

# A new PI's guide to promoting open science and preprints in your lab

Dr Jonathon A Coates

Rippling Ideas



# Contents

<a href="#">Contents</a>	<a href="#">2</a>
<a href="#">Open Science and Preprints</a>	<a href="#">3</a>
<a href="#">Why promote OS practices</a>	<a href="#">4</a>
<a href="#">Benefits of preprints</a>	<a href="#">5</a>
<a href="#">Posting a preprint</a>	<a href="#">6</a>
<a href="#">When should you post your preprint?</a>	<a href="#">6</a>
<a href="#">Selecting a preprint server</a>	<a href="#">7</a>
<a href="#">Selecting a licence</a>	<a href="#">8</a>
<a href="#">Promoting preprints in your lab</a>	<a href="#">9</a>
<a href="#">Preprint policies</a>	<a href="#">9</a>
<a href="#">Policy components</a>	<a href="#">9</a>
<a href="#">Ideal adoption example</a>	<a href="#">10</a>
<a href="#">Low barrier adoption example</a>	<a href="#">11</a>
<a href="#">Preprint review clubs</a>	<a href="#">11</a>
<a href="#">Preprints as a training tool</a>	<a href="#">11</a>
<a href="#">preLights</a>	<a href="#">11</a>
<a href="#">PREreview</a>	<a href="#">12</a>
<a href="#">How to promote your preprint after posting</a>	<a href="#">12</a>
<a href="#">Create a social media thread</a>	<a href="#">12</a>
<a href="#">Present your preprint at conferences and seminars</a>	<a href="#">12</a>
<a href="#">Solicit preprint reviews, comments or highlights</a>	<a href="#">12</a>
<a href="#">Appear on podcasts</a>	<a href="#">13</a>
<a href="#">Nudge efforts to encourage OS practices</a>	<a href="#">13</a>
<a href="#">Celebrate posting preprints</a>	<a href="#">13</a>
<a href="#">Stop reviewing for for-profit publishers</a>	<a href="#">13</a>
<a href="#">Email signature supporting preprinting</a>	<a href="#">14</a>
<a href="#">Remove journal names and poor proxies from CVs/websites</a>	<a href="#">14</a>
<a href="#">Discuss preprints regularly</a>	<a href="#">14</a>
<a href="#">Where to learn more</a>	<a href="#">14</a>
<a href="#">About the author</a>	<a href="#">15</a>
<a href="#">Licence</a>	<a href="#">15</a>

Congratulations on starting your own lab!

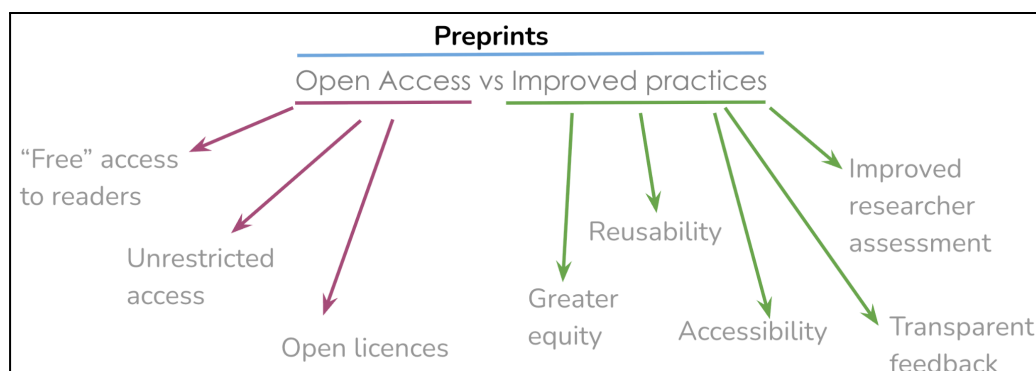
This guide is designed to help you establish a culture of rigorous and transparent science that is beneficial for you, your trainees and society. Moreover, science communication and academia are moving towards greater transparency and accessibility. This guide will ensure you're at the forefront of this transition. It is always easier to embed such a culture whilst something is still new as opposed to changing established culture and norms.

## Open Science and Preprints

Open Science (OS) is a broad movement that encompasses access, equity, improved practices and progress. The OS movement is often stated as [having begun](#) in the 1990s although its beginnings can be traced back much earlier. There are a range of organisations and individuals advocating for a variety of OS practices, from pre-registration to post-publication peer review.

