saw your preprint and found it interesting and wanted to post a peer review report on it". In this way, authors may anticipate your review and your critiques, which will hopefully prevent any sudden reactions or concerns on their part.

II. **What to do if the authors reply to your review?** It is possible that authors may respond to you, either by emailing you (if you email them beforehand, as described above) or by posting a comment replying to yours on the review site. It is possible that authors write back asking you not to post a review, because there is the possibility that they are not receptive to feedback being posted on the preprint, and you should take that request into consideration.

III. **Should I post the review with my name or anonymously?** You have the option of presenting your name with your peer review report, or not. Bear in mind, this can be separate to whether you get credit for the review or not, and you can still find ways to demonstrate you have carried out peer review without necessarily connecting the text with your name publicly, as the current status quo is that reviewers' names are *not* shared with the authors. The culture is slowly changing and more reviewers are choosing to sign their names to reviews, including preprint reviews. As you make the decision about whether to add your name to the preprint review, some things you might consider include: Do you want to demonstrate your public commitment to your comments? How might having your name alongside a review - or keeping your name private from that review - affect the content of the review? This can be both positive or negative: for example, you may be more careful about tone in a review with your name attached; but you may also be less willing to criticize someone in a position of power, or potential future position of power, in your career. Bear in mind as well that peer reviews on preprints, and "open peer review" (in the sense of sharing your name), are both very experimental, and we can't be too certain what the results of either decision may be, especially considering how other people may respond to public critique.

IV. **Do I want to be able to document my reviewing experience (e.g. list my preprint review on my CV)?** If you would like to be able to point to evidence of your reviewing activity, this may affect your decision about how you post your review. Obviously, having your name publicly on a review is the simplest way to point to your authorship; but there are ways to demonstrate evidence of reviewing that also allow you to maintain anonymity. You may want to post evidence that anyone can see to be able to demonstrate evidence of your writing on a CV; you may simply want to record on your CV that peer review on *a* preprint happened, without identifying what that is, and therefore need to be able to prove that you did indeed do this work. You may want to get credit for your labor, or to demonstrate your service to the scientific community. In these cases, you may want to consider whether you want people to be able to read what you have written, or simply demonstrate that you undertook this type of work.

How to post public feedback on preprints

1. PREreview
2. “Comment” on bioRxiv/medRxiv
3. “Annotate” on OSF Preprints using Hypothes.is
4. Preprints.org
5. Research Square
6. Publons

1. PREreview

PREreview provides a community specifically geared towards early career researchers, which can foster an inclusive community of peer reviewers, and allows for verified peer review activity that you can post openly or anonymously, and still be able to point to peer review activity.

[Editor’s Note: PREreview is a partner on our NSF Award and this is why this document describes PREreview as the default option. However, my personal view is that it’s the simplest platform for carrying out reviews in a server-(and therefore technology-)agnostic manner.**]**

One of the advantages of the PREreview platform is being able to comment on any preprint with a Digital Object Identifier (DOI) - many preprint sites have their own specific individual process for providing reviews. Tables like this for PREreview will summarize each of the methods below:

Anonymity	You have options to be anonymous or pseudonymous as described below.
Credit	You have a permanent link to your review with its Digital Object Identifier (DOI) that you can simply post in your CV, or link to elsewhere (e.g. in ORCID (see below))
Pros	Allows reviews to be posted on any preprint with a DOI, regardless of platform it is on; specifically designed for early career researchers and to generate inclusive cultures and communities.
Cons	To sign up requires getting an ORCID and then a PREreview account, which can take some time if you don’t have either first.

The text below is adapted from “PREreview Sign Up and Engagement Guidelines” provided to us by PREreview.

Anonymity Options

You can choose different options for how to post on PREreview, with anonymity possible as described below. This requires signing up for an Open Researcher and Contributor ID (ORCID, see more about this below) and then using that to sign up for a PREreview account. The options are:

OPTION 1: PUBLIC IDENTITY

Choose this option if you want to sign the review with your name and document it on your scholarly record.

Once you have an account on PREreview, you will have access to two personas: one is your "Anonymous Persona" which is active by default and is a made-up and uneditable combination of an animal and a color (e.g., "yellow penguin"), and one is your "Public Persona" which displays your name and your ORCID. Through the editing function on your PREreview profile, you will be able to activate which persona you choose - in this case, Public Persona - and use that one to sign your review. This way your name will be displayed in full as one of the authors of the review and you will be able to document that you have performed a preprint review. You will also be able to record it in your ORCID record, which can function as a form of CV for your academic activities.

