

Preprint policy toolkit for funders

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Developing and implementing a preprint policy

1 Benefits of science communication via preprints

Preprints are scientific manuscripts uploaded by the authors to a preprint repository or server, often before or in parallel to being submitted to a peer-reviewed journal. Preprint adoption can benefit the entire scientific ecosystem and bring new opportunities for innovation in scholarly communication and in the dissemination of scientific knowledge. For funders, the adoption of policies that promote preprints brings the following benefits:



Preprints enable the rapid dissemination of findings from the funded research, and in turn accelerate scientific progress by making those findings available to the community earlier.



Preprints allow funders to get a broader and more-up-to date overview of their grantees' research contributions.



Preprints facilitate sharing negative/null results, which prevents duplication of efforts and waste of research funds while increasing reproducibility.



Preprints are free to post and free to access, ensuring equal and global access to the research supported by funders, which can be particularly relevant for researchers at settings with limited funding.



Preprints allow assessing outputs based on their scientific merit, independent of journal-based metrics (e.g. impact factors), and thus, align to recommendations by [DORA](#) and initiatives for responsible metrics in research assessment.

2 Support for the use of preprints

Preprints are widely established in fields such as physics, mathematics and computer science, where scientists have submitted manuscripts to the preprint server arXiv since the 1990s. In the life sciences, the use of preprints for science communication is relatively new but has grown rapidly since 2013, stimulated by the emergence of bioRxiv, a preprint server dedicated to the life sciences. Prompt sharing of research data related to COVID-19 in the form of preprints played an important role in the response to the pandemic.

Preprints are widely accepted by most publishers and journals. Several publishers operate their own preprint servers (e.g. Research Square, Authorea or SSRN, owned by Springer Nature, Wiley and Elsevier respectively), and many journals partner with preprint servers to allow authors to post their

manuscript as a preprint in parallel to consideration at a journal (e.g. The Company of Biologists, PLOS and *eLife* partner with bioRxiv).

Public and private funders such as the US National Institutes of Health (NIH), the European Research Council (ERC) or the Wellcome Trust have policies that allow or encourage grantees to share their work as a preprint. [The UNESCO's recommendations on open science](#) highlight the need for innovative approaches for open science at all stages of the scientific process, and support the use of preprints to disseminate research early and to foster community-driven collaboration.

There are a number of preprint servers available, which vary in disciplinary scope, regional and/or language focus and governance models. A list of preprint servers with information on their characteristics and policies is available at asapbio.org/preprint-servers.

Understanding preprint adoption in the disciplines covered by the funder

While the use of preprints in the life sciences has grown substantially over the last years, there are some disciplines with greater adoption than others. The distribution of content on [bioRxiv](#) shows that neuroscience, bioinformatics and microbiology have the strongest representation, while other research disciplines show slower adoption. Thus, it can be relevant to review preprint adoption trends specific to the disciplines covered by the funder. To do so, the funder might consider reviewing the reports available via [bioRxiv and medRxiv](#) or data from databases that index preprints such as [Dimensions](#).

3 How to inform the policy review

Many research funders now have a mandate for outputs to be made open access, where the grant holder is required to provide open access to the publications arising from the funded research. However, publication in some journals in a manner compliant with the policy may incur significant financial costs.

By adopting a policy that allows or encourages preprints, funders are providing an additional avenue for researchers to make their work broadly accessible to academic and non-academic audiences, without any additional financial burden.

Any policy should also account for other research outputs (e.g. data, protocols, software) and consider whether preprints provide a suitable avenue for those or whether other platforms exist for those types of outputs (i.e. data or protocol repositories).

Review grantees' preprinting practices

When considering whether to implement a preprint policy, funders can review current and past grantees' preprinting behavior, to gain understanding of whether this approach to science communication is already common within their communities. The funder may consider checking for preprints posted by grantees - and how this stands as a fraction of their journal publications - via databases that index both journal articles and preprints, for example [Europe PMC](#).

The funder may run a survey to collect information on their current and past grantees/applicants' perceptions about preprints, and whether they have previously deposited a preprint. A high level of acceptance and adoption of preprints among grantees/applicants would suggest a smoother implementation of a policy that allows or encourages preprints.

An alternative or a complement to a survey can be to host workshops/seminars with applicants and grantees to discuss their views on preprints, any concerns that may arise about a policy that incorporates preprints, and to raise awareness about the use of preprints more broadly.

4 Policy implementation and review

Upon review of grantees' practice and views, as well as additional external and internal information that may be relevant, the funder can inform the preprint policy they would like to develop. If the policy will include preprints, the funder should consider what their overall position will be regarding preprinting behavior, that is, whether the funder will mandate, encourage or allow preprint submissions (and/or citations) from their applicants and/or grantees.

The table below provides a guide for how funders can incorporate preprints into aspects of their policies and processes, ranging from not accepting preprints (designated with -) to increasing support up to full acceptance of preprints (designated with +).