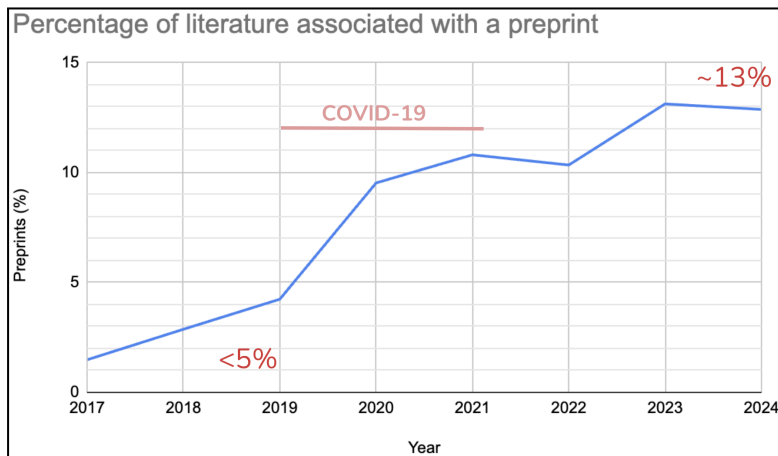
Preprints are complete manuscripts shared online prior to journal-organised peer review. They have a DOI and are permanent, citable records of research. Preprints may be peer reviewed by a preprint review service, independently or by a journal. A preprint is a scientific output that is shared when the authors believe it is ready for public dissemination. The overwhelming majority of publishers and journals accept preprints and increasingly funders and institutions are adopting preprint-specific policies. Many may be surprised to learn that preprints date back before the advent of the internet to the [1960s](#) and earlier.

Preprints represent the most compelling route towards meaningful change in academia as they are similar enough to a journal article as to not be too alien to researchers whilst simultaneously shifting focus and making significant progress. Indeed, preprints bridge across the open access and improved practices aspects of open science. By focusing on the scientific contents, rather than poor proxies, preprints additionally provide greater equity within academia. Changing this focus additionally provides opportunities to experiment with steps such as peer review and to change academic culture more widely - moving us away from the publish or perish culture.

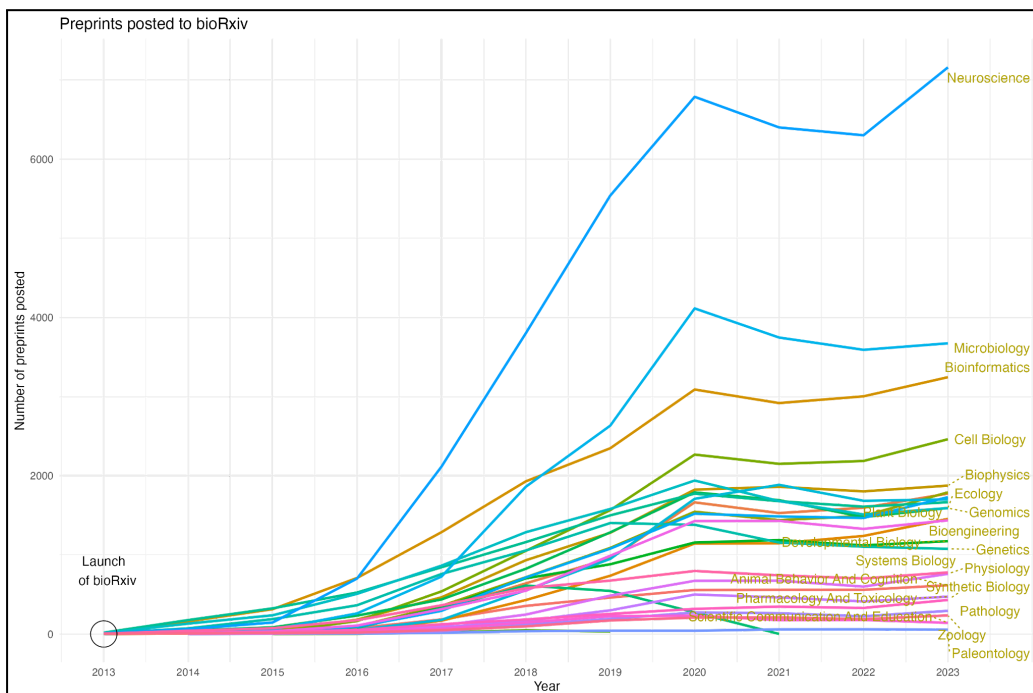


Currently, around [13%](#) of the bioscience literature is associated with a preprint. This has grown significantly since 2019, with the COVID-19 pandemic causing a [cultural shift](#) in the adoption and awareness of preprints. However, there remain wide disparities across fields

within bioscience with some, such as neuroscience being early adopters whereas others such as zoology have been more hesitant.