OPTION 2: USING A PSEUDONYM

Choose this option if you don't want to have your real identity associated with the review. When you post your review on PREreview, you would simply select the "Anonymous persona" as mentioned above. A trackable pseudonym will then be displayed (e.g. "yellow penguin"), but only you will know your real identity, and anyone else with whom you share your Anonymous persona name.

How to sign up to PREreview

Login and signup to PREreview is done via ORCID: to create an account and log into the platform you will need to first register on ORCID and receive your unique ORCID identifier.

First, let's go through some FAQs regarding ORCID:

What is an ORCID?
An ORCID is a persistent identifier that is unique to you. It is meant to uniquely identify researchers to make sure scholarly output is associated with the right author. You can imagine, for example, that there are more people than just you with your name, so having a unique identifier can ensure that the right researcher is recognized for the work they published.

Do I have to be a researcher to register on ORCID?
No. While the ORCID iD is used to track contributions to the scholarly record so it only makes sense to have one if you want to contribute to it, anyone can create one. And within the scope of the open scholarship movement it can be used to elevate preprint reviews to being recognized as scholarly contributions.

How do I register my ORCID?
Register for an ORCID iD

Here is a video on how to create your ORCID. Note that you have full control over what content is entered, and who sees it.

When you sign up to PREreview, it will import basic information you made publicly available on your ORCID profile to your PREreview profile—e.g., your name, your biography, your list of publications, and your publicly shared email address(es). If this information is set to private, none of it will be imported to your PREreview profile.

How do I make a PREreview account?
Once you have your ORCID login credentials, signing up (and then logging in to) for PREreview is easy.

PREreview (click on Log In/Sign Up at top right).

Here is a video that walks you through the steps of signing up to PREreview. Please note that your default profile persona will be your Anonymous one.

How to publish a preprint review on PREreview

On PREreview you can contribute to preprint review in two ways: by writing a **rapid PREreview** and by writing a **full PREreview**.

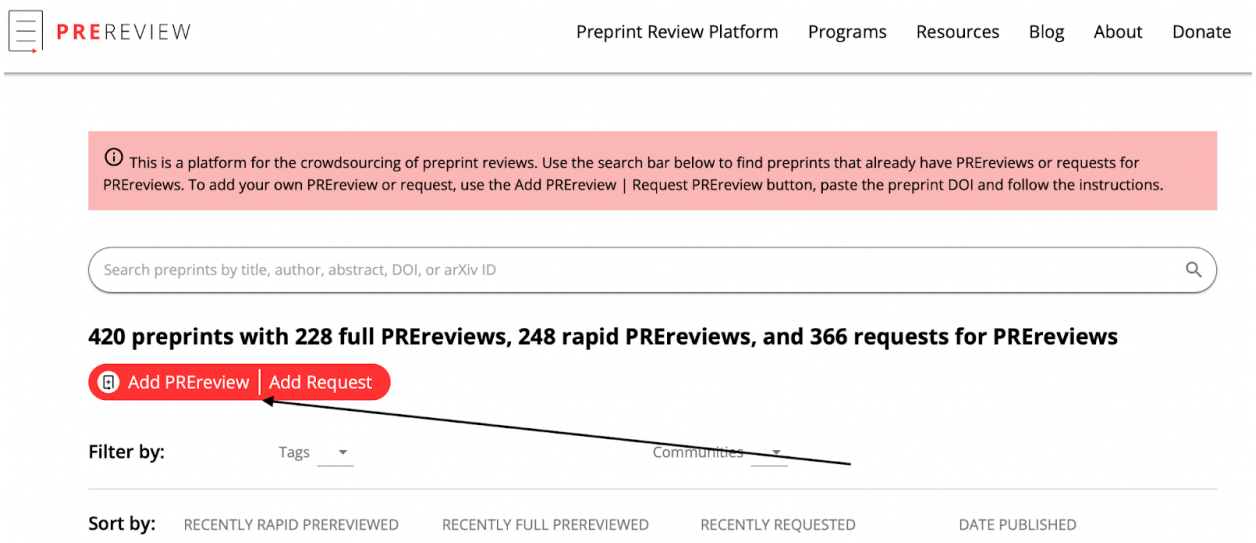
A rapid PREreview is a structured review made up of 12 Yes / No / N/A / Unsure questions designed to capture the essence of a preprint. The questions are formulated such that “Yes” refers to positive characteristics (e.g., data availability), while “No” refers to the absence of such aspects.

A full PREreview is a free text review of a preprint. This can be anything from a few sentences to a long review tantamount to a traditional journal review. Full PREreviews **get a digital object identifier (DOI)** on an open repository called Zenodo—just as you got your unique identifier with ORCID, this review also got a unique identifier to be easily discovered and linked to its preprint. You can use this DOI on your CV to point to your work.

