

Hi Reddit, we're Darla Henderson and Marshall Brennan of ACS Publications. Ask us anything about preprint servers such as ChemRxiv!

AmerChemSocietyAMA <sup>1</sup> and r/Science AMAs<sup>1</sup>

<sup>1</sup>Affiliation not available

April 17, 2023

### Abstract

ACS AMA Hi Reddit! Darla Henderson and Marshall Brennan here from ACS Publications! We are responsible for ChemRxiv a preprint server for chemistry launched in fully functioning beta form with strategic input from the American Chemical Society (ACS), the Royal Society of Chemistry (RSC), and the German Chemical Society (GDCh) as a community-led project. ChemRxiv allows researchers to post their early manuscripts – and all of the source data – online ahead of submission to a journal in order to facilitate discussion and feedback on the work prior to formal publication. ChemRxiv is taking a “data first” approach to preprints, and allows a wide (and growing!) array of different file types to be viewed and interacted with right from the browser. In the past six weeks, ChemRxiv has already helped to disseminate more than 82 preprint manuscripts and revisions prior to peer review on every subject from computational chemical theory to natural product synthesis. We believe that preprints accelerate research, increase transparency, and level the playing field for researchers across career stages and geography – and we're looking to continue developing ChemRxiv in a way that best meets the community's needs and expectations of such a tool. Darla Henderson, PhD: I am the Publisher and Asst. Director of Open Access in the Global Journals Development team of ACS Publications. I am responsible for the strategic and financial oversight of ACS' open access programs and journals, and also co-conceived and oversaw the development of ChemRxiv. I joined ACS in 2008, where initially I oversaw the general and multidisciplinary chemistry journals portfolio, including JACS, and launched new journals such as ACS Catalysis. This followed a stint in book publishing at John Wiley & Sons. I have a PhD in organic/biological chemistry from Duke University. I previously co-hosted an AUA on “Open Access Chemistry” in early 2016 <https://redd.it/42r7xk> Marshall Brennan, PhD: I am the Publishing Manager at ChemRxiv; I oversee the day-to-day development and quality control of ChemRxiv. I earned my PhD from the University of Illinois at Urbana-Champaign before undertaking a postdoctoral fellowship at UT Austin. I spent a year and a half as an editor for Nature Chemistry before moving to the ACS to work on ChemRxiv. Ask us anything about preprint servers! We'll be back at 1pm EDT (10am PDT, 5pm UTC) to start answering your questions.

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### [ACS AMA](#)

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The physics ArXiv is quite popular for communicating physics work well before it's published, do you think this chemistry version will take hold as well? What will that mean for traditional chemistry journals?

[nate](#)

Quite right, and we do really think that ChemRxiv will take hold! Not only are we seeing submissions across a diverse set of subject areas (we have 16 categories for folks to choose from when submitting, and we've had contributions in 14 of them in the ~7 weeks that submissions have been open), but the groups that we would expect to have more of a loyalty to arXiv (computational, physical) are beginning to gravitate to ChemRxiv because we handle raw data and SI much better — one can upload an .xyz file and have a reader download it (and even view its 3D structure right in the browser) rather than having to reconstruct the coordinates from a PDF, which is an error prone process which, of course, is

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currently not a possibility. So yes, I think there's a lot here for chemists specifically, and we've seen a strong enough response that I'm quite confident that it will stick around.

Regarding traditional journals, the peer review process remains as important as ever, so they're not going away. What ChemRxiv does is let authors discuss and hopefully improve on their papers before peer review. With (ideally) higher quality papers making it to editors, we can expect higher quality publications after peer review, and so it really is a symbiotic relationship! /MB

Chad Mirkin, (assoc. ed.) stated at a recent ACS conference during a ACS Pubs Q&A session that JACS will not accept papers that have been uploaded to Chem Rxiv {or any other preprint service} because this counts as a prior publication. 1) Are you aware of any other ACS Publications that will reject papers that uploaded to Chem Rxiv? 2) In your opinion will ACS Pubs change this policy in the future, or is it determined by the head editors of the respective journals?

[dschne](#)

When we started this journey and discussion with the community about a year and a half ago, very few ACS journals allowed preprints to be submitted to the journal. At this time, ca. 80% of ACS journals say yes to preprints – noting that not all policy documents are updated, those are in progress as we speak. JACS, Organic Letters, and Journal of Natural Products currently disallow preprints, and Journal of Chemical Education, Chemical Research in Toxicology are on a case by case type of basis (sometimes yes, other times no). Similarly, Chemical Reviews and Accounts of Chemical Research, currently both review type journals, do not address preprints in their policies – in practice, there's been no demand from their market to allow preprints.

The beauty of ACS is that when we say “community driven” we mean “community driven”. New journals are brought on by community demand, the Editor in Chief of each journal is a practicing researcher, a leader in the field who is identified, recruited, and recommended by a community “search” committee to the board of directors, the health of the journal editorially and how it is serving the community is evaluated at least every 5 years by a committee of community members. Editors of ACS journals as the representatives of the communities the journals serve, determine the content that is published in their journals. We respect that practice. We are working alongside all the Editors, teams, and journals to provide information and data about preprints, help identify questions outstanding, and advance those for discussion, and dig in to develop best practices around preprints that allow ChemRxiv to meet every chemistry community's needs. /DH

Could you talk a bit about why preprint papers are of value to researchers? What's driving growth in the preprint industry?