Percentage of the bioscience literature that is associated with a preprint, based on Europe PMC data. From: <https://www.biorxiv.org/content/10.1101/2024.04.19.590240v1.full>



Preprints posted to bioRxiv between 2013 and 2023, broken down by field which highlights the disparities in preprint adoption within life sciences. Data retrieved from bioRxiv API in March 2024.

## Why promote OS practices

OS fosters a healthier culture of transparency and collaboration compared to the current academic publishing practices which encourage competition and unhealthy academic environments. From a more selfish standpoint, OS practices are also associated with higher levels of citations and increased visibility of your work - a huge benefit for a new PI. These practices also demand a higher level of rigour which ensures that your lab is associated with high quality, trustworthy science. The other big benefit of OS is that the practices generally

improve equity in research, another excellent signal for potential applicants to join your growing team.

## Benefits of preprints

Preprinting in particular offers a wide range of benefits from increased citations to new collaborations. The biggest benefits are felt by ECRs where the speed of preprints offers significant advantages when job hunting or applying for fellowships.

### Rapid Dissemination and Visibility

- Preprints allow you to share your findings publicly within 48 hours of submission rather than the ~6 months the traditional publication route takes
- This rapid dissemination helps ECRs establish their presence in the field, gaining recognition sooner
- Preprinted work has citations and Altmetric attention scores than non-preprinted work

### Establishing Priority

- Preprints provide a date-stamped, permanent record, helping ECRs claim credit for their work and protect against being "scooped"
- This is in stark contrast to presenting unpublished work at a conference where there is no such protection

### Open Access and Collaboration

- Preprints are often open access, making research freely available to the global community. This fosters collaboration, encourages the sharing of data and methods, and enables ECRs to connect with peers and mentors worldwide
- Early access to cutting-edge results and methods from other labs can help ECRs design better experiments and avoid redundant work
- Posting a preprint can lead to new collaborations and lines of inquiry

### Receive Feedback

- By sharing preprints, you can solicit feedback from a broad audience before submitting to a journal. This can lead to higher-quality manuscripts and more robust research
- Posting preprints can also attract the attention of editors who actively invite submissions
- Preprints provide opportunities for ECRs to participate in open peer review, helping them develop critical evaluation skills and engage with the broader community

### Career and Funding Advantages

- Many funding agencies and employers consider preprints in grant and job applications, for example EMBO, Gates foundation and the Wellcome Trust



- Preprints can be cited in CVs and grant proposals, allowing ECRs to demonstrate productivity and impact before publication. This can be the difference between an award being made or not

## Networking and Professional Development

- Publishing preprints increases networking opportunities, as discussions about preprints often occur on social media
- ECRs can use preprints to initiate collaborations, receive peer support, and connect with mentors in their field

Overall, preprints empower ECRs to control when and how their research is shared, accelerate scientific progress, and support career development in an increasingly competitive academic landscape.

