Comment on NIH Proposal to Cap APCs

The views expressed here are my own and do not represent the positions of my employers or any organizations with which I am affiliated.

Research funded by taxpayers should be free to read, and ideally also free to publish. However, publishing entails real costs: professional staff and editors, plagiarism and data-integrity checks, peer review management, and long-term hosting. Unless NIH chooses to publish journals directly or negotiate collective agreements with publishers, an article processing charge (APC) cap is the most effective regulatory tool. Evidence supports a cap of **$7,500 per article for journals that do not compensate peer reviewers** and minimum **$9,000 for journals that do compensate reviewers**.

Why disallowing all publication costs is unlikely to work

A colleague recently had a manuscript accepted at a *Nature* journal. Because the work was NIH-funded, they were required to select the open access option and pay an APC of nearly $13,000. Rationally, one might expect the author to refuse, withdraw the manuscript, and instead post a revised version on *bioRxiv* (including the acceptance letter as proof of peer review), listing the paper as "accepted at *Nature*" on their CV.

But as behavioral economics shows, humans do not always act rationally. For the author, withdrawing from *Nature* was unacceptable. Instead, they asked the department chair to cover the cost. The chair agreed, because a *Nature* paper increases the prestige of the researcher, the department, and the institution, and may improve future funding prospects.

This anecdote illustrates the problem: in the absence of NIH support, elite U.S. universities will absorb these costs, while many others cannot. NIH-funded researchers at less wealthy institutions will be disadvantaged compared with international peers who remain able to publish in these journals.

Some argue that eliminating APC funding would reduce the number of journals by cutting off their revenue. However, this is unlikely. In *Scientific Reports* (Springer Nature), only 5% of 2023 papers acknowledged NIH support (see Table 1 at the end of this document). For *PLOS One*, the figure was 6%. By contrast, journals published by U.S. scientific societies rely heavily on NIH-funded authors: *Journal of Biological Chemistry* (44%), *Journal of Neuroscience* (47%), *Developmental Biology* (46%), *Molecular Biology of the Cell* (42%), and *American Journal of Human Genetics* (55%). Eliminating APC support could bankrupt these nonprofit societies, which are U.S.-based and internationally respected leaders in their fields. Would NIH want to create a vacuum for foreign societies to fill?

If NIH adopts this policy, it should be treated as an experiment with active monitoring and a willingness to halt if unintended harms occur. Alternatively, NIH should coordinate with other major funding agencies before proceeding. A joint approach by the world's largest biomedical funders would be more effective than unilateral action.

Why a $7,500 cap is appropriate

Setting an APC cap too low (e.g., $2,000) risks incentivizing publishers to relax standards and accept more papers with less rigorous review. Demand to publish would remain high, since researchers are rewarded primarily for producing papers, not for ensuring that those papers meet the highest standards of rigor. As long as career advancement depends on publication volume, scientists will continue to submit even if journal quality declines. NIH policies cannot change these underlying incentive structures, which are determined by universities and promotion committees rather than funding agencies.

Many publishers also operate a tiered system: one prestigious, selective journal (e.g., *Nature* or *PLOS Biology*) subsidized by a high-volume, less selective journal (e.g., *Scientific Reports* or *PLOS One*). A very low cap would strain smaller nonprofit publishers, consolidating power among a few large publishers and reducing diversity in peer review.

Accurate cost calculations are difficult, since publishers rarely disclose detailed financial data. Existing APCs reflect current market conditions, which would change under a cap. Using publicly available data from nonprofit societies in the USA that publish one or more journals (IRS Form 990, FY2023), a clearer picture emerges:

Publisher or Society	Publication Revenue (2023)	Papers Published (2023)	Price per Paper	Journals
American Society of Cell Biology	$913,169	205	$4,454	*Molecular Biology of the Cell*
American Society of Biochemistry & Molecular Biology	$4,233,525	1,587	$2,668	*Journal of Biological Chemistry*, *Journal of Lipid Research*, *Molecular & Cellular Proteomics*
Society for Neuroscience	$6,894,490	909	$7,585	*Journal of Neuroscience*, *eNeuro*
Society of Toxicology	$1,089,627	137	$7,953	*Toxicological Sciences*

The data also show that these societies often operate at a loss, requiring higher APCs to break even. In 2023, the American Society for Cell Biology reported a deficit of $1.8 million; if its publication revenue had been $6.0 million instead of $4.2 million, it would have broken even, corresponding to an APC of $3,809 per article. Similarly, the Society of Toxicology reported a $346,000 deficit; if its publication revenue had been $1.44 million instead of $1.09 million, it would have broken even, requiring an APC of $10,482 per article. Thus, a cap around $7,500 aligns with the real costs of nonprofit publishing. For-profit publishers would likely adapt to this level as well. While publishers might reset prices to the cap, a too-low ceiling would be more damaging, driving consolidation and weakening rigor.

