

Submitted to publicaccess@ostp.gov in response to Doc. No. 2011-28623 (76 FR 68518) by
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Office of Science and Technology Policy
Task Force on Public Access to Scholarly Publications
725 17th Street
Washington, DC 20502

Dear OSTP Task Force on Public Access to Scholarly Publications:

The Genetics Society of America (GSA) welcomes the chance to offer its comments to the Office of Science and Technology Policy (OSTP), and is thankful for the opportunity to provide input on public access to scholarly publications.

Founded in 1931, GSA is the professional scientific society for genetics researchers and educators. Its nearly 5,000 members work to advance knowledge in the basic mechanisms of inheritance, from the molecular to the population level. GSA is dedicated to promoting research in genetics and to facilitating communication among geneticists worldwide through publishing two scholarly journals—*GENETICS* and *G3: Genes/Genomes/Genetics*—and sponsoring a number of professional conferences including the biennial conference on Model Organisms to Human Biology, an interdisciplinary meeting on current and cutting edge topics in genetics research, as well as annual and biennial meetings that focus on the genetics of particular model organisms. The GSA seeks to foster a unified science of genetics and to maximize its intellectual and practical impact.

Since 1916, the journal *GENETICS* (<http://www.genetics.org/>) has published high-quality, original research on a range of topics bearing on inheritance, including population and evolutionary genetics, complex traits, developmental and behavioral genetics, cellular genetics, gene expression, genome integrity and transmission, and genome and systems biology. *GENETICS* is one of the world's most cited journals in its field, ranking fourth in total citations in Thomson ISI's Genetics & Heredity Category. For almost 100 years, *GENETICS* has published seminal articles in genetics and genomic science; for example, a paper in *GENETICS*¹ established the use of *Caenorhabditis elegans* as a model genetic organism, which subsequently led its author, Sydney Brenner, to receive the 2002 Nobel Prize in Physiology or Medicine. *GENETICS* has operated on a subscription-based business model with the primary consumers of the journal—individuals and institutions—paying

¹ S. Brenner. 1974. The genetics of *Caenorhabditis elegans*. *Genetics* 77(1): 71-94.

for immediate access to its full contents. The journal moved to an online-only publishing model beginning in January 2010.

In 2011, GSA launched *G3: Genes/Genomes/Genetics* (<http://www.g3journal.org/>), a fully open-access journal that is available only online. *G3*'s mission includes providing a forum for the publication of high-quality, foundational research, with a particular focus on research that generates useful genetic and genomic information including novel datasets of broad interest to the research community. *G3* subsidizes its publication with an author-pays business model.

Given our longstanding experience as a publisher, GSA has been able to develop and hone policies that balance access to our publications, service to our members and the public, and the economic viability of our business models. The Society and its journals have continued to innovate, taking a number of steps over the years to best serve our authors and readers. We do so in the following ways:

- Free access to *GENETICS* is provided as a benefit to all GSA members;
- All *GENETICS* content is made freely available to all 12 months after publication; the journal half-life² is greater than ten years, illustrating that the journal use extends well beyond the short-term;
- *GENETICS*' complete archive dating to 1916 is online at Stanford University's HighWire Press, and all content is free 12-months after publication;
- *GENETICS* advance online publication allows research articles to be published online (ahead of final electronic publication) within two weeks of acceptance, and all articles are free-to-read; these advance online articles are also deposited into PubMed Central;
- *G3* is fully open-access and allows authors to retain copyright via Creative Commons licensing agreement;
- *GENETICS* provides authors with an option of paying a small fee to make their article immediately available free of charge;
- *GENETICS* and *G3* participate in secure archiving programs through LOCKSS (Lots of Copies Keep Stuff Safe);
- *GENETICS* and *G3* have developed a unique feature in publishing that links content in individual articles to the relevant model organism databases (which are generally federally funded), thereby enriching the article content and allowing for direct access to the originally deposited data;
- *GENETICS* and *G3* require all data associated with an article to be available in public databases or published in that article or available as supplemental information hosted on the journal websites;
- *GENETICS* content is currently available in the National Library of Medicine's PubMed/Medline database; all *GENETICS* content is deposited by the GSA into

² Half-life is the median age of articles cited in Thomson Reuters' *Journal Citation Reports*. This means that half of all citations to articles in *GENETICS* are to articles published at least ten years earlier, suggesting that *GENETICS* articles remain useful and highly relevant over time.