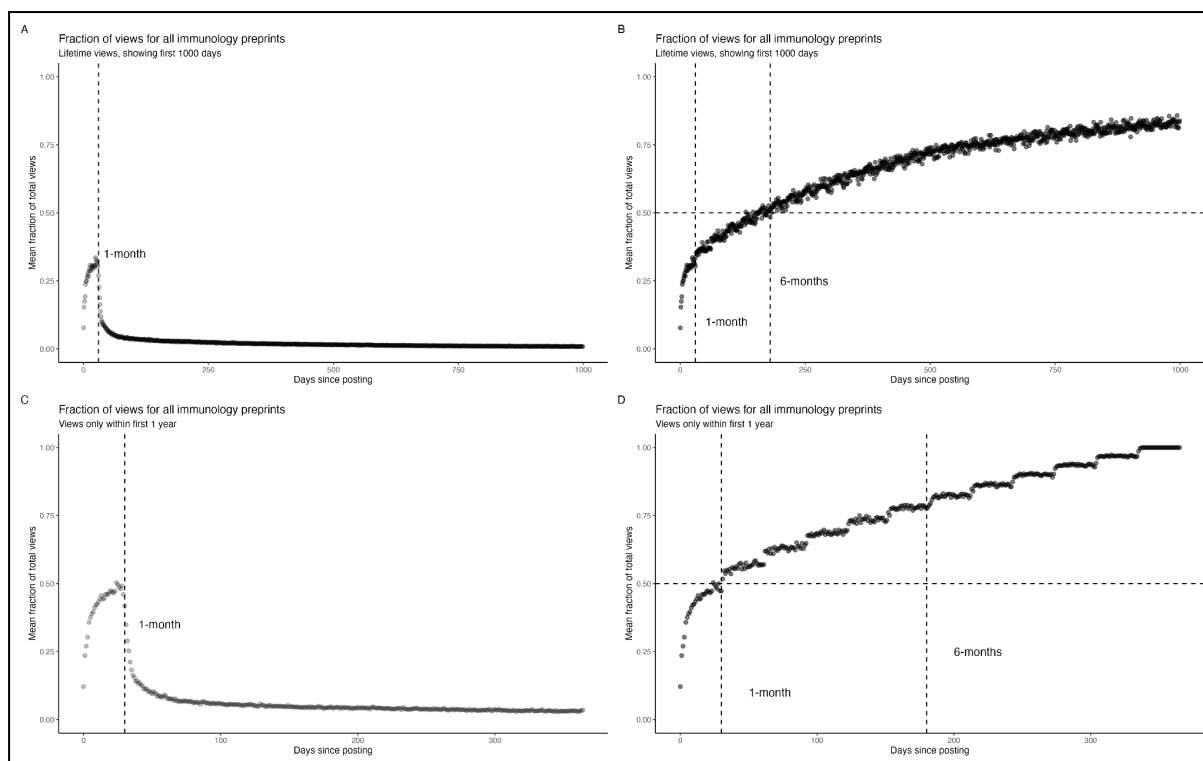
## Posting a preprint

There are many decisions to make when posting a preprint, such as when to post the preprint, where to post it, what licence to choose and how to promote your work. This section will address these and help you receive the most benefits from adopting preprints.

### When should you post your preprint?

One of the first decisions to be made is when you will post your work. Although the majority of people share completed manuscripts, some labs have chosen to experiment by sharing their work earlier, in an iterative format. The benefit of doing this is that, for a long project, you can appropriately credit ECRs as work develops and you can show the progression of your work. However, the [majority of researchers post a preprint at the time of journal submission](#), when they have a more complete “story”. However, by posting their preprint at the time of journal submission, these authors are missing out on most of the benefits of using preprints. It is recommended that you post your preprint 1 month prior to journal submission in order to benefit from potential feedback and attention that your study may attract. Attention, in the form of views, downloads and Altmetric scores can be used in the cover letter to journals or may even result in editors reaching out to invite you to submit your preprint to them.

But don’t just take our word for it, preliminary data shows that over the lifetime of an immunology preprint, over 25% of the total views occur within the first month (A) and 50% of lifetime views within 6 months (B). As impressive as this is, when restricting to the attention within 1 year of posting (the average time from journal submission to appearing online is 6-12 months), then within 1 month, a preprint has already achieved 50% of its total views (C) and over 75% by 6 months (D).

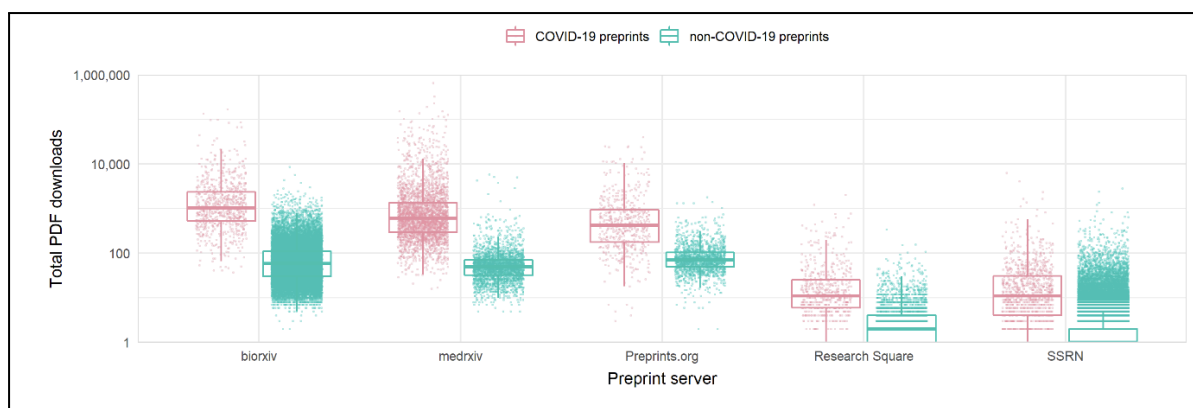


*Total views for preprints posted to bioRxiv between 2013 and 2023, for immunology or science communication. Showing lifetime view or views within 1 year of posting. Data retrieved from bioRxiv API in 2024. Preliminary data as part of a larger research project.*