	Dissemination of outputs	Citation	Reuse	Review	Compliance
+	Grantees are required to deposit preprints upon submission to a journal or sooner.	Citation of preprints is encouraged in grant applications and reports, anywhere research outputs are cited.	Preprints resulting from funding must be made available under a CC BY or CC0 license, which permit broad reuse of the material.	Reviewers are provided guidance requesting they take into account preprints as valid outputs.	Funder collects proof of compliance with preprint deposition mandates, with grant disbursement contingent upon conformity.
	Grantees are encouraged to deposit preprints, upon journal submission or sooner.	Preprints can be cited in grant applications and reports.	Preprints resulting from funding must be made available under a Creative Commons license such as CC BY, CC0, CC BY-SA, CC BY-NC, CC BY-ND.	Reviewers are notified that preprints may be included and may be provided associated reviewer guidance.	Funder asks grantees to provide proof of compliance with preprint policy, which is informally considered in future applications.
	Grantees are allowed to deposit preprints.	Preprints can be cited in grant applications and reports.	Preprints resulting from funding may be available under different licenses, no guidance is provided.	Reviewers may be notified that preprints may be included.	Funder spot checks for inclusion of preprints.
-	No specification on whether preprints are allowed.	Preprints cannot be cited in grant applications or reports.	No license requirements for preprints.	No reviewer guidance provided regarding preprints.	No mechanism to check for inclusion of preprints.

Based on www.orfg.org/policy-development-guide

We invite funders to consult the [Preprint policy template for funders](#) for a guide on elements to include in a preprint policy and suggestions for how to articulate the policy.

Preprint policies can be regularly reviewed and updated as necessary. The funder can therefore take an incremental approach to any preprint policy, for example, a policy initially allowing preprints might be updated later on to signal a stronger encouragement for preprints, should the funder find widespread support and adoption of preprints among its grantees.

Communicating the preprint policy to grantees and applicants

In order to be effectively implemented, the preprint policy should be communicated to all involved parties (e.g. applicants, grantees, reviewers). We recommend that the policy is made available via the funder's website. In addition, the funder can directly communicate the policy to grantees, applicants and grant reviewers via email or other channels of communication such as newsletters, informal sessions with applicants/grantees/reviewers, and its inclusion in application platforms. Dissemination campaigns through social media can also be an effective tool to inform the target audiences about any updates to the funder's policy.

Any existing guidelines for grant reviewers should also be updated to indicate that preprints may be included.

Guidelines for grant reviewers

Where funders implement a policy that mandates, encourages or allows deposition of preprints, and/or preprint citations in grant applications, they should inform grant reviewers of this policy. The funder should also provide clear guidelines to grant reviewers on how preprints should be considered in all applications and interviews.

- The evaluation of preprints should focus on the scientific merit of the work, independent of whether the preprint has been subsequently submitted to or published at a journal, or any associated journal metrics (e.g. the impact factor).
- Reviewers should be encouraged to provide an overall assessment of the work reported in the preprint, and to summarize the main findings, models and techniques in the preprint and how these informed their evaluation - beyond just mentioning that a preprint exists.
- Reviewers can be advised to check whether there are associated public reviews for the preprint (e.g. reviews received via platforms such as Review Commons, Peer Community In or the journal *eLife*). If associated reviews exist for the preprint, the reviewer may consider those as part of their evaluation.

Policy review

Funders are encouraged to conduct a regular review of their preprint policy, in order to ensure that it remains accurate and up-to-date, and consider whether changes are needed to make it clearer and/or more effective. The policy review should consider whether and how it aligns to the funder's mission and goals, and the impact of the policy on grantees, the scientific communities the funder works with, and other stakeholders (e.g. the public and societal actors).

The process of policy review might include:

- An analysis of awardee behavior and compliance with recommendations or requirements for preprint deposition.
- An evaluation of best research practices based on awardees' needs or suggestions, which could be collected through a survey.
- A public consultation on the preprint policy open to the broader research community.

Any updates to the policy following a review should also be communicated to grantees/applicants, as well as the research community.

Evaluating Policy Compliance

Funders might consider tracking awardees' compliance with their preprint policy, in order to monitor the implementation of the policy and expected research dissemination practices, and inform any review to the policy or necessary clarifications.

Funders should provide guidance to awardees on how they can report their compliance with the policy, and also communicate how policy compliance will be evaluated (e.g. in grant agreement documents). Mechanisms to evaluate compliance may involve a requirement to provide links to preprints in any application or grant report - in this context, any requirements for deposition of preprints at a particular repository/database should be made clear to awardees.

Funders should also communicate to awardees the possible consequences of non-compliance with the policy, for example, whether this would lead to consequences regarding future applications, or the withdrawal of funding.