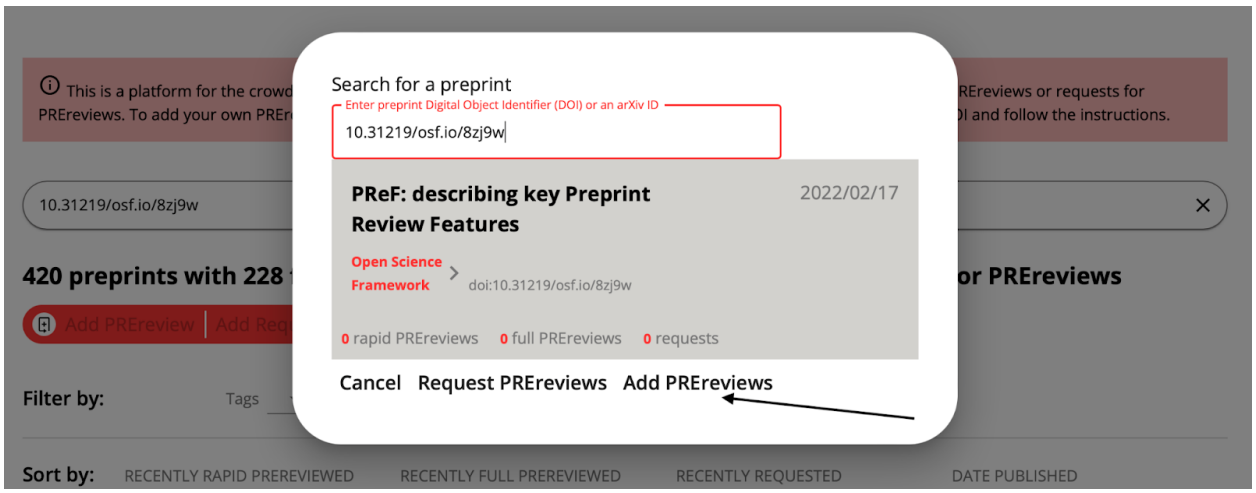
If you want to be an author on PREreview (either anonymously or with your public identity), you and anyone else who wants to author the full PREreview will first have to fill out a rapid PREreview on the preprint of choice.

How to fill out a Rapid PREreview

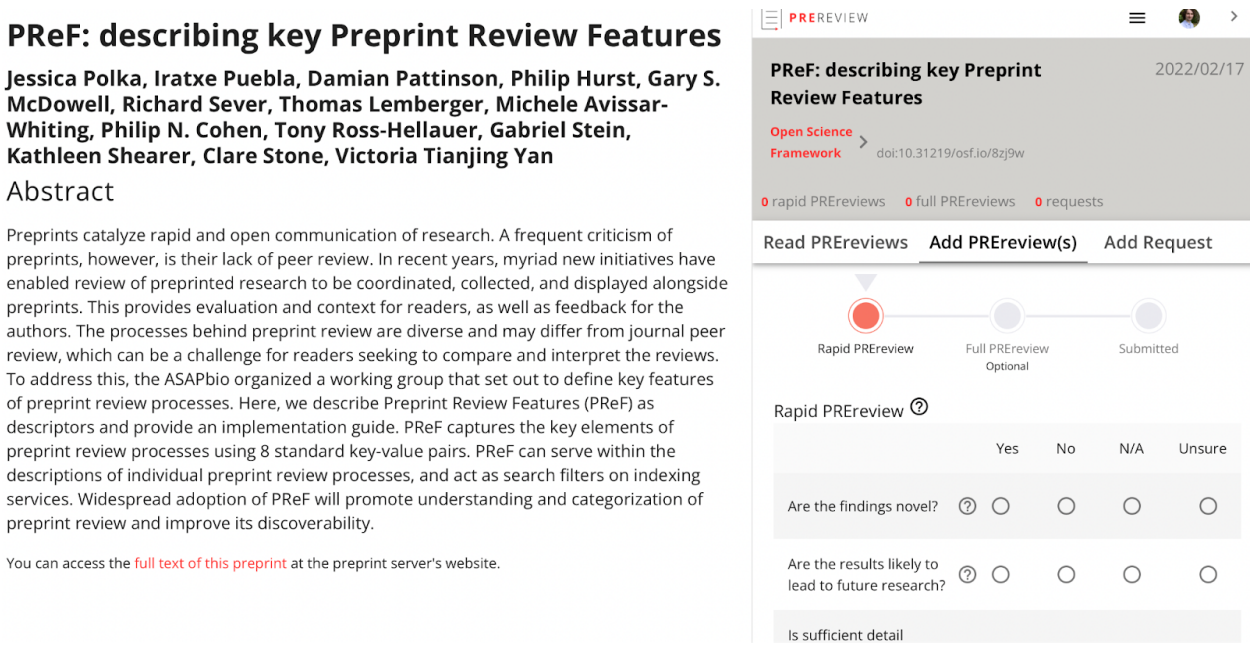
From the main search page click on the red button: “Add PREreview | Add Request”:



In the dialog box paste in the DOI of the preprint you wish to PREreview. Once the title of the preprint you are expecting loads, click “Add PREreviews”:



You’ll land on a split screen where the preprint title and abstract or the pdf, if available, will visualize on the left, and the empty rapid PREreview will appear on the right:



PReF: describing key Preprint Review Features

Jessica Polka, Iratxe Puebla, Damian Pattinson, Philip Hurst, Gary S. McDowell, Richard Sever, Thomas Lemberger, Michele Avissar-Whiting, Philip N. Cohen, Tony Ross-Hellauer, Gabriel Stein, Kathleen Shearer, Clare Stone, Victoria Tianjing Yan

Abstract

Preprints catalyze rapid and open communication of research. A frequent criticism of preprints, however, is their lack of peer review. In recent years, myriad new initiatives have enabled review of preprinted research to be coordinated, collected, and displayed alongside preprints. This provides evaluation and context for readers, as well as feedback for the authors. The processes behind preprint review are diverse and may differ from journal peer review, which can be a challenge for readers seeking to compare and interpret the reviews. To address this, the ASAPbio organized a working group that set out to define key features of preprint review processes. Here, we describe Preprint Review Features (PReF) as descriptors and provide an implementation guide. PReF captures the key elements of preprint review processes using 8 standard key-value pairs. PReF can serve within the descriptions of individual preprint review processes, and act as search filters on indexing services. Widespread adoption of PReF will promote understanding and categorization of preprint review and improve its discoverability.

You can access the full text of this preprint at the preprint server's website.

This will then present you with a dozen questions to complete, in preparation for providing your text for the full review (see full text of questions on next page).

How to fill out a Full PREreview

Once you have submitted a rapid PREreview, you'll be prompted to write a **full PREreview**. You can either write and format your review in the editor box, or you can copy and paste it into the editor box, save it, add any competing interest statement if applicable and then publish it.

Here are all the questions for the **Rapid PREreview** - be prepared to answer these questions before submitting your text!

Question	***Yes***	***No***	***N/A***	***Unsure***
Are the findings novel?				
Are the results likely to lead to future research?				
Is sufficient detail provided to allow reproduction of the study?				
Are the methods and statistics appropriate for the analysis?				
Are the principal conclusions supported by the data and analysis?				
Does the manuscript discuss limitations?				
Have the authors adequately discussed ethical concerns?				
Does the manuscript include new data?				
Are the data used in the manuscript available?				
Links to the data used in the manuscript (if applicable)				
Is the code used in the manuscript available?				
Would you recommend this manuscript to others?				
Do you recommend this manuscript for peer review?				
Please use the space below to declare any existing Competing Interest.				

Other options if you don't want to use the PREreview platform

As an individual who has read a preprint and wants to post a review, some of the services available to you are listed at ReimagineReview to explore. In terms of anonymity, this is further divided up into:

- Services where it is possible to review with no-one knowing your identity: PubPeer
- Services where your identity can be public
- Services where your identity can be restricted to the editor/service

As you will see, each method can depend on what your priorities are, and may be worth exploring for future peer review activities. Some services also allow you to join communities or focus on particular specialties. For the purposes of this document, I will focus on the simplest way to post your work. Many of the services below are dependent on **which preprint server** the preprint you chose to review was posted (e.g. bioRxiv, OSF, etc.).

It is also possible that certain sites do not provide commenting opportunities at all - in which case you are reliant on services such as PREreview.

Much of the information below was generously supplied by Jessica Polka of ASAPbio, but any errors or misinterpretations are due to the author.

2. “Comment” on bioRxiv/medRxiv

Anonymity	You can comment anonymously as a guest (see Guest Commenting | Disqus) or create a pseudonymous Disqus account.
Credit	You can get a unique URL to the comment to use, but if you post anonymously, you may need to include a way to prove the work is yours.
Pros	Relatively quick and simple to use.
Cons	You can’t post reviews authored by multiple people (the guidelines specifically request you don’t mention names of reviewers).