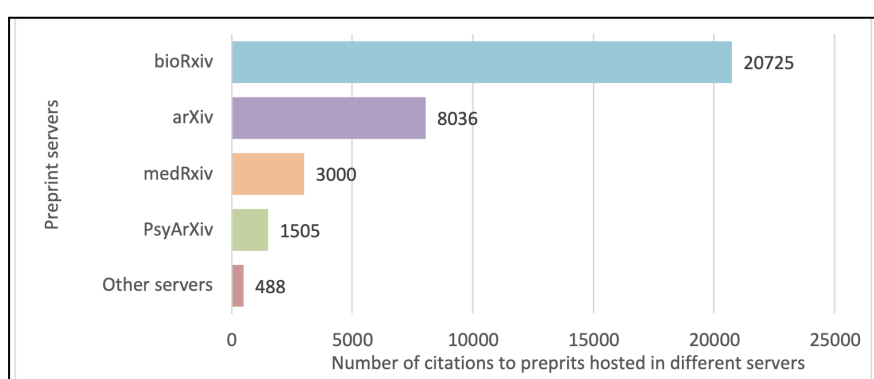
## Selecting a preprint server

Not all preprint servers are created equal. There are many factors in deciding which preprint server to choose, including your field of research, intended audience and article format. There are now over 50 dedicated preprint servers, each with different focuses and rules. In addition, each server has its own governance structure and ownership (for example, Research Square is owned by Springer-Nature, whereas bioRxiv is run by OpenRxiv, a non-profit). It is generally advisable to support community owned and governed infrastructure where possible. However, you will also want to share your work where the most people will read and use it, especially as a new PI.

[Preliminary data](#) demonstrates that the server of choice has a big impact on downloads and total views of your preprint, with bioRxiv being the best choice for most life scientists. For this reason, and the commercial ownership of other servers, for life science preprints it is recommended to post to bioRxiv or medRxiv. If your article format would not be accepted (for example literature reviews) then Zenodo is the recommended platform.



Total downloads of COVID-19 or non-COVID-19 preprints from different preprint servers. From: <https://www.biorxiv.org/content/10.1101/2020.05.22.111294v2.full>



Number of citations to preprint servers for neuroscience preprints. From: <https://www.biorxiv.org/content/10.1101/2024.04.29.591455v1>

## Selecting a licence

Most researchers freely admit to being confused by the myriad of licence choices available when posting their preprint. The licence that you choose can have significant impacts on how reusable and “open” your preprint is. [Creative Commons](https://creativecommons.org/licenses/) (CC) have more information on the different licence options which are also explained in the figure below. CC licences take the format of CC-XX where XX can be one or more of the following; -BY, -SA, -ND, -NC.

- CC-BY - Attribution. You must give attribution to the original work.
- CC-SA - Share alike. You must use the same licence as the original.
- CC-ND - No derivatives. You cannot modify or adapt the original.
- CC-NC - Non-commercial. You cannot use the material for commercial purposes.
- CC0 - Public domain. This permits any and all reuse or adaptation without attribution.

For preprints, it is best to choose a CC-BY licence if you want your work to be fully reusable and open. This fits the original definition of “open access”. It’s always worth checking journal policy (<https://openpolicyfinder.jisc.ac.uk/>) in relation to licence choices and rules around preprints. However, the vast majority of journals now allow preprinting, with restrictions generally only occurring in relation to author-accepted manuscripts.