PubMed Central within 12 months of article publication, in compliance with the access policy for NIH-supported research;

- *G3* has just received approval for inclusion in PubMed Central and is in the process of its application review with PubMed;
- *GENETICS* and *G3* use Digital Object Identifiers (DOIs) and participate in CrossRef, allowing for article and metadata cross-linking among publishers;
- *GENETICS* and *G3* are COUNTER-compliant, providing librarians with usage statistics and information that allows institutions to understand how their users are accessing *GENETICS* and *G3* content;

GSA has significant concerns about any policy requiring private-sector publishers to allow free access to their journal content with embargo periods determined by the government or hosted on websites other than their own. These requirements are likely to erode peer review and peer editing and negatively affect existing business models (and therefore the viability) of publishers in all sectors of scholarly publishing.

The careful development of these policies requires determining the true extent of the problem: what is the level of public demand for access to the scientific literature, and in what ways is that demand not currently being met? If the problem is such that a broad-based federal policy is needed to address it, care must be taken to craft a procedure that will meet public demand while ensuring that scientific publishing will not only survive, but thrive in a way that allows continued innovation in publishing and continued dissemination and promotion of scientific research.

Perhaps even more important than providing a mechanism for reviewing and disseminating research articles, scholarly journals provide an essential service for the discipline: setting the standards of the field. This is done through peer review where the synthesis of the opinions of reviewers provides a consensus view on whether the research is sound and meets the standards for evidence and objectivity. Many journals also ask the question of whether the research advances the field enough to justify readers' limited attention. For journals like *GENETICS* and *G3* sponsored by scientific societies, these decisions are made by practicing scientists, the authors' peers, because they are uniquely qualified to set the standards of the field. Although peer reviewers and peer editors generally offer their service without compensation, they rely upon editorial support provided by professional societies and their staff. That support, which has real and legitimate costs, enables for what is perhaps the most important value that scholarly journals provide: **expert and judicious setting of the standards of the field.**

GSA's responses to the questions posed by OSTP relate primarily to the needs of the GSA membership and communities we serve and are not meant to be comprehensive of all aspects of scholarly publishing nor to represent the viewpoints of other organizations or publishers.

(1) Are there steps that agencies could take to grow existing and new markets related to the access and analysis of peer-reviewed publications that result from federally funded scientific research? How can policies for archiving publications and making them publically accessible be used to grow the economy and improve the productivity of the scientific enterprise? What are the relative costs and benefits of such policies? What type of access to these publications is required to maximize U.S. economic growth and improve the productivity of the American scientific enterprise?

Our journals—and many others—include articles based on results from federally funded scientific research and those funded from other sources. *GENETICS* and *G3* provide GSA with a source of revenue to provide service to our members and the entire genetics community in facilitating communication about genetics research and education. **If this revenue source is upset by government mandates on publishers, it will severely alter the services GSA can provide to enrich the genetics community and will jeopardize the future of scholarly publishing in our discipline.**

Since the GSA membership includes the genetics research and education community in all 50 states and around the world, the Society's policies and priorities represent the needs of the professional community of geneticists. As such, our subscriptions, fees, and policies—including those with regard to access to journal content—have been developed to best serve the needs of the genetics community, those scientists who publish in our journals and rely upon the work published by others.

While federal funding for research is critical to the production and analysis of research data, final publication of these results in scholarly journals such as *GENETICS* and *G3* incorporates a significant amount of additional time, work, technology, and community engagement that defines today's state-of-the-art publishing environment. Any claim that federal funding "pays for" the content of *GENETICS* ignores the cost and added value of the robust peer reviewing, editing, and publishing processes and other added-value services that publishers like GSA provide.

Moreover, **revenue recovered from journal subscriptions enables GSA to drive further innovation in the field of scholarly publishing.** For this reason, the development and implementation of any new requirements imposed on publishers (including embargo or access policies) must be done with care, based on sound empirical evidence that such a policy is truly needed or desired by taxpayers—and not already available in other venues.