Preprint policy template for funders

The policy template on the following page provides a guide for any funders seeking to incorporate or further support preprints as part of their policies. The template starts with an outline of the funder's expectations for grantees regarding the dissemination of research outputs in the form of preprints, followed by elements aiming to provide clarity to researchers regarding what preprints are, requirements around persistent identifiers and licenses, recommendations for preprint servers to use (if any), and citation guidelines.

With regard to requirements about preprints, the three possible positions mentioned in the template are described as follows:

Mandate

The funder requires that research outputs are made available in the form of a preprint.

Encourage

The funder supports the use of preprints to disseminate research outputs.

Allow

The funder notes the possibility for grantees to disseminate research outputs in the form of a preprint.

Funders who have an existing policy regarding open access to research outputs may wish to incorporate additional text to clarify how preprint deposition relates to the funder's open access policy.

Policy template

[Funder name] {mandates/encourages/allows} that grantees deposit their work in the form of a preprint.

A preprint is a scientific manuscript that is uploaded by the authors to a preprint repository or server without formal peer review. The preprint is a complete and public draft of a scientific document that is often also submitted to a peer-reviewed journal.

[Funder name] recognizes that preprints can be a valuable way for researchers to publish their results; in particular to speed dissemination, establish early claim to research findings, obtain feedback and incentivize collaboration.

Preprints should be deposited in a recognized publicly accessible archive or preprint server (such as, but not limited to, arXiv, bioRxiv, medRxiv, ChemRxiv, PsyArXiv) that ensures the content is accessible, provides versioning options, and links to the published journal record, if available.

Preprints may be included in applications and/or reports only if they have a permanent identifier such as a Digital Object Identifier (DOI) or any other persistent identifier.

[Funder name] {requires/encourages} that included preprints are available under an open license such as a Creative Commons license. **{(If applicable) To maximize the availability of the work, awardees are encouraged to select a Creative Commons Attribution (CC-BY) license for the preprint, as this allows access and broad reuse by both human readers and machines.}}**

[Funder name] {encourages/allows} the citation of preprints in grant applications. **{(If applicable) anywhere other research products are cited (e.g. applicant's track record, state of the art, preliminary results).}}**

To cite the preprint, applicants must mention that the object is a preprint in the citation and include the Digital Object Identifier (DOI). Where relevant, the citation must also include information about the document version (e.g. most recent date modified).

Example for citation of preprint in the text, e.g.

(Brierley et al., 2021 BioRxiv preprint)

(Brierley et al., 2021 preprint. DOI: 10.1101/2021.02.20.432090)

Example for citation of preprint in the reference list, e.g.

Brierley, L., Nanni, F., Polka, J. K., Dey, G., Pálffy, M., Fraser, N., & Coates, J. A. (2021).

Preprints in motion: Tracking changes between preprint posting and journal publication during a pandemic. BioRxiv preprint v3, DOI: 2021.02.20.432090.

Brierley, L., Nanni, F., Polka, J. K., Dey, G., Pálffy, M., Fraser, N., & Coates, J. A. (2021).

Preprints in motion: Tracking changes between preprint posting and journal publication during a pandemic. BioRxiv preprint, DOI: 2021.02.20.432090. Version 3, posted on 14th October 2021.

Where the manuscript is subsequently published in a peer-reviewed journal, it is recommended to link the preprint record to the journal publication, to ensure transparency regarding versions of the same manuscript.

References/Additional resources

ASAPbio #biopreprints2020 survey on views about preprints
(collected responses by researchers, funders, librarians, editors and others):
<https://asapbio.org/biopreprints2020-survey-initial-results>

ASAPbio list of preprint servers: <https://asapbio.org/preprint-servers>

ASAPbio webinar 'The impact of preprints for early career researchers':
www.youtube.com/watch?v=zwCQXRllUsl

Author testimonials on their use of preprints:
<https://asapbio.org/preprint-info/preprint-stories>

Confederation of Open Access Repositories (COAR) & Centre pour la Communication Scientifique Directe (CCSD, France) directory of preprint servers and integrated services:
<https://doapr.coar-repositories.org/>

Declaration on Research Assessment (DORA): <https://sfdora.org/>

Funders with policies that support preprints: <https://asapbio.org/funder-policies>

'Good Practices Primer - Preprints': <https://osf.io/pgs2w> - Part of Tananbaum, G. (2022, October 25). Developing a Toolkit for Fostering Open Science Practices: Proceedings of a Workshop. <https://doi.org/10.17605/OSF.IO/T4BAW>

Recognizing Preprint Peer Review
<https://asapbio.org/recognizing-preprint-peer-review>

White House Office of Science and Technology Policy (OSTP) on 'Ensuring Free, Immediate, and Equitable Access to Federally Funded Research':
<https://www.whitehouse.gov/wp-content/uploads/2022/08/08-2022-OSTP-Public-Access-Memo.pdf>