	CC0	CC-BY	CC-BY-SA	CC-BY-ND	CC-BY-NC	CC-BY-NC-SA	CC-BY-NC-ND	No licence
Copy & publish	✓	✓	✓	✓	✓	✓	✓	✗
Attribution	✗	✓	✓	✓	✓	✓	✓	✓
Commercial use	✓	✓	✓	✓	✗	✗	✗	✗
Modify & adapt	✓	✓	✓	✗	✓	✓	✗	✗
Change licence	✓	✓	✗	✓	✓	✗	✓	✗
Public domain (0)	Attribution (BY)		Share alike (SA)	No derivatives (ND)		Non commercial (NC)		None
Anyone can repost or reuse your work for any purpose and in any format, without attribution to the original authors	Anyone can modify or repost your work but provide attribution back to the original authors		Adaptations must use the same licence as the original	Prohibits the adaptation of the material. For example, this would prevent annotated copies, translations or figure adaptations for use in a different preprint		Prohibits commercial use of the material. For example, this would prevent reprinting in a commercial textbook or paywalled article		The work cannot be reused. For example, reposting of your unchanged preprint on a different website
*Perfect for datasets	*Fits open access definition							

*Creative Commons licence choices for preprints.*

It isn't just the preprint that needs an appropriate licence either. Any protocols or datasets that you upload to independent repositories should also be given an appropriate licence, which may be different from the preprint licence. For example, a CC0 (public domain) licence is perfect for datasets as this enables their full reuse by other scientists.

## Promoting preprints in your lab

As a new PI you may have already posted or otherwise used preprints in your previous positions. However, you now have a much greater opportunity to advance preprint adoption, give your lab an advantage and provide a better environment for your trainees.

## Preprint policies

One of the best ways to create a positive culture of openness and progressive thinking in your lab is to have a public policy. This helps students and researchers identify your approach and values, which can encourage applications from value aligned researchers.

Although institutions and departments set overarching policies, it is often left to individual PIs to enforce and stick to such policy; outside of PhD and student programs. Given the high degree of freedom that PIs are awarded, it is therefore also important that they adopt clear and transparent guidance on the use of preprints and the expectations in their own groups.

### Policy components

<b><u>Dissemination of outputs</u></b>	<b><u>Lab journal clubs</u></b>	<b><u>Reuse</u></b>	<b><u>Peer Review</u></b>	<b><u>Hiring</u></b>
--	---------------------------------	---------------------	---------------------------	----------------------

All articles will first be posted as preprints <b>prior to submission to a journal</b>	All lab journal clubs will discuss preprints and post public reviews	All preprints must be available under a CC-BY or CC0 licence to permit reuse	All preprints will be <b>publicly and transparently peer reviewed</b>	All <b>lab hires must support preprint posting</b> and associated activities. These will additionally be <b>strongly encouraged for applications to join the group</b> .
All articles will be posted as preprints <b>at the time of submission to a journal</b>	Lab journal clubs will commonly discuss preprints	Preprints must be available under a Creative Commons licence such as CC-BY, CC0, CC-BY-SA, CC-BY-NC, CC-BY-ND	Transparent peer review is <b>encouraged</b>	Preprints and open science practices will be <b>encouraged when applying</b> to open positions
Some lab outputs may be preprinted on a <b>case-by-case basis</b>	Lab journal clubs may sometimes feature preprints	Preprints may be available under different licences but no specific guidance is given	Transparent peer review <b>may occur on some</b> preprints on a case-by-case basis	Preprints and open science practices will be <b>accepted when applying</b> to open positions
<b>No specification</b> on the use of preprints	<b>No policy</b> on the use of preprints in journal clubs	<b>No licence requirements</b> for preprints	No peer review guidance given	No communication in job adverts or interviews

Reproduced under a CC-BY licence from: <https://zenodo.org/records/13981665>

### Ideal adoption example

All research articles produced within the lab will be posted as preprints at least 1-month prior to journal submission. This policy aims to foster open science practices by ensuring early and widespread dissemination of research findings, facilitating feedback and collaboration, and accelerating scientific progress. Additionally, preprints will be made available under a Creative Commons license, such as CC-BY or CC0, to permit reuse and adaptation.

Preprints shared by the lab will undergo a public and transparent peer-review process. By participating in open peer review, lab members contribute to making the review process more accessible and accountable. Constructive feedback will be provided in the spirit of improving research quality, and reviewers' comments will be available for public view, supporting the growth of open science practices. As an extension of this, preprints will be a regular topic of discussion during lab journal clubs. These discussions will not only focus on the scientific merit of the research but will also encourage public reviews of preprints, fostering a culture of openness and transparency. Lab members are encouraged to

contribute to sharing public peer reviews of preprints discussed, providing valuable critique and insights that may benefit both the authors and the wider community.