Why a higher cap is justified when reviewers are paid

If journals compensate reviewers, an additional minimum of additional $1,500 per article is appropriate. This incentive recognizes the value of expert review and is discussed separately in a comment submitted by The Company of Biologists.

Disclosure & compliance requirements

Price caps alone are blunt tools. To protect rigor and transparency, NIH should require journals that wish to receive APC funding to meet clear standards, much like companies that list on stock exchanges must meet disclosure requirements.

To qualify for the higher cap, journals should:

- Publish their peer review rubric and decision criteria.
- Report detailed annual peer review statistics (including full distributions, not averages).
- Publish reviews and editorial comments for all accepted articles.
- Allow open submission by all authors, not just members or affiliates.
- Provide free access to all published papers, regardless of date.
- Require preprints on nonprofit servers (*bioRxiv*, *medRxiv*, *arXiv*) and post reviews of rejected manuscripts there.
- Disclose financial details at the journal and business-unit level (e.g., *Nature Cell Biology*, *Cell Reports*), not just parent-company summaries.
- If compensating peer reviewers, then pay reviewers in cash, not in-kind benefits. Discounts on APCs or gift cards often benefit the employer rather than the individual reviewer and are underutilized, leading to inconsistent and inadequate compensation.

These requirements would reduce information asymmetries, increase accountability, and enable researchers to make informed publishing choices.

Potential problems with caps

- **Zero cap:** Eliminating APC funding entirely would collapse most journals without providing alternatives for NIH-funded researchers. Non-NIH-funded researchers in the USA or around the world would have a competitive advantage for publishing.
- **Low cap ($2,000–$4,000):** Smaller nonprofits could fail while large for-profits survive, creating oligopoly and reducing heterogeneity, making peer review less rigorous and more homogenous[1].
- **Minimal impact on large publishers:** Journals with low NIH author percentages may not adjust pricing.
- **Quality risks:** For-profit publishers may shift volume to lower-tier journals, while societies without such outlets may close.

There is precedent for resilience: the editorial board of Elsevier's *Journal of Informetrics* resigned and launched *Quantitative Science Studies* with MIT Press, cutting APCs from $2,000 to $800 while maintaining quality[2]. Such cases show adaptation is possible, but NIH must remain vigilant and ready to pivot if harm arises.

Alternative approaches

- **NIH–Publisher agreements:** NIH could negotiate collective APC agreements on behalf of grantees, as Wellcome Trust and the Gates Foundation have done with F1000 Research. This approach would relieve individual researchers and institutions of the burden of covering unpredictable APCs while leveraging NIH's scale to secure favorable rates. It would also benefit universities: librarians would no longer need to negotiate separately with publishers for subscription bundles or transformative agreements, simplifying workflows and potentially reducing administrative costs. Such negotiations, however, must remain independent of publisher and lobbyist influence to protect the interests of NIH-funded scientists.
- **Diamond model:** NIH could fund its own open-access platform, providing a free-to-publish, free-to-read venue for grantees. Past experience demonstrates feasibility: *Environmental Health Perspectives* (EHP), published by NIH since 1972, was long regarded as the leading journal in its field and known for rigorous peer review. However, on April 23, 2025, EHP stopped accepting new submissions "due to recent changes in operational resources". This underscores both the potential benefits and the vulnerabilities of a government-run publishing model, particularly with respect to sustainability and independence.

Conclusion

Capping APCs at $7,500 for standard journals and $9,000 for journals that pay reviewers balances fiscal responsibility with incentives for high-quality peer review. These levels reflect the real costs of nonprofit publishing while maintaining market diversity.

However, caps must be paired with transparency requirements, annual monitoring, and readiness to adjust policy if unintended harms arise. NIH could also complement caps with collective agreements or diamond-model publishing.

This policy would help restore balance to the publishing market, protect taxpayer investment, and ensure equitable dissemination of high-quality biomedical research.