GENETICS' readership and usage data indicate that the journal is well-read and well-accessed by our core audience, which includes genetics and genomics scientists and researchers, the vast majority of whom have access either through an institutional subscription or through their own GSA membership.

Because of *GENETICS'* excellent reputation and penetration within the U.S. scientific community, increased readership for *GENETICS* and *G3* will likely occur primarily in international markets. We are currently working to promote the journals in those markets and to increase *GENETICS'* institutional subscriber base around the world, maximizing the contributions of the global community to the work of GSA. Together, this suggests that

expanded public access to *GENETICS* content is not needed for the U.S. research community—as most already have access—but would be providing free access to scientists outside of the United States who would otherwise be willing to pay.

GSA believes that **economic growth and scientific productivity are best served through the federal government's investing in scientific research** through grants and funding, enabling the scientific community to answer questions and enhance understanding that is worthy of publication in scholarly journals. We believe that the publication and dissemination of research articles is best left to a free market and to the publishers who invest a considerable amount of time and resources in their operations, meeting the needs of scientists within the discipline.

(2) What specific steps can be taken to protect the intellectual property interests of publishers, scientists, Federal agencies, and other stakeholders involved with the publication and dissemination of peer-reviewed scholarly publications resulting from federally funded scientific research? Conversely, are there policies that should not be adopted with respect to public access to peer-reviewed scholarly publications so as not to undermine any intellectual property rights of publishers, scientists, Federal agencies, and other stakeholders?

GSA believes that intellectual property interests are best left to individual publishers, authors, and their institutions, similar to patent rights. The federal government's role is best left to enforcing existing copyright laws. The GSA journals support two forms of copyright, leaving it up to authors to determine which best meets the need for a particular article. With *G3*, authors retain copyright through the use of a Creative Commons License. With *GENETICS*, GSA has a generous policy that allows authors the reuse of all or part of their research in other forms, and permits other publishers to use or reuse all or part of the articles in re-published form for books, journal articles, educational materials, and other publications.

(3) What are the pros and cons of centralized and decentralized approaches to managing public access to peer-reviewed scholarly publications that result from federally funded research in terms of interoperability, search, development of analytic tools, and other scientific and commercial opportunities? Are there reasons why a Federal agency (or agencies) should maintain custody of all published content, and are there ways that the government can ensure long-term stewardship if content is distributed across multiple private sources?

GSA supports a decentralized approach for managing public access to peer-reviewed scholarly publications that result from federally funded research. It is critical that there be a **single host for the final version of record for journal articles**, and we believe that the repository should most naturally be the copyright holder and publisher, i.e., the journal. This canonical version of the article should be the final published version, and only the publisher is in a position to provide access to that article. The final published version has had value added by the publisher, including editing, copy-editing, layout, table and figure work, the addition of technological features such as links to gene databases (see below), and other resources. Moreover, only the publisher is in a position to ensure that any errata or corrigenda are appropriately housed with the originally published article. Duplicating the record in a centralized database runs the risk of having the so-called “public” and

“official” versions differing, causing confusion within the community as to which article is the “correct” version.

As described in response to question 5 below, PubMed and Pub Med Central already provides access to scholarly articles, enabling researchers to find desired publications regardless of where the articles themselves are housed. In addition, a growing collection of private and public-private resources (including Google, Google Scholar, Scopus, Web of Science, HighWire Press, and other databases—as well as CLOCKSS, LOCKSS, and Portico for archiving purposes) has proven effective for the GSA journals.

GSA opposes the government’s gaining custody of our journal content and sees no reason why this would be necessary. To promote economic efficiency and avoid duplication of efforts by the government, readers should be directed to the version of record on the publisher’s website. The GSA encourages the government to work with scholarly publishers to provide links to the articles on the publisher’s website, as well as to provide usage statistics on article usage in PubMed Central. Similarly, we hope that the government would not expend the considerable costs and resources to duplicate existing archives held by individual journals and publishers.

(4) Are there models or new ideas for public-private partnerships that take advantage of existing publisher archives and encourage innovation in accessibility and interoperability, while ensuring long-term stewardship of the results of federally funded research?