### Low barrier adoption example

All research articles produced within the lab will be posted as preprints at the time of journal submission and will be available under a Creative Commons licence (such as CC-BY, CC0, CC-BY-SA, CC-BY-NC, CC-BY-ND). Preprints and publications shared by the lab are encouraged to undergo transparent peer review, and the lab will commonly discuss preprints in journal clubs. When applying to open positions with the lab, preprints and open science practices will be accepted in all application materials.

## Preprint review clubs

Traditional journal clubs are outdated and of limited benefit to ECRs, often led by the ECRs themselves and lacking a genuine training component. However, by simply changing to a preprint review club, you can transform the journal club concept, bringing it into the 21st century. Discussing and reviewing preprints is beneficial to science as the reviews can be posted and shared with the authors. These clubs can be virtual, cross-institutional and highly collaborative efforts, such as the [Immunology journal club](#), or in-person, local efforts that replace traditional journal clubs. One example are the open science [ReproducibiliTea](#) journal clubs that have grown to 31 countries and over 100 institutions.

As part of a preprint review club, or separately, you may want to publish your reviews. You can do this through personal websites, services like PREReview or repositories like Zenodo. You may also choose to review for services such as Review Commons or Rapid Reviews. Learn more about the [different ways of sharing a preprint review](#).

## Preprints as a training tool

Preprint review clubs are excellent training opportunities for lab members and students but they are not the only way in which preprints are useful for training scientists. If you are positioned to develop new modules or courses then utilising preprints is a great teaching tool.

However, if you are not positioned to create courses then you can direct lab members to existing communities and opportunities around preprinting. These enhance CVs and provide additional skills for ECRs whilst being low commitment and not distracting from lab work. These can also provide excellent networking opportunities beyond the immediate lab connections and field. Two of the best communities to join for preprint-related training and information are preLights and PREReview. We no longer recommend the ASAPbio community and unfortunately, eLife has stopped their Ambassador training.

### preLights

Run by the Company of Biologists, [preLights](#) is a preprint highlighting service, similar to a news and views article. It is an online community of mostly ECRs who voluntarily chose interesting preprints to write short “preLight” articles aimed at a broad scientific audience.

These are posted on the preLights website and offer a good opportunity to develop wider writing skills and network with the authors of the chosen preprints.

## PREreview

[PREreview](#) is a preprint review platform with a strong focus on community and inclusiveness. This is an ideal platform to upload preprint peer reviews but researchers can engage further by joining the slack community. This is an excellent community for ECRs to learn more about preprints and engage further in the open science community. Additionally, the PREreview team runs a yearly Champions program to train ECRs in preprint peer review and facilitate their contribution to preprint review materials.

## How to promote your preprint after posting

Congratulations on posting your lab's first (or latest) preprint! Once you have posted a preprint there are a number of things you can do to help spread your work and increase visibility.

### Create a social media thread

Although this is particularly effective if you already have a good sized following, even without this you should craft a social media thread outlining your preprint. This is a great way to publicise your work and potentially catch the eye of editors, curation and highlighting efforts or potentially journalists.

Currently (in 2025) the primary social media platforms that are best for sharing science are BlueSky, Mastodon (for certain communities and fields) and LinkedIn. BlueSky is a particularly effective platform for science [communication](#). If you're new to BlueSky there is a [guide](#) to getting started as a scientist.

Tips on making a great social media thread about your preprint:

- Put your audience first - *why* should people care about what you did?
- Share your approach, ideally with a personal touch - *what* did you do? Did you encounter any difficulties?
- Outline your key findings - don't share everything or your risk losing interest
- Include images or gifs - make it visually appealing and fun
- Share beyond the preprint - add anecdotes, data that didn't make it or other extras

### Present your preprint at conferences and seminars

A preprint gives you true “scoop” protection and so you are free to fully discuss the work at conferences and seminars, in a way you perhaps may feel uncomfortable doing without that protection. This can be a great way to advertise your most recent work, seek collaborators and feedback or even build up excitement for the final publication.

## Solicit preprint reviews, comments or highlights

You can directly request that the community review your preprint from services like [PREreview](#). You can also submit your preprint to services that partner with journals to accelerate the publication process, such as [Review Commons](#) or [PCI](#). A list of preprint review services can be [found on our website](#).

For additional attention, you could request a preLight be written to highlight your preprint. Your work may also be included in lists (for example those maintained by [The Node](#)) which help to amplify preprints from specific fields.