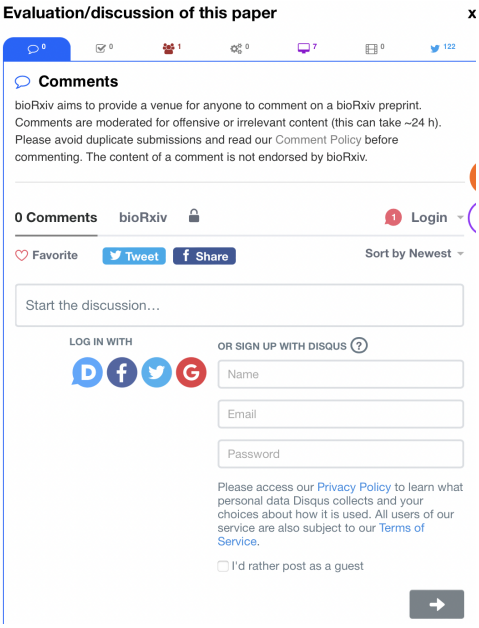
If your preprint is on bioRxiv or medRxiv, you can post your review as a comment.

Guide from bioRxiv: [*Commenting on preprints*]

Quick Guide: Below the title and author information, there is a series of icons where you can find different kinds of feedback on the preprint. Click on the speech bubble icon to comment:



You will then see this box pop up, with various log-in options (or guest-posting as an option):



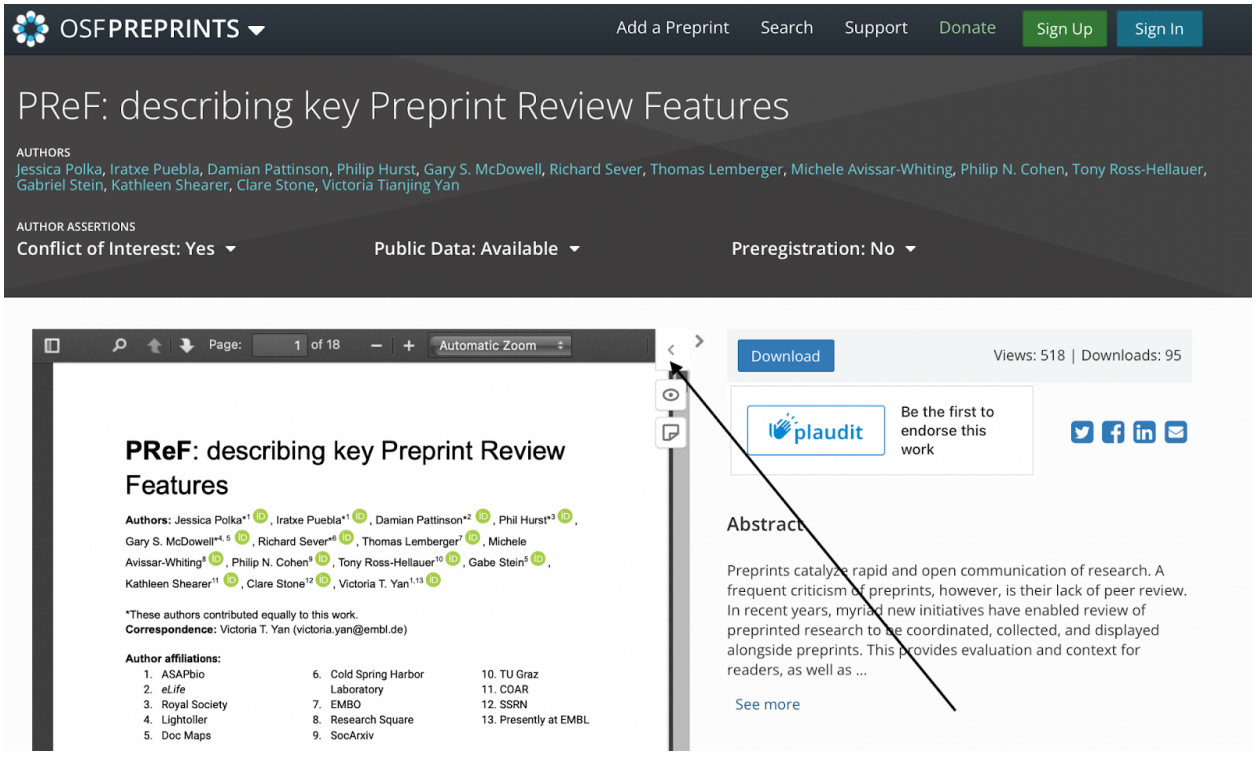
3. “Annotate” on OSF Preprints using Hypothes.is

Anonymity	You can create a pseudonymous Hypothes.is account to comment anonymously.
Credit	You can get a unique URL to the comment to use, but if you post anonymously, you may need to include a way to prove the work is yours.
Pros	Allows for fairly sophisticated formatting beyond simply entering text, and allows inclusion of links and images, which may be useful when discussing citations or specific images.
Cons	It’s not clearly obvious to readers that there are comments when you look at an OSF preprint.