GSA and many other publishers have been strong supporters of resources that make scholarly publications more easily accessible and have relationships with many content aggregators to promote access to our journal contents. In general, all **publishers value both access to and a secure archive of their journals and are committed to those efforts.**

Successful publishing industry-led initiatives such as CrossRef, Portico, LOCKSS, and CLOCKSS are examples of effective collaborations that foster innovative advances in archiving and retrieval. Similar efforts continue to improve discoverability and the ability of researchers to “mine” published data, as illustrated by Google and Google Scholar, and the GSA’s own partnerships with model organism databases like WormBase, FlyBase, and the *Saccharomyces* Genome Database (see below). Data formats and metadata specifications for interoperability and preservation change rapidly, as illustrated by the changes over the past ten years, and a high-degree of publisher agility is required.

(5) What steps can be taken by Federal agencies, publishers, and/or scholarly and professional societies to encourage interoperable search, discovery, and analysis capacity across disciplines and archives? What are the minimum core metadata for scholarly publications that must be made available to the public to allow such capabilities? How should Federal agencies make certain that such minimum core metadata associated with peer-reviewed publications resulting from federally funded scientific research are publicly available to ensure that these publications can be easily found and linked to Federal science funding?

Scholarly publishers have invested considerable resources to encourage search and discovery of their journal articles, with support from existing federal investment in products such as PubMed and PubMed Central. GSA believes that the private sector is best equipped to develop additional search, discovery, and analysis tools as such needs will undoubtedly need to be tailored to the needs of specific communities or areas of research—and will continue to evolve rapidly. Moreover, innovations such as Google Scholar demonstrate the value of private investment in these areas, and Google and Google Scholar provide the majority of access events to GSA journals.

GSA believes that **scholarly publishers drive the development of new technologies for delivering content and reaching readers**. These technological developments have transformed the traditional research “paper” into a multi-media product that may include significant supplemental material such as extensive information on methods, additional data, video clips, figures that can be downloaded as PowerPoint slides for teaching, and links to external sources.

With GSA’s close connection to the consumers of our journal content, the Society is in a good position to understand the metadata needs of those who are browsing and reading journal articles, noting that such metadata is likely discipline-specific. Therefore, it is beyond the scope of this report or of the GSA’s knowledge base to reveal or recommend metadata that would ensure effective search across all disciplines. Within our community, however, researchers value seamless links between scholarly publications and the annotated and curated genetic research data on which those articles are based. That is why GSA developed the capacity for readers to click on a gene name in a *GENETICS* article and land on the corresponding gene map in a database.

The development of this technological innovation involved hundreds of hours of work on the part of *GENETICS* staff and editors, the staff at the model organism databases, and HighWire Press, the online host for *GENETICS*. This kind of investment of time and financial support is illustrative of the value of scholarly publishers to the research enterprise and the commitment of scholarly publishers to serving the needs of our readership. **GSA would be unable to innovate and provide such value-added services without the revenue from the journal’s consumers**, who are willing to pay for such resources without the need for government support.

(6) How can Federal agencies that fund science maximize the benefit of public access policies to U.S. taxpayers, and their investment in the peer-reviewed literature, while minimizing burden and costs for stakeholders, including awardee institutions, scientists, publishers, Federal agencies, and libraries?

The primary scientific literature is often highly technical and specific and generally not understandable to a general audience. **Enabling public access will, thus, generally not advance public knowledge or understanding of the findings published in scholarly publications**. Federal agencies would be more effective at providing public access to scientific results by seeding the efforts of both the public and private sectors to maximize the benefit of public access to federally funded research, undertaking public awareness

campaigns that explain the results of research in ways that lay people can access, understand, and benefit.

The GSA journals, for example, are taking steps to ensure that findings published in *GENETICS* and *G3* are written in language accessible to a broad community. We also seek to reach those beyond the immediate research community through the monthly publication and distribution of highlights, which are available without subscription, for articles in *GENETICS*. GSA also features articles of particular interest and relevance to public concerns with press releases and notifications on the Society website and social networking platforms, among other mechanisms, to reach as broad an audience as possible. In fact, we are especially interested in and committed to explaining the relevance of articles published in *GENETICS* and *G3* to as wide an audience as possible.

The federal government's investment, again, lies in the research itself, and not in the publications process. **Scholarly publishers—in particular, nonprofit society publishers such as GSA—add value by adding quality.**³ Publishers provide the infrastructure, staff, and financial support for peer review and peer editing of manuscripts; professional editing of the final version; and the distribution, archiving and promotion of published research findings. Publishers appoint editors and select reviewers who have the appropriate expertise for evaluating submitted manuscripts. Final presentation, including graphic design and content presentation that maximizes search, retrieval, and usability, is handled by the publisher. Publishers such as GSA also seek to enhance dissemination of articles published in our journals, helping the public to access and understand the value of the research without requiring them to read the highly technical original literature.

(7) Besides scholarly journal articles, should other types of peer-reviewed publications resulting from federally funded research, such as book chapters and conference proceedings, be covered by these public access policies?

While GSA publishes neither books nor conference proceedings, we see little difference in any vehicle for the publishing of original research results. Nonetheless, our comments in this response are focused on peer-reviewed scholarly journals such as *GENETICS* and *G3*.

(8) What is the appropriate embargo period after publication before the public is granted free access to the full content of peer-reviewed scholarly publications resulting from federally funded research? Please describe the empirical basis for the recommended embargo period. Analyses that weigh public and private benefits and account for external market factors, such as competition, price changes, library budgets, and other factors, will be particularly useful. Are there evidence-based arguments that can be made that the delay period should be different for specific disciplines or types of publications?

GSA believes that the appropriate embargo period varies by discipline and publication, as evidenced by variable half-lives and immediacy indexes across and within disciplines, as

³ Sally Morris. 2008. What is quality in journals publishing? *Learned Publishing*, 21, 4–6 doi: 10.1087/095315108X248383

noted in the *Journal Citation Reports* published by Thomson Reuters. Therefore, GSA cannot speak in detail to evidenced-based arguments that can be made for delay periods in other disciplines, but rather, only to the embargo period(s) the GSA has determined are best for our own publications and field.

GSA is committed to providing complete and fast access to its publications, and we have every incentive to move information to publication as quickly as practical—while maintaining rigorous peer review and peer editing and the high standards that define our journals. The sooner information is made available, the sooner others can evaluate and build upon the work described in the publication. Each GSA journal has a business model based upon careful consideration by our scientist Board of Directors and Publications Committee, in accordance with the GSA's mission and vision in service to its members and the genetics community.

Manuscripts accepted for publication in *GENETICS* are published online early and are free to read within two weeks of acceptance. After final online publication, each issue is embargoed for 12 months. This embargo period allows *GENETICS* to offer a fair price and to retain its subscription base, which is critical to its current and future success, while at the same time enabling the Society to recover some of the costs invested in the publication process. This model also enables the Society and the journals to remain agile as we explore continued ways to serve our authors, readers, and institutional subscribers.

G3: Genes/Genomes/Genetics, GSA's fully open-access journal first published in June 2011, provides free access to all its articles immediately upon publication each month.

GSA feels that the government's modification of its current public access policy or mandating a specific embargo period has the **potential to threaten the subscription base of many publishers** (including GSA), as institutional subscriptions may erode with mandatory embargo periods shorter than 12 months. The impact could be far-reaching and would likely have an especially catastrophic effect on small- and mid-sized scholarly publishers who do not have the profit margins to absorb such revenue decreases or to generate revenue from other sources. It also has the potential to **substantially increase page charges for authors, thereby reducing the funds available for conducting the research itself**. Potentially, the scholarly publishing industry (and, importantly, the peer-review and peer-editing system as it exists today) could suffer irreparable harm.

The GSA's own research (including interviews with librarians within the past several years) and experience supports the existing 12-month embargo period for *GENETICS*. Anecdotally, a pilot test of a shorter embargo period for the journal (3 months) resulted in a high rate of subscription cancellations, threatening the economic viability of *GENETICS*.

Thank you very much for your consideration of our comments. Please do not hesitate to contact us if we can provide any additional information.

Sincerely,



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