## Appear on podcasts

If your work has broad appeal then consider contacting science podcasts to see if you or your lab members could appear to discuss your preprint. [Preprints in Motion](#) is one such podcast focussed specifically on discussing preprints with ECRs.

## Nudge efforts to encourage OS practices

Engaging in open science efforts are sometimes viewed as too time consuming and a distraction from work that is more directly related to career advancement. However, even for the busiest of people, there are smaller “nudge” efforts that they can undertake that are low effort but help to shift the discussion towards preprints and a better scholarly communication system.

## Celebrate posting preprints

This may sound like an obvious step but celebrating every small step is vital for a positive lab environment. Posting your preprint is the first time your work is released fully to the world and is a perfect opportunity to have a celebration. Some labs hold preprint cake parties to celebrate, as an example.

## Stop reviewing for for-profit publishers

A significant cause of many of the negative behaviours and poor academic culture is the publish or perish system, primarily created by for-profit journals. Traditional publishing is based on a business model that generates higher profit margins than some of the world's biggest companies whilst exploiting free labour of academics. Estimates place the value of peer review, globally, at around [\\$6 billion per year](#). One simple action you can take is to refuse invitations to peer review for any for-profit or non-values aligned publisher. In order to not cause delays for other academics, it is recommended that you actively decline the invitation to review and ideally inform the journal as to your reason (a template statement is provided below).



Dear [Editor's Name],

Thank you for inviting me to review the manuscript titled "[Manuscript Title]." While I appreciate the opportunity, I must respectfully decline this invitation.

I am increasingly concerned about the business models of for-profit publishers and the negative impact these models can have on the integrity of scientific research and on the health of academics. For these reasons, I have chosen to limit my engagement with journals that operate on such principles.

Going forward, I will review preprints and share those reviews publicly, to the benefit of authors and readers.

Thank you for your understanding.

Best regards,

## Email signature supporting preprinting

You can add a line to your email signature that promotes preprints and includes links to particularly important studies on preprinting. An example is included here:

*Preprints help you get [more citations](#), [speed up dissemination](#) of science, are vital in [public health emergencies](#) and are beneficial for [ECR's](#). Most importantly, **preprints have the potential to meaningfully change science & research culture**. Post, read and [review preprints](#). Learn more [here](#).*

You could also include a link to your latest preprint or your labs preprint policy (if you have one).

## Remove journal names and poor proxies from CVs/websites

We're perhaps all a little guilty of at least from time to time relying on poor proxies such as journal name, impact factor or H-index to judge another researcher or their work. However, these are highly damaging practices and a simple way to begin to move away from them is to remove these things from CVs and websites. Additionally, when people publish work you should ask "what" they published not "where" or "which journal". Here are [5 steps](#) to move away from poor proxies.

## Discuss preprints regularly

One of the simplest steps towards normalising a new behaviour is to simply talk about it - a lot! Discuss preprints in your lab or department regularly. If you've just read an interesting preprint that you think a colleague would find interesting then share it with them. Journal clubs and lab meetings are excellent places to normalise these kinds of discussions.

# Where to learn more

The following are resources that provide further information.

- [Listen & subscribe to the Preprints in Motion podcast](#)
- Subscribe to the Rippling Ideas [YouTube channel](#)
- Join the [PREreview](#) slack community [External]
- Write or share [preLight](#) articles [External]
- [A guide to preprinting for ECRs](#) [External]
- [Collection of Open Science Integrity Guides](#) [External]
- [10 steps to make your lab a better place for ECRs](#)
- Preprint [FAQs](#)
- Some useful reading
  - [History of preprints](#)
  - [Potential future of publishing](#)
  - [The role of preprints during the COVID-19 pandemic](#)

## About the author

[Jonny Coates](#) holds a PhD in immune cell biology and is recognised as a leading expert on preprints and academic culture. He has a strong track record in advocating for preprint adoption and improvements to the culture within academia. He created and hosts the [Preprints in Motion](#) podcast and has featured in numerous media outlets including BBC radio, Nature and The Economist. In 2024 he founded [Rippling Ideas](#), an organisation dedicated to advancing preprint adoption, fostering trust in research and improving the culture of academia. This is achieved through advocacy, training and resource creation.

Contact [jonny.coates@ripplingideas.org](mailto:jonny.coates@ripplingideas.org)

## Licence

This guide may be re-used with permission and is provided under a CC-BY-NC licence. Download the guide from Zenodo: <https://zenodo.org/records/17063873>