[adenovato](#)

Certainly — the short answer is that rapid dissemination leads to rapid evaluation, and that generally improves the pace and quality of research. Too often the peer review process can prevent ideas from permeating the community for up to a year in some cases (remember that, even at a quick-to-publish journal, many papers are rejected and resubmitted, which adds to total review time). In the current system, grant submissions can be impacted, job prospects for students and postdocs can be complicated, and research efforts can be duplicated (imagine if you had recently embarked on a project, and saw a paper that “scoops” it — it had likely been done for a while by the time it was published in a journal, and so if it had been preprinted you could have seen the nascent project and adjusted your focus, or, even better, reached out to collaborate and perhaps have better outcomes than one would have had on their own. We've seen countless examples of this by chemists using arXiv and bioRxiv (off the top of my head, I know Jan Jensen has written about this on his blog at Molecular Modeling Basics), so it isn't a pipe dream: it actually happens! /MB

@Darla Can you comment on any plans to change JACS policy to allow preprints in the near future? I know many of the the other ACS journals have no issue therewith, but I'm just curious.

[nicotedesco](#)

Sure - see answer above to dschne. We continue to engage, provide answers to questions arising, and encourage discussion of preprint policies with the entire JACS editorial team. /DH

Hello. I'm a pre-print skeptic. Here's your chance to change my view on the subject.

My problem with pre-prints is that they disseminate potentially wrong information since nobody has properly vetted the material. I've seen a lot of papers go through the review process and come out radically different the other side. This past year I've been an author on a paper submitted that, after review, we've decided to pull entirely because the reviewers rightly pointed out flaws to our science. I've been a reviewer where similar things occur.

Why, then, would I want to use your services? Are your services merely for those with such little faith in the review process doing work that they are willing to go all-in before someone takes a look? Otherwise, it feels to me that you are making scientists gamble with their integrity. In the physics pre-print services we've seen massive embarrassment due to error in pre-publications, some have even led to people being fired. If the whole incentive hinges upon "well, if you want to stake a claim on your findings, then do pre-print" I think that premise only encourages more sloppy reporting in an era where people are already too sloppy due to high needs to publish by their respective institution.

On the other end, I don't even know if I'd ever even bother to read a pre-print publication knowing the high error rate. Published papers that have gone through proper peer review have a poor rate of reproducibility that it is frustrating to scientists. Adding this prior segment seems like a waste of time to readers.

[desantoos](#)

You're right in that the peer review process does catch errors — and sometimes it doesn't. What preprints do is allow us to see a paper more quickly and perhaps catch some of these issues ahead of formal publication. As a former editor, we acknowledge that we can only get so many people to review a paper, and so I would inevitably get emails after a paper appeared online saying "If only I had a chance to comment on this, I would have said X about the paper!" Now, through preprints, that conversation can be had before and during peer review by anyone who chooses to read the preprint. Normal peer review is still carried out prior to publication, and there are other benefits that I described in response to [/u/adenovato](#) above for why one might consider preprinting a paper to be of value, but ultimately the transparency imbued by having a pre-peer review version of a manuscript available should ultimately improve the quality of the final product. (Note: we're in the process of implementing commenting directly on ChemRxiv; it was available at launch, but due to some technical difficulties it is currently offline)

Regarding whether it's a waste of time to readers, well, that's a value proposition for each reader to make. No one is making anyone read these, but the fact that they are there to read gives us opportunities to accelerate and discuss research that wouldn't be possible otherwise, and so having access is ultimately better than not having access in a global sense. People are certainly staking their reputations on the quality of their work, just like they would be by submitting it to a journal, so we expect that the quality of preprints will reflect that, and past that we trust that scientists — who are rightly skeptics by training! — will be able to make their own assessments about the manuscript and data on ChemRxiv. /MB

I do apologize for a provocative question, but it needs to be asked:

(Proper question): ArXiv exists for 26 years. Why did ChemRxiv come so late (launched in late 2016)?

(Leading question): Was belated creation of ChemRxiv the result of ACS being gluteally propelled into it because [Sci-Hub accumulated >90% of ACS articles?](#)

[Idiocracy Cometh](#)

Interesting question. Even within physics, math, and related areas that arXiv serves, different sub-communities engaged with arXiv at different times and different rates. There's a great graph showing that uptake over time [https://arxiv.org/help/stats/2016\\_by\\_area/index](https://arxiv.org/help/stats/2016_by_area/index). Similarly, biologists have only recently (a few years ago) started to embrace preprints. I think it's natural that communities embrace different tools and forms of communication at different times – with chemists, you could argue that they've been very well served through a large variety of subject meetings where posters and presentations facilitate these conversations, as well as by the very rapid letters journals that exist. Chemistry in general has not had the extremely slow times to publication faced by other areas. That being said, in today's world, expectations around communication and advancing science are different, and speed is relative. Saving a few weeks or months can have a profound impact. There are also now, thanks to the efforts of arXiv and bioRxiv, more known advantages to preprints than speed, such as advancing collaborations, broader engagement with multidisciplinary scientists earlier in the process, and, of course, the recent interest by funding agencies in allowing or even encouraging authors to use preprints instead of "In press" for grant proposals, reports, and renewals. We think the time is now, and we're looking forward every day to what preprints can deliver to advancing chemistry/DH