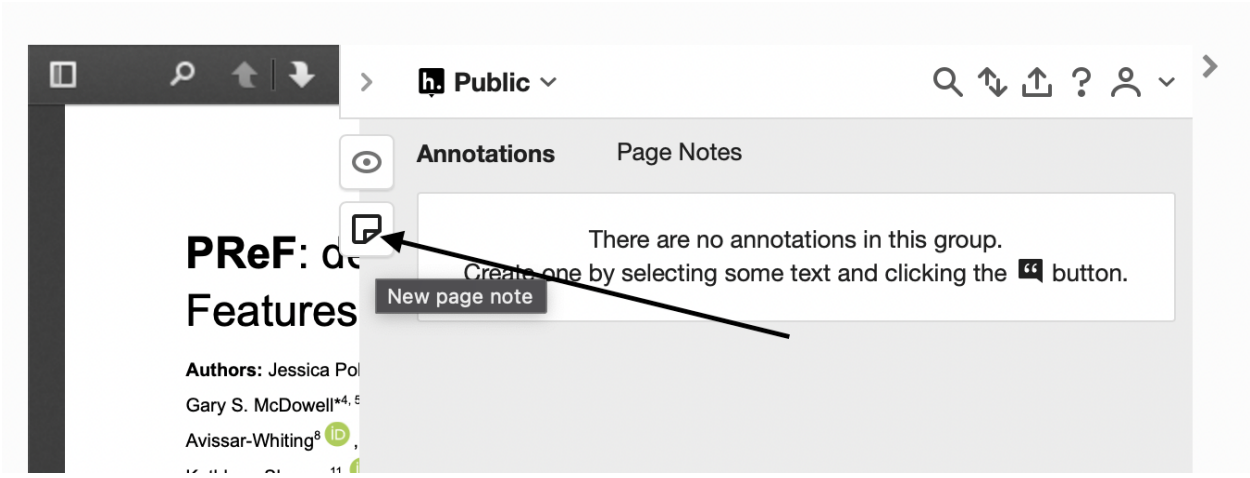
If your preprint is on OSFPreprints (it’ll look like the screen below) you can add a review as an annotation using Hypothes.is.

Requires: A Hypothes.is account.

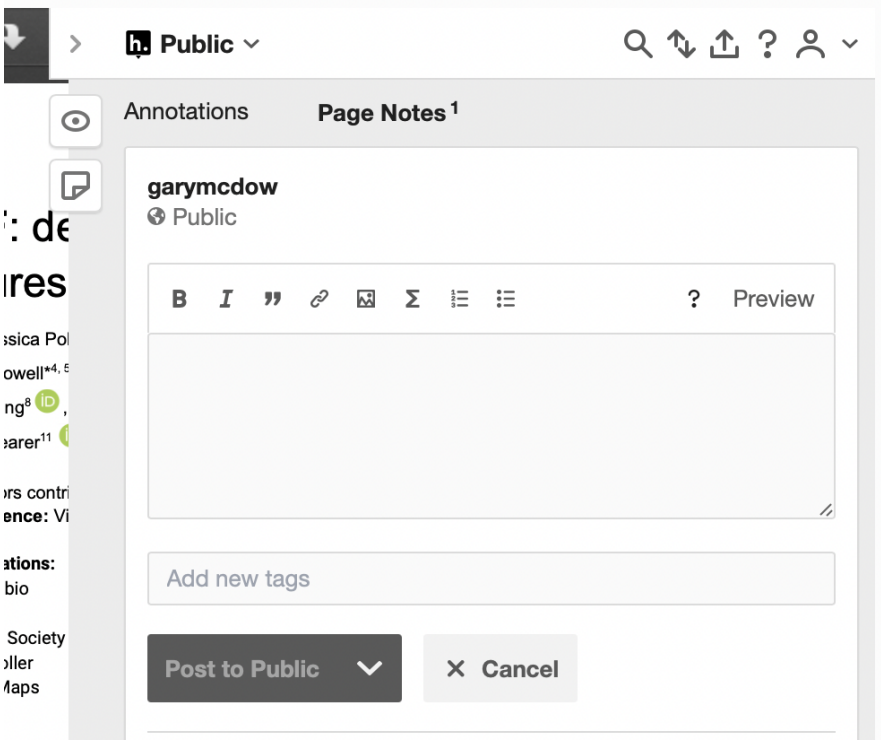
Quick Guide: On an OSF Preprint, go to the top-right of the PDF and click the left-facing chevron to open the annotation menu:



Then click on the “Sticky Note” icon to create a “New Page Note”:



It may prompt you to log-in - once you do, the comment box will open and you can post a public comment on the document:



4. Preprints.org

Anonymity	Anonymous commenting is possible.
Credit	You could link to the preprint directly and describe how to view the annotation, or you can link to a Publons account (see below).
Pros	A relatively simple process.
Cons	Specific only to preprints on this site.