Table 1

Journal (publications in 2023)	Publisher	Total Primary Research	Total NIH	% NIH
Biology Open	Company of Biologists	107	26	24%
Development	Company of Biologists	333	118	35%
Journal of Cell Science	Company of Biologists	257	72	28%
Journal of Experimental Biology	Company of Biologists	309	25	8%
Disease Models & Mechanisms	Company of Biologists	153	56	37%
Nature	Springer-Nature	1468	146	10%
Scientific Reports	Springer-Nature	21926	1054	5%
Nature Communications	Springer-Nature	8021	1701	21%
Nature Genetics	Springer-Nature	278	79	28%
Nature Cell Biology	Springer-Nature	196	51	26%
Nature Methods	Springer-Nature	322	64	20%
Nature Medicine	Springer-Nature	359	82	23%
Communications Biology	Springer-Nature	1209	279	23%
PLOS One	PLOS	13718	887	6%
PLOS Biology	PLOS	422	98	23%
PLOS Genetics	PLOS	393	112	28%
PLOS Medicine	PLOS	140	15	11%
Cell Reports	Elsevier	1575	646	41%
Cell	Elsevier	350	183	52%
Molecular Cell	Elsevier	304	103	34%
Nucleic Acids Research	Oxford University Press	1141	284	25%
mBio	American Society of Microbiology	711	178	25%
Toxicological Sciences	Society of Toxicology	137	37	27%
Endocrinology	The Endocrine Society	140	42	30%
Developmental Biology	Society for Developmental Biology	124	57	46%
Journal of Biological Chemistry	American Society of Biochemistry & Molecular Biology	1266	562	44%

Journal of Neuroscience	Society for Neuroscience	602	285	47%
Journal of Cell Biology	Rockefeller University Press	252	104	41%
Molecular Biology of the Cell	American Society of Cell Biology	205	86	42%
American Journal of Human Genetics	American Society of Human Genetics	146	77	53%
Genetics	Genetics Society of America	201	111	55%
FASEB Journal	Federation of American Societies for Experimental Biology	546	88	16%

Methods

Denominator (primary research):

https://eutils.ncbi.nlm.nih.gov/entrez/eutils/esearch.fcgi?db=pubmed&retmode=json&rettype=count&term=**N**[Journal]%20AND%20**Y**[pdat]%20AND%20("Journal%20Article"[Publication%20Type])%20NOT%20(Review[Publication%20Type]%20OR%20Editorial[Publication%20Type]%20OR%20Letter[Publication%20Type]%20OR%20Comment[Publication%20Type]%20OR%20News[Publication%20Type]%20OR%20Retracted%20Publication[Publication%20Type]%20OR%20Retraction%20of%20Publication[Publication%20Type]%20OR%20Published%20Erratum[Publication%20Type])

Numerator (NIH-funded, primary research):

https://eutils.ncbi.nlm.nih.gov/entrez/eutils/esearch.fcgi?db=pubmed&retmode=json&rettype=count&term=**N**[Journal]%20AND%20**Y**[pdat]%20AND%20("Journal%20Article"[Publication%20Type])%20NOT%20(Review[Publication%20Type]%20OR%20Editorial[Publication%20Type]%20OR%20Letter[Publication%20Type]%20OR%20Comment[Publication%20Type]%20OR%20News[Publication%20Type]%20OR%20Retracted%20Publication[Publication%20Type]%20OR%20Retraction%20of%20Publication[Publication%20Type]%20OR%20Published%20Erratum[Publication%20Type])%20AND%20("Research%20Support,%20N.I.H.,%20Extramural"[Publication%20Type]%20OR%20"Research%20Support,%20N.I.H.,%20Intramural"[Publication%20Type])

Where N = journal's unique ISSN number, Y = publication calendar year (2023)
Primary research includes peer-reviewed primary research articles and excludes reviews,

erratums, retractions, and front matter (eg news & views, commentaries, science news stories)

References

1. Larivière V, Haustein S, Mongeon P. The oligopoly of academic publishers in the digital era. PLoS ONE. 2015 Jun 10;10(6):e0127502. PMCID: PMC4465327

2. Waltman L, Larivière V, Milojević S, Sugimoto CR. Opening science: The rebirth of a scholarly journal. Quantitative Science Studies. 2020 Feb;1(1):1–3.