If your preprint is on preprints.org, you can comment directly on the preprint.

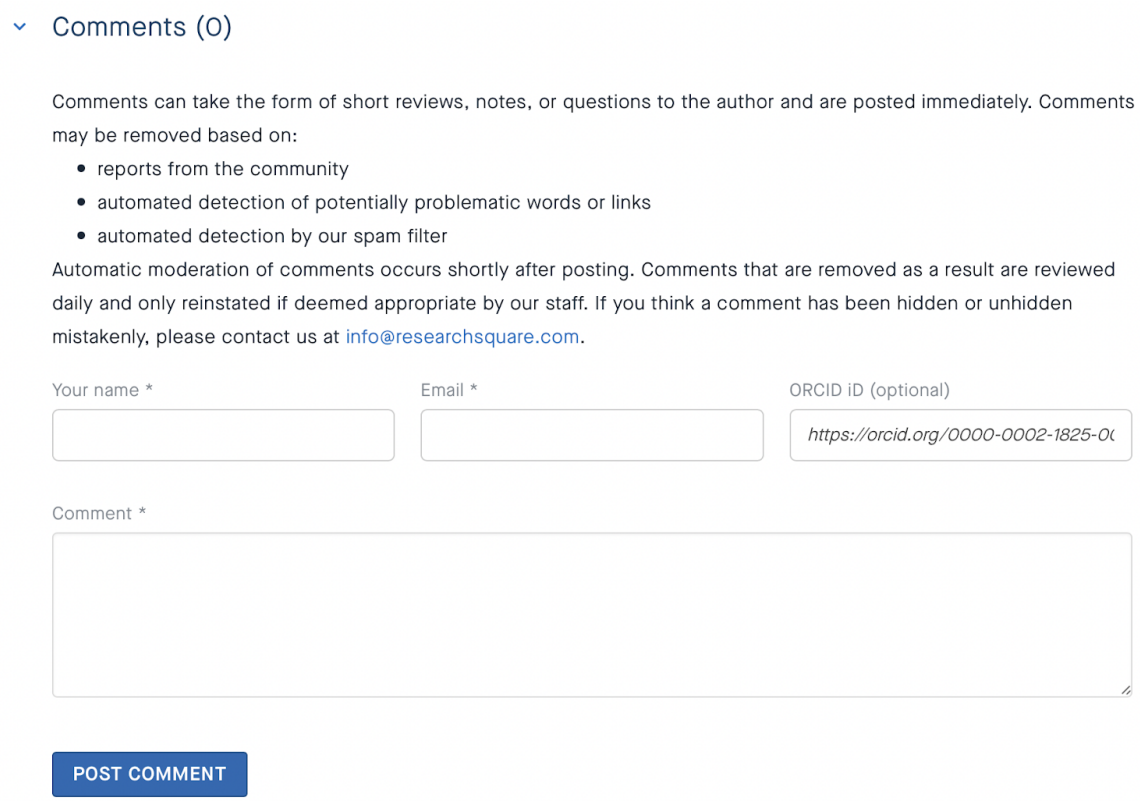
Guide from preprints.org

Requires: A login at preprints.org.

5. Research Square

Anonymity	Anonymous commenting is **not** possible.
Credit	You could link to the preprint directly.
Pros	A relatively simple process.
Cons	Specific only to preprints on this site.

Preprints on Research Square can accept external reviews via comments, in a tab at the bottom of the preprint page:



6. Publons

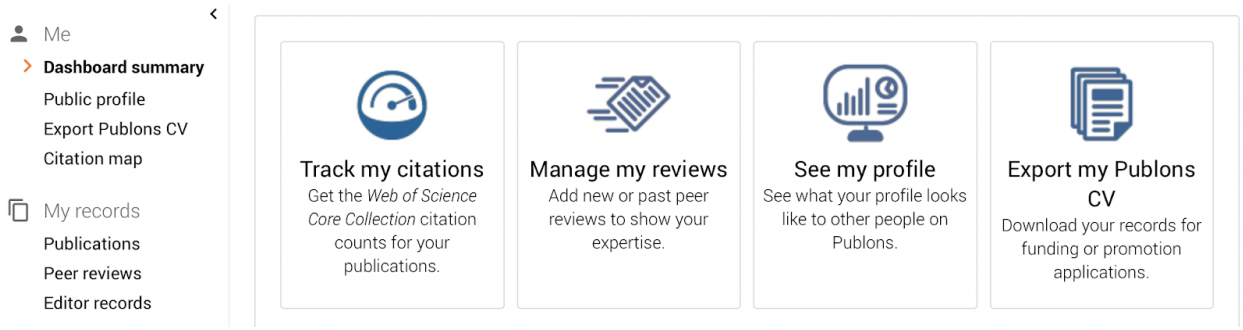
Anonymity	Anonymity is possible under preferences
Credit	Credit can be linked to e.g. ORCID.
Pros	Simple way to review any preprint (i.e. on any server) with a DOI; easy way to link to e.g. ORCID for credit
Cons	Not clear how much author-interaction is possible, or whether this prioritizes practice on peer review vs its ability providing feedback to authors.

Publons is a service that allows tracking of peer review activity. You can create an account that allows tracking of peer review activity that can automatically update your ORCID, for example.

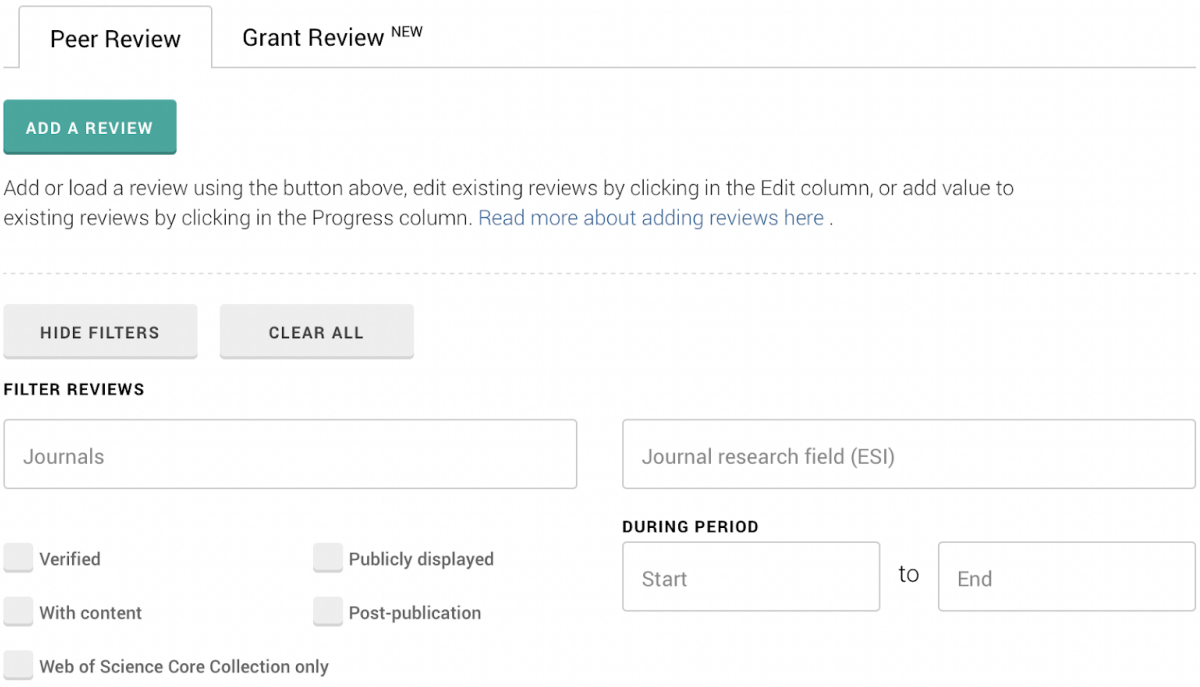
From The what, why, and how of preprints and peer review - Clarivate:
"To review a preprint on Publons: simply go to your private dashboard and under Review Records select 'Add review'. Preprints are considered published on Publons so click the post-publication review option, then simply add in the title and the DOI or arXiv ID, and then write your review. Publons also has an integration with preprints.org allowing any comments written on their site to be optionally added as a post-publication review on submission."

Requires: Publons log-in.

Quick Guide to Publons review posting: One you've set up an account, on your dashboard you can click on the "Manage my Reviews" tab:



Then, under the Peer Review tab, click on “Add a Review”:



And finally, select “Post-Publication Peer Review” and add the info for the preprint you are reviewing, followed by your review, and selecting options to manage your privacy:

